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Testimony of Charles E. Peterson

I. INTRODUCTION AND SUMMARY

Q: Please state your name, business address and title.

A: My name is Charles E. Peterson; my business address is 160 East 300 South, Salt Lake City, Utah 84114; I am a Technical Consultant in the Division of Public Utilities (Division).

Q: On whose behalf are you testifying?

A: The Division.

Q: Please summarize your educational and professional experience.

A: I attended the University of Utah and earned a B.A. in mathematics in 1978 and a Master of Statistics (M.Stat.) through the Graduate School of Business in 1980. In 1990 I earned an M.S. in economics, also from the University of Utah.

Between 1980 and 1991 I worked as an economic and financial consultant and business appraiser for several local firms or local offices of national firms. My work frequently involved litigation support consulting and I have testified as an expert witness in both federal and state courts.

In 1991, I joined the Property Tax Division of the Utah State Tax Commission. In 1992, I was promoted to manager over the Centrally Assessed Utility Valuation Section. I provided

expert testimony regarding valuation, economic and cost of capital issues, both in deposition and formal hearing before the Utah State Tax Commission.

I joined the Division in January 2005 as a Utility Analyst; in May 2006 I was promoted to Technical Consultant. I have worked primarily in the energy section of the Division. In 2007, I earned the Certified Rate of Return Analyst (CRRA) certificate from the Society of Utility and Regulatory Financial Analysts (SURFA).

My current resume is attached as DPU Exhibit 2.1.

Q: Please outline the projects you have worked on since coming to the Division.

A: I was involved in evaluating cost of capital issues in the 2004 PacifiCorp rate case that was settled in February 2005. I subsequently co-authored a paper regarding the Capital Asset Pricing Model (CAPM) published in the *The NRRI Journal of Applied Regulation.*[1] I have recently co-authored an article related to ring-fencing that was published in *Public Utilities Fortnightly*.[2] In 2006 I provided written and oral testimony on cost equity supporting the stipulation that settled most issues in the previous PacifiCorp general rate case (Docket No. 06-035-21).

I have worked on DSM, HELP, and service quality and customer guarantees involving PacifiCorp. I was the Division lead on an internal research project regarding ring-fencing that resulted in a report to the Utah Public Service Commission (Commission). I was the lead of

[1] The NRRI Journal of Applied Research, vol. 3, December 2005, Ohio State University, Columbus, OH, pp. 57-70.
[2] Public Utilities Fortnightly, Vol. 146, No. 2, February 2008, pp. 32-35, 66.

the economics and finance group within the Division assigned to evaluate the proposed acquisition (the Acquisition) of PacifiCorp (the "Company") by MidAmerican Energy Holdings Company ("MEHC"). Please see Docket No. 05-035-54. I have been the lead on a number of Qualified Facilities (QF) contract cases.

Q: Have you previously provided testimony to the Commission?

A: Yes. I first filed testimony in the Uinta Basin Telephone case (Docket No. 05-053-01) regarding ring-fencing issues. I subsequently filed testimony in the PacifiCorp Acquisition matter (Docket No. 05-035-54). I provided testimony in support of the stipulation regarding cost of equity in the last PacifiCorp general rate case Docket No. 06-035-21. I have testified before the Commission on a number of smaller matters, including special and QF contracts, without pre-filing formal testimony.

Q: What is the purpose of your testimony in this matter?

A: My testimony discusses issues related to the cost of capital of the Company. Cost of capital includes capital structure, cost of common equity, cost of debt and cost of preferred stock. Cost of equity and overall cost of capital are important parts of the revenue requirement of a regulated utility. I will provide testimony supporting the Division's belief that the appropriate cost of equity for Questar Gas Company is 9.25 percent. As discussed briefly below, the Division has no significant disagreement with the Company's requested capital structure of 51.38 percent common equity and 48.62 percent long-term debt. The Company informed the Division on March 26, 2008, that it has successfully issued new debt. The debt issuance includes $50 million in a ten-year loan at 6.30 percent interest and a $100 million amount for

a term of 30 years at 7.20 percent. Based on the conclusion of this debt issuance the Division does not believe at this time there is a basis for adjusting the Company's cost of debt and accepts the 6.72 percent figure recommended by the Questar Gas.

Q: Are you asking the Commission to modify its view of the use of different methodologies?

A: Yes. The Commission last adjudicated cost of capital issues in the most recent previous Questar Gas Company general rate case (Docket No. 02-057-02). In that case, which follows the line of reasoning in earlier decisions, the Commission expressed justified skepticism about the CAPM model. The Commission appeared to largely reject consideration of the CAPM. However, the CAPM continues to be one of the most widely taught and used models to estimate the cost of equity capital. Additionally, it is appropriate for rate of return witnesses to consider more than one model in their testimony in order to, hopefully, have increased confidence in and to refine their estimates. For these reasons I recommend that the Commission recognize and consider this model as part of the decision-making process in arriving at an appropriate authorized rate of return for a utility.[3]

Q: Please outline the scope of your testimony.

A: First I will review and comment on the basis of the Company's capital structure request. Then I will review and comment on the Company's requests for cost of long-term debt

[3] By extension the Commission may want to consider other models as they are from time to time offered and supported by testimony.

Then I will describe the methods, data, and analyses that I used to arrive at the Division's recommendation for cost of equity including the selection of comparable companies.

I will review and comment on those areas in which I agree and disagree with testimony of the Company's cost of equity witness, Mr. Robert Hevert. I will also briefly comment on the testimony of Mr. John. J. Reed, a colleague of Mr. Robert Hevert, who has offered a study of efficiency measures in support of Questar Gas Company's request (through Mr. Hevert) that its allowed return on equity be awarded at or near the top of Mr. Hevert's range.

In order to prepare testimony, I set a cut-off of March 14, 2008 for stock prices and debt yields. If there are significant changes in the financial markets before the hearing on this matter in May, related to the gas utilities, I will update my analysis accordingly.

Q: Please briefly summarize the work and investigations that you have performed in this matter.

A: I have reviewed and analyzed the testimonies of Questar Gas witnesses David M. Curtis, the Company's Vice President and Controller, and Robert B. Hevert, an outside cost of equity witness along with the supporting testimony offered by Mr. Hevert's colleague John Reed. Mr. Curtis provided testimony regarding cost of debt and capital structure. Mr. Hevert filed testimony on cost of equity. I have also performed my own independent estimation of cost of capital, particularly with respect to cost of equity.

Q: What was the Company's original filed position regarding cost of capital?

A: When the Company originally filed for a June 30, 2009 test year, the Company asked for the following cost of capital rates of return:[4]

Component	Structure	Cost
Long-Term Debt	47.71%	6.56%
Common Stock	52.29%	11.25%
WACC	100.00%	9.01%

Subsequently the Commission ordered a test year 12-months ending December 31, 2008, causing the Company to file revised testimony. Finally last week, based upon the actually issuance of the anticipated new debt, Mr. Curtis revised the Company's cost of capital request to the following:[5]

Component	Structure	Cost
Long-Term Debt	48.62%	6.72%
Common Stock	51.38%	11.25%
WACC	100.00%	9.05%

Q: With respect to the Company's filed testimony, what have you concluded?

A: As outlined above, I determined that the capital structure and the cost of long-term debt are reasonable. I believe that the cost of equity point estimate recommendation by Mr. Hevert is too high and lies far outside what I would consider a reasonable range for Questar Gas Company.

[4] Direct Testimony of Bruce N. Williams, December 2007, p. 3.
[5] Direct Testimony (Updated) of David M. Curtis, Exhibit QGC 5.21U, p. 3 of 3.

Division Exhibit 2.2 summarizes the capital structure and cost of capital point estimates supported by the Division, and depicts the Division's final weighted average cost of capital is 8.02 percent. The following table summarizes the capital structure and cost of capital point estimates supported by the Division as set forth on Exhibit 2.2.

Component	Structure	Cost
Long-Term Debt	48.62%	6.72%
Common Stock	51.38%	9.25%
WACC	100.00%	8.02%

There is a caveat with this recommended cost of capital. The recommended cost of equity may be perceived by Wall Street as too low relative to Questar Gas' peers. The result may be a reduction in the Company's debt rating, which would generally result in a higher cost of capital. I will discuss this in more detail later in my testimony.

II. CAPITAL STRUCTURE

Q: What is Questar Gas' current capital structure?

A: I examined the latest actual capital structure of the Company that was set forth in the Company's SEC Form 10-K as of December 31, 2007. At that date, the Company's capital structure was 52.1 percent common equity, 47.9 percent long-term debt. These figures are almost identical to the Company's 2000 to 2007 average of 52.0 percent common equity and 48.0 percent long-term debt.

Q. Did you compare Questar Gas' capital structure with the capital structure of the other companies in the electric utility industry?

Yes. I compiled the capital structures of publicly traded proxy or comparable companies.[6] The data are derived from the SEC Form 10-K filed by each company. Division Exhibit 2.3 summarizes the capital structures of the comparable companies for both the most recent fiscal year and a multi-year average. These comparable companies have bond ratings from the principal rating agencies that are similar to Questar Gas' bond ratings.

The equity percentage in the capital structures of these comparable companies varied from about 42 percent to 65 percent. The average equity percentage is 52.8 percent, which is only slightly higher than Questar Gas' capital structure equity percentage. As can be readily seen from DPU Exhibit 2.3, Questar Gas Company's capital structure is very close to the middle of the range of these comparable companies.

Q: Did the Division consider the capital structure effects on the Company's debt ratings?

A: Yes. Standard & Poor's published criteria indicated that among other factors, a company with Questar Gas' risk profile[7] needs to have an equity (common and preferred) percentage of 50 percent, or higher, to maintain its current bond rating. Because Standard & Poor's includes short-term debt the result is the regulatory capital structure needs to be higher than 50 percent equity in order to satisfy this particular rating agency criterion. However, as suggested by the data in Division Exhibit 2.3, some variation in the capital structure relative

[6] The selection of the comparable companies will be described in detail in the cost of equity section of my testimony.

[7] Standard & Poor's gives a utility a risk profile grade between 1 and 10 (1 is best), based on its evaluation of the company's business and regulatory environment. Questar Gas Company has a risk rating of 3, an above average (low risk) profile.

to a rating agency guideline does not necessarily result in a change in the debt rating. However, the Company's efforts to date to maintain or increase somewhat its equity capital percentage are reasonable in light of this rating agency criterion, especially given the increase in capital expenditures envisioned by the Company.

Q. What is your conclusion regarding capital structure?

A. Questar Gas' request for a capital structure of 51.6 percent common stock and 48.4 percent long-term debt is reasonable.

III. COST OF DEBT

Q: What did you do with respect to the cost of debt?

A: I reviewed the testimony and related exhibits of Company witness David M. Curtis. Mr. Curtis requested 6.72 percent for cost of debt in his updated direct testimony. This debt rate is higher than the original request which was 6.56 percent. This change was due to the noticeably higher rate on the 30-year debt issuance at 7.20 percent announced March 26, 2008. Originally the Company forecasted that the debt could be issued for 6.50 percent. This higher rate surprised me. Mr. Curtis verbally explained to me that the current turmoil in the credit markets made it difficult to find investors willing to go out 30 years. According to Mr. Curtis, the Company did not want to issue all of the debt for 10 years, for which better rates are available because the Company already has a lot of debt maturing 10 years from now and it did not want to take the risk of having to refinance such a large portion of debt.[8]

[8] David Curtis on a telephone conference call that included Barrie McKay, March 27, 2008.

Q: What did you conclude regarding the cost of long-term debt?

A: The cost of long-term debt appears to be reasonable. The current difficulties in the credit markets are well publicized, so it seems likely that the Company would have difficulties in issuing debt at more favorable interest rates.

Q: Is there an issue here that remains open?

A: Yes. The question is did the Company need to act now, i.e. the end of March 2008, to issue the debt or could it have waited a few months to see if market conditions improved? Given the apparent unlikelihood of significant interest rate increases in the near-term, waiting might have been prudent if the Company's cash flow or short-term borrowings could have satisfied the Company's needs. Given the late date that this debt issuance occurred relative to the due date of testimony, I am reserving comment on this issue until a possible later supplement to my direct testimony.

IV. COST OF COMMON EQUITY

A. SUMMARY AND CONCLUSIONS

Q: Please summarize your cost of equity calculations and conclusion.

A: First I identified comparable (proxy) companies that I would use to estimate the cost of equity for Questar Gas. These comparable companies are summarized on Division Exhibit 2.4. I will explain the selection process for the comparable companies later in my testimony. Using data from public sources related to the comparable companies, I calculated several variations of the standard single-stage discounted cash flow (DCF) model and the two-stage

DCF model. In calculating these models, I used both the closing (spot) price of the common stock of these companies as of March 14, 2008 and the 30-day average closing stock price. I considered several variations of the capital asset pricing model (CAPM) using different historical periods to estimate the market risk premium, different sources of beta, and the 20-year U.S. Treasury bond and the 90-day U.S. Treasury Bill rates as estimates of the risk-free rate. Finally, I constructed estimates using a risk-premium model based upon Value Line financial strength ratings. This last Value Line-based model is considered here primarily as a "reasonableness test." I am not asking the Commission to endorse this model.

Division Exhibit 2.5 sets forth the results of the models and calculations that I have made. As indicated at the bottom of Exhibit 2.5, I recommend a point estimate of 9.25 percent as the cost of common equity applicable to Questar Gas Company at this point in time.

B. AN OVERVIEW OF COST OF COMMON EQUITY MODELS

Q: What methods did you look at in order to estimate the current market cost of equity for Questar Gas?

A: I used standard discounted cash flow models (DCF) coupled with two types of risk premium models to support and complement the DCF analyses. Regarding the DCF models I considered both the simple or single stage model and two-stage DCF models. Within each model I considered variations of different growth rates.

Risk premium models included the capital asset pricing model (CAPM) and a model I developed at the Utah State Tax Commission that uses factors based upon Value Line financial strength ratings to adjust the expected market return for varying risk.

Q: Please briefly describe the single-stage DCF model.

A: The single-stage DCF model is based upon the assumption that the value of ownership in a common stock is based upon the returns the stockholder expects to receive into perpetuity. It incorporates the current dividend and the prospects for growth in that dividend over time. Among other things, the model assumes that the expected price-to-earnings ratio for the company's stock will remain constant at the current level. In the single-stage model it is assumed that there exists a growth rate "g" that is constant, that is, this "g" will adequately serve as a surrogate for the growth in dividends for all periods of time in the future. The formula used is

$$k_e = D_0*(1+g)/P_0 + g$$

Where: k_e is the cost of common equity
D_0 is the current dividend
P_0 is the current stock price
g is the (constant) growth rate

Q: Please describe Two-Stage DCF models.

A: Two-stage DCF models are based upon the same principles and assumptions that the single-stage models are based upon except that for an initial period of years, usually five to ten years, the dividends are explicitly forecast. Following this initial period, a "terminal value" or lump-sum price is calculated which represents the estimated present value of the future dividends following the initial period. A discount rate is found for the explicitly forecast

initial period dividends and the terminal value such that the present value of the forecast dividends and terminal value equals the current stock price. This discount rate is the cost of equity in the two-stage DCF model.

Q: What are the strengths and weaknesses of the DCF models?

A: Briefly, the strengths of the models are their simplicity and ease of application, particularly in the single-stage version of the model. DCF models are derived directly from the financial theory that the price of a common stock is equal to the present value of the future cash flow available to stockholders. Two of the three principal components of the model are directly observable in the market: the dividend and the stock price. The future growth rate is necessarily an estimate, and thus can be controversial. The single-stage model can be faulted because of its assumption that there is a single growth rate that will apply to the company into the indefinite future (theoretically, forever). Non-constant and multi-stage DCF models can handle changing growth rates in the future and even changing discount rates, but they are increasingly complex.

Q: As you cited earlier, the Utah Public Service Commission in the 2002 Questar Gas general rate case adopted a 75 percent weighting on earnings growth estimates and a 25 percent weighting on dividend growth estimates. Do you have any comments on this weighting scheme?

A: For a single-stage model this weighting appears reasonable to me. It gives consideration to the fact that the model is theoretically about dividends and not earnings, but also reflects that dividend growth is related to earnings growth. Also implicit is the concept that differences

between dividend growth and earnings growth rates in the near-term has a greater effect on the cost of equity than any such differentials in the long-term. Therefore, I find that this weighting scheme is reasonable.

Q: Do you have any comments comparing single-stage DCF models with two-stage models?

A: Yes I do. The main advantage of two-stage (and even three-stage, or more) models is simply the ability to separate out the estimate into two or more components. If the analyst has a good basis for the specific separation of future cash flows into two or more components and has a good basis for the length of time of the initial stage(s) as well as the growth differentials for different components, then these models can be very useful. They would also be useful if the goal was to develop "what if" scenarios. However, in the case of cost of equity estimates for a company in a mature industry, the time periods used and the growth rate differentials tend to be subjective and even arbitrary. The analyst has to make more judgments and assumptions including (1) the length of the periods of different growth rates, (2) the growth rates for different periods, (3) the calculation of the terminal value (if any), and (4) whether, or not to assume the discount rate should remain constant and if not, how is it going to be estimated. Given these complexities with two-stage or higher multi-stage DCF models, it is difficult to imagine that they will generally be better estimators of cost of capital.

In the final analysis too, the results of a two- or more stage DCF model have a single-stage equivalent with a growth rate that is unlikely to be much different from the growth rates used

in a multi-stage model especially in a mature and price-regulated industry such as the gas utility industry.

For these reasons, I do not believe two-stage DCF models currently add a lot of new information to the estimate of cost of equity for gas utilities. However, further theoretical developments or better data, or both, for multi-stage models may increase the usefulness of these types of models.

Q: Please briefly describe the capital asset pricing model (CAPM).

A: The CAPM is a type of risk premium model. CAPM grew out of theoretical work in modern portfolio theory in the 1960s. Modern portfolio theory has shown that diversified portfolios could reduce the variability in the value of those portfolios and that a risk factor called "beta" could be used to estimate the relative variability of a portfolio to the market portfolio. The theory of CAPM is that the cost of equity is equal to the risk free rate plus a market risk premium adjusted by the risk factor beta. The market risk premium is the additional return over the risk free rate that a portfolio of all risky investments, i.e. the "market," would expect to earn. One of the theoretical underpinnings of CAPM is that investors through a diversified portfolio could virtually eliminate risk specific to a particular investment such that if the investor were sufficiently diversified, he would only face the risk of the market, which is also called systematic risk. Beta is a measure of the volatility of an investment's value compared to the market as a whole and will indicate to an investor how a given investment will affect the systematic risk of his portfolio.

Under CAPM theory investors are not rewarded for the specific risks of a particular investment because these risks can be diversified away. The only reward the investor receives is the systematic risk, represented by the beta that an investment brings with it to the portfolio.

The calculation of the CAPM cost of equity for a company is straight forward and is based upon readily available information. This model is widely taught in the academic literature and is widely used in industry.[9]

The formula for the CAPM is as follows:

$$k_e = RFR_0 + \beta * (MR\text{-}RFR)$$

Where: k_e is the cost of common equity
RFR_0 is the current risk free rate
β is beta, the risk adjustment factor
(MR-RFR) is the market risk premium which can be decomposed into two factors: The overall market return, MR, and the RFR that is compatible with the way the MR was estimated.

Q: Please briefly discuss the strengths and weaknesses of the CAPM.

A: The strengths include a firm theoretical basis for the model, its relative simplicity and intuitive appeal. The model is widely taught and apparently widely used in corporate

[9] Modern portfolio theory and the capital asset pricing model are discussed in detail in texts on corporate finance and investment valuation. See, for example:

Brealey, Richard A., Stewart C Myers and Franklin Allen. (2006). *Principles of Corporate Finance 8th ed*. New York: McGraw-Hill Irwin.

Brigham, Eugene F. and Joel F. Houston. (2007). *Fundamentals of Financial Management 5th ed*. Mason, Ohio: Thomson South-Western.

Damodaran, Aswarh. (2002). *Investment Valuation*. New York: John Wiley & Sons, Inc.

Parcell, David C. (1997). *The Cost of Capital – A Practitioners Guide*.

America. The downside of the model is that there is little consensus on how each of the factors are developed and how the model is implemented.

Different analysts will choose different risk free rates, which will affect the outcome as I demonstrate in my application. Academics sometimes favor using a Treasury Bill rate as the most nearly true risk free security, while practitioners (including this one) favor longer-term bond rates to match the apparent holding period of the asset. Beta is calculated in various ways using different base periods, market proxies and other measurement differences such as the frequency of the observations and even the day of the week the observations are made. Some services offer "adjusted" betas which "correct" the calculated or "raw" beta to account for the apparent tendency of betas to revert to a mean over time. The available services assume that the mean that the betas revert to is the market beta, 1.0.

There is evidence that utility company betas should not be assumed to revert to a mean of 1.0. Gombola and Kahl studied 109 utilities and found that the mean that their betas reverted to was 0.52. (Gombola, Michael J., and Douglas R. Kahl, "Time-Series Processes of Utility Betas: Implications for Forecasting Systematic Risk," Financial Management, Autumn 1990, pp. 84-93). A more recent study by Buckland and Fraser of British water utilities found a mean of about 0.7. However, this study is less compelling due to its limited scope and geographic location (Buckland, Roger and Patricia Fraser, "Political and Regulatory Risk in Water Utilities: Beta Sensitivity in the United Kingdom," Journal of Business Finance & Accounting, 28(7) & (8), September/October 2001, pp. 877-904.) In addition to these studies, I compiled betas on the guideline companies and their predecessors from Value Line

data back to 1981. These data are set forth in DPU Exhibit 2.18. This shows an average over this period of 0.67. There is no clear indication of a trend to 1.0. Given the way Value Line adjusts its betas, this would correspond to a raw beta of about 0.49, which is very close to the Gombola and Kahl results. These data suggest that Value Line's, and other similarly adjusted betas, are too high for regulated utilities.

Perhaps the most hotly debated factor is the market risk premium; that is, the premium return investors demand form stocks over the risk free rate. Some practitioners support the use of the arithmetic average of the difference between historical stock market returns (with the Standard & Poor's 500 Index as a proxy) and long-term (approximately 20 years) treasury bond returns since 1926 as popularized by Ibbotson Associates over the last 30 years or so.[10] However this approach has been criticized by academics and others on a number of grounds. Some say the historical time period is too long reaching back to a much different economy than we have today. Others have cited technical problems with the data Ibbotson compiled. One technical problem is referred to as "survivor bias." Survivor bias refers to the fact that the underlying Ibbotson data is composed of companies that were successful; losers are not included. Studies indicate that this bias inflates the Ibbotson-based market risk premiums by about 1 to 2 percentage points.[11] Another issue is the use of arithmetic averages versus geometric averages. Ibbotson Associates, Brealey, Myers, and Allen among others, argue that arithmetic averages produce the appropriate unbiased estimates of returns. Usually a decision tree-type analysis covering one or two years is produced showing how this would work. However, the use of arithmetic averages significantly overstates the actual returns an

[10] Stocks, Bonds, Bills, and Inflation (SBBI), any edition, published annually by Ibbotson Associates (now a division of Morningstar).
[11] Brigham and Houston, supra, p272.

investor would have actually received over a long historical period of time, a time period in which the geometric average accurately reflects the actual experiences of investors. For this reason and others, some experts advocate geometric returns.[12] In short there is great dispute about how the market risk premium should be estimated.

I have used the Ibbotson Associates data because it is readily available and widely used. The errors that are known, primarily the survivorship bias, can be corrected for or otherwise taken into account. A distinction must be made between the Ibbotson data and the "Ibbotson method." The "Ibbotson method" refers primarily to using an arithmetic average of the entire historical period since 1926, without any adjustment, to calculate the market risk premium. It is this "Ibbotson method" that I disagree with.

Empirical studies of stock returns have turned up anomalies that have suggested flaws in the CAPM. In order to correct for these anomalies (and save the basic theoretical construction) additional factors have been specified for the model such as the Fama-French three-factor model or add-ons to the model such as adjustments for size or industry. None of these adjustments have avoided controversy.

The practical implementation of the CAPM has resulted in much controversy and consternation. Despite these problems the CAPM is a widely used and has an established

[12] For a discussion of geometric versus arithmetic averages, see Damodaran, supra pp. 161-162 and PPC's Guide to Business Valuations, Volume 1, paragraph 502.8, Practitioners Publishing Company, Fort Worth Texas, February 2006

theoretical basis. These facts necessitate that an analyst at least consider the CAPM in evaluating a cost of equity problem.

Q: Switching models, please briefly describe the model based upon Value Line financial strength ratings.

A: This model begins with an estimate of the expected market return on common stock derived in the same manner as with the CAPM. The expected return for the entire market is then adjusted by a risk factor based upon the average Value Line financial strength rating for the comparable companies. Using the entire Value Line data set, a regression equation is matched to the average forecast total returns by financial strength rating class; this equation is constructed, in part, to estimate the returns between whole ratings. Starting with a weighted average rating for the entire Value Line universe of companies, a ratio of the expected returns to this average return is constructed. This ratio becomes the "risk factor" that adjusts the expected market return. Algebraically the formula is

$$k_e = f * MR = f * (MRP + RFR)$$

Where: k_e is the cost of common equity
RFR is the risk free rate
MR is the expected market return
MRP is the market risk premium
f is the risk adjustment factor

Generally, the higher the rating (i.e., the lower the risks as measured by that rating), the lower the expected return. Thus, higher ratings than the weighted average will result in a risk factor less than one; the highest financial strength rating should have the lowest risk factor, and vice versa. This all comports with current financial theory: the higher the risk, the higher the expected return; the lower the risk, the lower the return.

Q: Where has this model been used?

A: I used this model as a secondary estimate of cost of equity at the Utah State Tax Commission for about ten years.[13] Its use has been included in contested cases heard by the Tax Commission where other parties' experts had the opportunity to review and comment on it and I was subject to cross-examination.

Q: Do you expect the Utah Public Service Commission to rely on this model now, or in the future?

A: No. I offer it because I personally use it as another check on reasonableness.

Q: What are the strengths and weaknesses of the model?

A: The model is an alternative risk premium model that uses a factor based upon Value Line's widely known financial strength rating to adjust the expected market return. The market return is derived in the same way as the CAPM market return is estimated, so this provides an accepted starting point for the method. The risk factor is then empirically calculated based upon the industry financial strength rating (as represented by the comparable companies). Over several years the model has yielded reasonable results.

Among the possible negatives includes that the risks of a particular industry, e.g. the gas utility industry, may differ from companies in the Value Line universe even though they share the same financial strength rating. The model has not been published and consequently is not widely known or tested.

[13] By Tax Commission rule, the primary cost of equity model is a variation of CAPM.

C. COMPARABLE (PROXY) COMPANIES

Q: What are the "comparable companies" you referred to and how were they chosen?

A: One of the first steps in the estimate of cost of equity was the selection of publicly traded "comparable," or "proxy" companies whose market returns and characteristics would be studied in order to infer from them what the appropriate cost of equity should be for Questar Gas. The selection and use of comparable companies is obviously critical since Questar Gas itself is not an independent, publicly traded company. But even if Questar Gas were publicly traded it would be advisable to compare it with closely related companies in its industry. The Company's witness, Mr. Hevert, chose nine companies as cited in his testimony. These companies were selected based upon the criteria of (1) inclusion in Value Line's natural gas utility industry; (2) minimum of two analysts covering the company; (3) Standard & Poor's bond rating between BBB- to AA; (4) no recent dividend history; (5) beta measurement available within a reasonable range to the other companies; (6) net income at least 60 percent from regulated gas utility operations. Two of his companies did not strictly meet all of his criteria, but Mr. Hevert judged that they were close enough. Mr. Hevert eliminated WGL Holdings from his list primarily because he believed the DCF model result for WGL was too low. So in the end Mr. Hevert used eight companies as his comparable or proxy group.[14]

Q: Did your comparable company selection process differ from Mr. Hevert's?

A: Not substantially. The criteria I used to select comparable companies included (1) similar bond ratings to Questar Gas; (2) similar size to Questar Gas; (3) at least 60 percent of revenue and/or income derived from gas utility operations; and (4) "Other," i.e. judgement calls based upon specific circumstances.

[14] Direct Testimony of Robert B. Hevert, pp. 11-16.

More specifically, I chose companies whose bond ratings ranged from BBB- to AA with at least one rating agency (Standard & Poor's or Moody's) rating the bonds at least BBB (Moody's Baa). For size, the company's revenues and net plant in service had to be within plus or minus five times that of Questar Gas.

DPU Exhibit 2.4 lists my selection of comparable companies along with summary data supporting their selection. As you can see on DPU Exhibit 2.4, I have selected substantially the same companies as Mr. Hevert. For informational purposes only I have also included three companies that were used as proxies by analysts in the last Questar Gas rate case, but do not reasonably pass the criteria for selection today. Two of these companies, Questar Corporation and National Fuel Gas were rejected by the Commission in its decision. I include WGL since I do not find Mr. Hevert's reason for rejecting it compelling: the market information on WGL is one bit of data that adds to the overall picture, and should not simply be completely rejected. Because it passed my criteria I included Laclede Group which Mr. Hevert did not.

D. APPLICATION OF COST OF EQUITY MODELS

1. Single-Stage DCF Models

Q: Please describe how you developed the Single-Stage DCF models.

A: First, I calculated the current dividend yield for each of the comparable companies. The dividend was based upon annualizing the latest quarterly dividend. I considered both a spot price and a 30-trading day average closing price. The 30-trading day average closing price

was used to smooth out random fluctuations that might exist in the stock price data. These stock prices were based upon the closing prices as of March 14, 2008 and were obtained from Yahoo! Finance. Next, I took earnings and dividend growth rates from the latest Value Line reports on each comparable company as well as the latest updates on Value Line's web site accessed March 14, 2008 and combined those with the consensus earnings growth estimates reported on the Yahoo! Finance, Zack's and Reuters web sites for each comparable company. The Zack's and Reuters web sites were accessed after the markets closed on March 14, 2008. The Yahoo! Finance web site was accessed March 17, 2008.

DPU Exhibit 2.6 sets forth the earnings growth rate forecasts. Included in Exhibit 2.6 is an alternative Value Line calculation explicitly based upon the latest historical earnings per share as reported by Value Line and their 3- to 5-year forecast. In general, I did not use this alternative forecast but relied on Value Line's "official" growth rate forecast.

I considered several different growth rate estimates for the single-stage models. First I calculated growth rates based upon a weighted-average by applying a 75 percent weight to the average earnings growth rate from Value Line, Zack's, Reuters, and Yahoo!, and 25 percent weight to the dividend growth rate (from Value Line) pursuant to the Commission's decision in Questar Gas., Docket No. 02-057-02. Division Exhibit 2.7a sets forth the calculation of the DCF model using this weighted growth rate and the March 14 spot price and Exhibit 2.7b sets forth the same calculations but based upon the 30-day average price. Exhibit 2.8a and 2.8b set forth my adjusted rates using the spot and 30-day average prices, respectively. The adjusted rates were derived by eliminating any cost of equity estimates that

were less than 8.0 percent or equal to or greater than 11.0 percent. The 8.0 percent lower bound was selected based upon my judgment that a rate less than 8.0 percent is unreasonable within this particular exercise. The upper bound is more than two standard deviations above the mean cost of equity estimate based upon the 75-25 percent weighting. Along with the weighted average growth rate, cost of equity estimates were also made using only earnings growth rates and only dividend growth rates. All of these estimates are summarized on Exhibit 2.5.

An additional set of single-stage DCF estimates is included on Exhibits 2.9a and 2.9b where, again Exhibit 2.9a is based upon the spot price and Exhibit 2.9b is based upon the 30-day average price. In these exhibits I have calculated cost of equity estimates using the 10-year average growth in earnings and dividends as reported by Value Line. In the lower portion of these exhibits I have calculated an adjusted cost of equity by eliminating certain estimates that were judged to be too low, or too high. In this case the historical results using the 75-25 weighted growth and the earnings growth alone complement the results of the other models and consequents are considered in the final estimate. In any case, I believe it is useful to see what the DCF results are based upon relatively long actual historical growth rates.

As set forth on DPU Exhibit 2.5, the results of the single-stage models using the 75-25 percent weighting on earnings and dividend growth resulted in a range of 8.69 to 9.20 percent. The earnings-only growth models ranged from 9.25 to 9.56 percent. The dividend-only model ranged from 6.51 percent to 9.12 percent.

The adjusted models' results are in a tighter range. The 75-25 blend has a range of 9.14 to 9.20 percent; the earnings-only results are 9.25 to 9.45 percent; and the dividend-only growth models ranged from 9.08 percent to 9.12 percent.

In each growth case with the single-stage models, I prefer the "adjusted" models since they, in my judgment remove outliers that distort the results. This would make the range of single-stage DCF models 9.08 to 9.45 percent.

2. Two-Stage DCF Models

Q: Please describe the Two-Stage DCF models you developed for this case.

A: In developing two-stage DCF models I forecast the current dividends of each comparable company out five years a couple of different ways. First, I assumed that the dividends grew at the dividend growth rate forecast by Value Line. Second, I assumed that the dividends grew at the simple average of the average earnings and dividend growth rates. In each case for discounting purposes the dividends were assumed to occur in the middle of the year. A "sixth" dividend was forecast to occur at the end of the fifth year. This sixth dividend was used as a factor to estimate the terminal value. The terminal value was calculated by dividing the sixth dividend by the cost of equity less the terminal growth rate. The terminal growth rate was assumed in the first instance to equal the 75-25 percent weighted average of the earning and dividend forecast growth rates. In the second instance the terminal growth rate was assumed to be the earnings forecast growth rates. DPU Exhibits 2.10a and 2.10b set forth the calculations of the two-stage DCF growth rates based upon spot prices and 30-day

average prices, respectively. The results of the two-stage DCF models range from 8.65 percent to 9.09 percent.

3. CAPM Results

Q: How did you develop your CAPM models?

A: I looked at the CAPM model using different risk free rates, time periods, betas, and market risk premiums. I did this to give the flavor of how different factors in the CAPM affect the cost of equity estimate. As stated earlier, there is no consensus on precisely how the components of the CAPM should be estimated.

Q: What risk-free rates did you choose?

A: I chose the current 90-day Treasury bill (T-bill) yield which is about 1.18 percent, and the 20-year Treasury bond which is 4.31 percent. Academics have tended to use the T-bill rate the closest rate to a "true" risk free rate since it excludes inflation and time horizon risks, while Practitioners often use longer-term rates in order to match the holding period of the asset under consideration. I favor the longer-term rate and use the 20-year Treasury bond since it is approximately equivalent to the long-term government bond historical series compiled by Ibbotson and Associates (now part of Morningstar). However, I show the effects of the T-bill rate. In any case the estimated market risk premium should correspond to the type of risk free rate one chooses to be consistent.

Q: What beta estimates did you use?

A: For four of the five CAPM exhibits I used Value Line's latest adjusted beta. However, in DPU Exhibit 12e I use an average of betas derived from Zack's, Reuters and Yahoo! Finance web sites. The web sites were accessed March 14, 2008 for Zacks and Reuters and March 17 for Yahoo!. DPU Exhibit 11 summarizes the beta estimates for each comparable company from the four sources.

Q: Please describe the market risk premiums you used?

A: All of my market risk premiums are derived from historical data published by Ibbotson Associates. These data have been the subject of criticism for a number of reasons, some of which were cited above. I consider the 82-year "Ibbotson period" to be problematic since it includes market situations much different than today. The most obvious examples are the rise of mutual funds for small investors and more recently the internet making publicly available information almost instantaneously available anywhere in the world. There are also institutional changes since 1926 such as the creation of the Securities and Exchange Commission, multitudinous changes in accounting rules, and Sarbanes-Oxley. Furthermore, there have been suggestions and studies that indicate that investors' expectations may change over time. Thus a long historical period may not accurately reflect today's market and expectations.

Q: What historical period, if any, would you recommend?

A: I feel most comfortable with a 30- to 50-year time period. A 30- to 50-year period is long enough to smooth out the sometimes wide fluctuations in the data, but short enough to focus on the more recent data of the modern financial markets. A 30- to 50-year period does not avoid all of the pitfalls of using historical data. Other authorities recommend that at least 30 years be used when basing an estimate on historical data.[15]

Q: Why, then, do you include calculations in three of your CAPM exhibits that reflect the 82-year time period?

A: Because this time period has been widely promoted by Ibbotson and others as the "correct" time period, I did not want to exclude it completely from my analysis. I also wanted the Commission to be able to evaluate for itself the results of using that time period but applying different betas or using geometric averages as opposed to arithmetic averages.

Q: You have included the 82-year period calculations in your recommended average for CAPM, but not in your "reasonable range." Why have you done that?

A: As implied above, I'm not completely throwing out the data from a widely advocated method simply because I do not agree with it. However, the 82-year period market risk premium as advocated by Ibbotson represents an estimate that in my opinion is biased upwards. For example, in the proceedings of a conference on market risk premium sponsored by the

[15] PPC's Guide to Business Valuations, Volume 1, paragraph 502.9, Practitioners Publishing Company, Fort Worth Texas, February 2006

AIMR published in November 2001, of all the experts presenting at the conference, the Ibbotson representative was at the top end at 7 percent. Most of the experts thought that the market risk premium should be 5 percent or less going forward, and some were as low as 2 percent, or even less.[16] Thus while I am willing to include the results for the 82-year period for the consideration of the Public Service Commission, I believe these estimates may not be appropriate for identifying the top end of the reasonable range.

Q: What were your results from CAPM?

A: The CAPM models using Treasury bills as the risk-free rate produce results in the 7.0 to 8.5 percent range. While in this case these results might be considered, they are certainly, in my view, at the bottom end of the range. I do not consider them in my final reconciliation.

The CAPM models using the 20-year T-bond yields as the risk-free rate range from about 8.6 percent to 10.4 percent with an average of 9.4 percent. I consider the 9.0 to 9.75 percent figures to lie within the reasonable range for Questar Gas Company. DPU Exhibits 12a through 12e detail the CAPM calculations. DPU Exhibit 2.5 gives a summary of the results.

4. Risk Premium Results

Q: What were the results of your risk premium model based upon Value Line financial strength weightings?

[16] AIMR, Equity Risk Premium Forum Report, November, 2001, pp. 30-50. Also, see Shannon Pratt who discusses another reason to think the market risk premium is lower than the long-term historical Ibbotson data (Pratt, Shannon. "Valuers should lower equity risk premium component of discount rate," Business Valuation, 9 (11), November, 2003, pp. 1,6.).

A: The results ranged from 9.0 to 10.4 percent based upon the 20-year Treasury bond. The average was about 9.7 percent, including the estimate using the 82-year period. Again, in this case I do not consider the Treasury bill-based results to be particularly useful, although they support a somewhat higher rate than the similar CAPM results based upon Treasury bills. DPU Exhibit 2.13 details these results.

Q: What do the risk premium results suggest to you?

A: The risk premium results generally agree with and support the results of the other models.

V. MODELS AT THE UTAH STATE TAX COMMISSION

Q: When you worked at the Utah State Tax Commission what cost of equity models did you employ?

A: Since its adoption in December 1998, the Utah State Tax Commission's Property Tax Division (PTD) was obligated to follow Administrative Rule R884-24P-62 (commonly referred to as "Rule 62"). Rule 62 specified in some detail how cost of equity was to be calculated by the PTD for property tax valuation purposes. Specifically the PTD was required to use primarily the CAPM incorporating the full period Ibbotson data (now 82 years) and arithmetic averages to compute the market risk premium. The PTD was to use Value Line betas. The risk free rate was to be based upon the 20-year Treasury bond. Originally the PTD was told to put "at least" 75 percent weight on the specified CAPM, but this was later amended to "at least" 50 percent weight. To my knowledge this amendment had no significant affect on the actual practice of the PTD.

The PTD also used a single-stage DCF model similar to the one I have used here and the risk premium model I have used here. However, relatively little weight was given to either model.

Q: Did you agree with the "Rule 62" specification of CAPM?

A: No. I personally disagreed with the formulation because it adopted many of the specific procedures that I find particularly problematic because they result in cost of equity estimates that I believe to be strongly biased upward.

Q: Prior to the adoption of "Rule 62" how did the PTD typically compute CAPM?

A: The PTD would typically use a 30- to 35-year historical period to estimate the market risk premium. The PTD also put less weight on the CAPM in arriving at a final cost of equity estimate.

Q: What relevance does "Rule 62" have in this proceeding?

A: I think the only relevance would be to inform the Public Service Commission that another Utah State agency has adopted the CAPM as its primary method of estimating cost of equity and the Commission may wish to consider it.

VI. COMMENTS ON MR. HEVERT'S COST OF EQUITY RESULTS

Q: Please outline your comments on Mr. Hevert's cost of equity testimony.

A: I will first comment briefly on areas that I am in general agreement with Mr. Hevert. Then I will discuss areas of differences and disagreements in some detail.

Q: Please outline the areas of general agreement you have with Mr. Hevert.

A: Mr. Hevert discusses the need for an analyst to consider more than one model, which as indicated above, I agree with. He uses the single stage DCF model, the CAPM and a risk premium model in order to arrive at his conclusions. These are all fairly standard approaches with which I have no problem in principle.

Q: Are there general concerns about Mr. Hevert's approach to applying the models Questar Gas?

A: Yes. Mr. Hevert does not seem to trust market data when they give results that in Mr. Hevert's view are too low. I will highlight some of the many examples where Mr. Hevert rejects current market data.

On page 22 of his direct testimony he admits that analysts' forecasts are generally superior to simple time series data and that investors heavily rely on these forecasts. But two pages later at the top of page 24 he concludes "…the Constant Growth DCF results using only projected earnings growth rates are so low as to be of no analytical value." He then offers the Commission the alternative of using a retention growth estimate. Needless to say the retention growth estimate is higher.

There are two or three points to be made about the retention growth amount method. First as Mr. Hevert is aware, this Commission rejected this growth method in the last Questar rate case.[17] Second, while Value Line provides the data for the calculation and its analysts are almost certainly aware of the approach, it is clearly not a primary consideration of Value Line analysts since it the Value Line's own growth estimate noticeably differs from the retention growth.[18]

Mr. Hevert notes that the retention growth is also called "sustainable growth." As the name implies, this is a growth rate that can plausibly continue into the indefinite future. I believe that it is unlikely that a regulated utility could sustain growth rates for very long that exceed the growth rate of the economy as a whole. In fact, given the continuous drive for energy efficiency, it is likely that utility growth rates will be less than that for the whole economy. In this regard it is noteworthy that two government agencies are currently forecasting long-term nominal growth in the U.S. economy as measured by gross domestic product (GDP) to be 5 percent or less.

Assuming that GDP growth is a reasonable estimate for gas utilities, the growth rate used must reflect investors' expectations of future growth. Thus I believe Mr. Hevert would have better served the Commission by considering long-term GDP forecasts, such as those forecasts by two U.S. government agencies cited above, which are likely to set a ceiling for reasonable growth rates for utilities. The U.S. Congressional Budget Office (CBO) publishes 10-year GDP forecasts annually; the current version is CBO's Economic Projections for

[17] Utah Public Service Commission, Report and Order, Docket 02-057-02, see especially p. 29.
[18] Compare, for examples Columns 6 and 7 of Hevert's QGC Exhibit 3.3, p. 1.

Calendar Years 2008 to 2018 (updated February 2008). Likewise the Energy Information Administration (EIA) annually publishes their long-term GDP forecast in *Annual Energy Outlook 2008*. Currently the CBO forecast is for nominal GDP to grow 3.7 and 4.1 percent for 2008 and 2009, respectively; 5.2 percent annually over the period 2010 to 2013; and 4.4 percent annually from 2014 to 2018. The EIA's forecast is for a growth rate of about 4.4 percent over the period 2006-2030.[19]

In sum Mr. Hevert's rejection of growth rate forecasts that are "too low" is inappropriate in my opinion, likewise his rejection of DCF results based on those growth rates are inappropriate. By rejecting the current market prices and analyst forecasts, Mr. Hevert is implicitly telling the Commission that he knows better than the consensus of all market participants. Growth rates in the 4 or 5 percent range combined with current dividends are not unreasonable in the current market environment.

Q: You indicated earlier that you agree with Mr. Hevert including CAPM estimates. Do you agree with his applications of the CAPM?

A: No. Mr. Hevert applies the "Ibbotson method" which I have discussed at length earlier. While it is true that Ibbotson and some other authorities advocate this, it is rife with problems and, at best, should only be combined with other applications of CAPM such as I have done.

Q: Besides the general objections to Mr. Hevert's CAPM estimates do you have specific comments about the components he uses?

[19] Energy Information Administration, U.S. Department Of Energy, "Annual Energy Outlook 2008," Table 19.

A: Yes. Mr. Hevert uses 30-day averages and Blue Chip forecasts for his Treasury bond yield. These in my view are acceptable. However, he also uses a 180-day average which is likely to contain data that are no longer relevant. In general too, Mr. Hevert needs to update his data to reflect the current market conditions.

Mr. Hevert combines Value Line betas with Bloomberg betas (which are even higher than Value Line's betas). Both beta calculations adjust the raw beta estimates toward the market beta of 1.0. As I discussed earlier, it is questionable whether this is appropriate for regulated utilities.

Q: What is your conclusion about Mr. Hevert's CAPM calculations?

A: The application that Mr. Hevert has chosen in my opinion systematically places his CAPM estimates are at the high end of any reasonable range.

Q Do you have any comments about Mr. Hevert's risk premium model?

A: Yes. Mr. Hevert estimates a cost of equity by first obtaining an estimated relationship between historical bond yields and authorized rates of return to obtain a "risk premium relationship between bond yields and authorized rates of return. He then adds this risk premium to estimates of 10-year Treasury yields to obtain his risk premium estimates of about 10.9 percent.

A straight forward alternative way of analyzing Mr. Hevert's underlying data is to simply graph it as the authorized returns occurred through time. For the first eight or nine years of

his data, authorized rates of return, while variable, were relatively flat. Since 2000, while still variable the authorized returns can be clearly characterized as trending downward. A regression line through these data since 2000 projected out to mid-2008 suggests that authorized returns will approximate 10.20 percent. DPU Exhibit 2.14 depicts this data.

In my view, examining authorized rates of return while somewhat interesting are a poor guide to cost of equity determination. For one thing many of the data points are based upon settlements, so it is unknown what factors went into those settlements. Even in litigated cases, cost of equity results may be significantly influenced by local laws and customs that are not applicable in Utah. For these reasons I do not view such data as a strong indicator of an appropriate cost of equity.

Q: Mr. Hevert uses a "small cap" adjustment in arriving at his final estimate. Do you have comments on the small cap adjustment?

A: Yes. I would note first that the even the existence of the small cap effect is disputed by some researches such as Dr. John Kania.[20] Others, like Brigham and Houston, suggest that the effect might be less than one finds in Ibbotson Associates' publications.[21]

With respect to regulated utilities, Roger Morin opines "This effect (the small size effect) is likely to be negligible for all but the very small public utilities whose equity market value is

[20] Kania, John J. "The small firm risk premium remains largely a myth," Shannon Pratt's Business Valuation Update, Vol. 9, No. 11, November 2003. The essence of Dr. Kania's argument is that "smallness" is incorrectly specified as market capitalization, i.e. the market value of a company's stock. When other measures of size such as revenues or total assets are used, the size effect vanishes.

[21] Brigham, Eugene F. and Joel F. Houston, Fundamentals of Financial Management Concise 3rd Ed., Harcourt College Publishers, Orlando FL, 2002. Brigham and Houston conclude (p. 491) "In general, the cost of equity appears to be one or two percentage points higher for small firms (those with market values less than $20 million) than for large NYSE firms with similar risk characteristics."

less than $60 million."[22] Mr. Hevert estimates that Questar Gas would have a market value in excess of $700 million.[23] Thus, the consideration of such an adjustment for Questar Gas is at best questionable.

But there is one last point. Mr. Hevert appears to agree with and apply the recommendations of Ibbotson Associates and uses its data as a basis for his CAPM and for the small cap adjustment. It is curious therefore that he ignores another recommendation and data that Ibbotson Associates makes. Specifically, Mr. Hevert makes no mention of the industry premia published annually by Ibbotson Associates. In the Stocks, Bonds, Bill, and Inflation 2007 Valuation Edition Yearbook Ibbotson (now a division of Morningstar, Inc., Chicago Ill.) the industry premium for a natural gas distribution company (SIC 4924) is a negative 3.83 percent (see table on page 50, and discussion on pages 43-44). Assuming Mr. Hevert's cost of equity is correctly calculated up to the point he arrives at 11.25 percent, his next step logically would be to add the industry premium (-3.83 percent) to arrive at a final estimate of 7.42 percent. This estimate is within the range, albeit some of the lower ones, of values that I calculated in some of the models I examined.

Q: Are you suggesting that the Commission should apply small company and industry premia to arrive its cost of equity?

A; No. I do not believe the small cap add-on is appropriate in this case. Likewise, when one uses specific market data for utility cost of equity is used, such as in the DCF model, any such adjustment for industry effects is also inappropriate.

[22] Morin, Roger A., Ph.D., Regulatory Finance: Utilities' Cost of Capital, Public Utilities Reports, Inc., Arlington VA, 1994, p 330.
[23] Direct Testimony of Robert B. Hevert, lines 1011-1012, p. 43.

Q: What overall conclusion do you draw with respect to Mr. Hevert's cost of equity estimates?

A: His DCF models would be reasonable if a 4 to 5 percent growth rate was used. His CAPM and risk premium methods result in high estimates. His small cap add-on is inappropriate.

Q: Mr. Hevert concludes that there is no adjustment to be made for Questar's CET. Do you have a comment on that?

A: I have not included an adjustment for the Company's CET. I believe that Mr. Hevert has a valid point that such an adjustment, if warranted, is likely to be minimal since the comparable companies' cost of equity estimates are likely already influenced by the revenue stabilization mechanisms possessed by the utilities. Dr. Powell will comment further on this issue for the Division.

VII. COMMENTS ON JOHN REED'S ANALYSIS AND CHOOSING A COST OF EQUITY AT THE HIGH END OF THE RANGE

Q: Please briefly describe the testimony of John Reed and what part it plays in the cost of equity estimate of Mr. Hevert.

A: Mr. Reed, a colleague of Mr. Hevert's, compiles a number of statistics on operating gas distribution companies including Questar Gas Company and then ranks these companies

from best to worst by each statistic. First he estimates what he calls his "situational assessment" which purports to demonstrate that Questar Gas should be inferior to the other companies he rates, but that, in fact, according to his rating scheme Questar Gas is better than average. The measures the Mr. Reed employs are corporate efficiency measurements that might be used internally by a company to grade management effectiveness, and to make efficiency comparisons across companies. The conclusion that Mr. Reed and Mr. Hevert make is that because Questar is better than average (in these selected statistics as interpreted by Mr. Reed), that Questar Gas Company deserves a premium authorized cost of equity from the Commission as a reward and that therefore the Commission should award a cost of equity at or near the top end of Mr. Hevert's reasonable range.

Q: Are the companies that Mr. Reed compares Questar Gas to the same companies Mr. Hevert uses to derive his cost of equity estimates?

A: No. They are smaller operating companies usually of other holding companies. To use companies which are different than Mr. Hevert's comparable companies does not answer the question of whether Mr. Reed would arrive at the same results if he had used Mr. Hevert's companies. Any comparison that results in an adjustment to the cost of equity should be made to the same companies from which the cost of equity was determined in the first place.

Q: Do either Mr. Hevert or Mr. Reed account for any significant advantages that Questar Gas has that are not the result of the adroitness of management, such as the company-owned gas wells?

A: Although several of Mr. Reed's measurements are specifically related to the Wexpro properties, he leaves them in his analysis and only in passing makes reference in his commentary that they might not be appropriate, while adding that the other measurements still support his conclusions. He does not describe any other possible advantages to Questar Gas such as being able to draw employees from a relatively well-educated population, that the bulk of Questar Gas' operations are along the densely populated Wasatch Front, or that union activity is limited in this area.

Q: Are there other problems with Mr. Reed's analysis?

A: We don't know enough about the local peculiarities of each company he references to know whether valid conclusions could be drawn with a specific comparison. Further, there is the possibility that differences in accounting across companies may skew the results. Furthermore, a number of his measures relate to the amount of money spent on certain things, Mr. Reed admits in an answer to a data request that expenditures alone do not necessarily mean the money was effectively and efficiently spent.

The most significant problem with his analysis is that it has not been previously vetted with this Commission and the interested parties. If Questar Gas wants to implement a system of grading the Company's operation for purposes of adjusting its allowed rate of return, the Company would be better served to propose that in a separate docket. To be consistent since the Company is apparently agreeable to accepting an authorized rate of return on equity at the high end of the range for being above average in these measurements, it then would need

to accept an automatic adjustment to the bottom of the range if Questar Gas were to fall to below average.

Q: Have you prepared an alternative analysis of Questar Gas that might shed some light on this issue with respect to cost of equity?

A: Yes. On DPU Exhibit 2.15 I compare standard financial ratios and other measurements between Questar Gas and my comparable companies. In making the comparisons I rated the Company to be either "above (better than) average," "average," or below (worse than) average." In comparing Questar Gas with the entire group, I rated it "average" if it were within one standard deviation of the mean and "above" or "below" average if it were outside one standard deviation. I also compared Questar Gas only with just Northwest Natural Gas and Piedmont Natural Gas because Northwest and Piedmont are the most pure natural gas distributions companies that are still publicly traded. My assessment of Questar Gas versus Northwest and Piedmont was a bit more subjective. However, if Questar Gas were within the range of values of either of those two companies or very close to the values of one of the companies I rated Questar Gas "average."

Q: What is your conclusion based upon this analysis?

A: Questar Gas is very much an average company within this group of comparable companies. This is somewhat comforting in that it suggests that these are good comparables to use with Questar Gas since it sits so much in the middle of them.

Q: Does these data imply in any way that Questar Gas deserves a premium cost of equity compared with the average of the comparable companies?

A: No, there is no such indication.

Q: Does this proposal by Messrs. Reed and Hevert amount to incentive regulation?

A: While they state that it is not incentive regulation, what they are proposing to do is to reward particularly the sole stockholder of the Company for what they consider to be good results. The clear implication is that if you produce these particular "good results," your stockholder will be monetarily rewarded in a significant way. This "extra bump" for "good results" appears to me to be incentive regulation.

Q: What are your conclusions with respect to Mr. Reed's analysis and Mr. Hevert's application of his analysis to increase the authorized return on equity?

A: With this analysis the Company is seeking a reward for doing what it is expected to do anyway. On that basis I would reject the request. I would further reject the request because there is no evidence that the financial markets would reward the Company based on this analysis. Therefore, I conclude and recommend that Questar Gas should not be rewarded with a premium cost of equity.

VIII. CONCLUSIONS AND RECOMMENDATIONS

Q: Please summarize your cost of capital and capital structure conclusions, excluding the cost of equity results.

A: I have concluded that the Company's requested cost of debt and capital structure are reasonable. As indicated above, I believe the Company's request cost of equity is much too high.

Q: What conclusions have you reached with respect to cost of equity?

A: The first conclusion is that the DCF models using analyst forecasts form a reasonable basis for a cost of equity estimate. These DCF models are compared to alternative CAPM calculations as well as the risk premium model I developed at the Tax Commission. All of these models support an overall conclusion of a cost of equity estimate in the low 9.0 percent range. My point estimate is 9.25 percent.

Q: On DPU Exhibit 2.4 you give a range of 8.65 to 9.75 percent. What is the meaning of that range?

A: That is the maximum range of values that I considered justifiable based upon the models I used and my interpretation of those models. These models identify for me approximate boundaries between estimates that might be considered reasonable and those that are likely not reasonable.

Q: Please discuss some of the implications of your weighted cost of capital estimate and specifically your cost of equity estimate.

A: In arriving at a decision on cost of capital the Commission needs to consider principles and issues set forth in the well known U.S. Supreme Court decisions commonly referred to as the Bluefield[24] and Hope[25] cases.

[24] Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia, 262 U.S. 679 (1923).

The Bluefield and Hope cases established economic and financial principles for proper regulation. These principles included (1) that the utility be allowed to earn a return on its utility property generally equal to returns earned by other companies of similar risk; (2) this return should assure confidence in the financial soundness of the utility; (3) this allowed return should maintain and support the credit of the company and allow it to attract capital; (4) recognition that a return that is "right" at one time may become high or low by changes in the economy regarding alternative investments; and (5) particularly in Hope, what is important is that the "end result" of the rate order be just and reasonable—it is less important how that result is achieved.

Q: Do you believe your conclusions and recommendations arrive at a just and reasonable result that is in the public interest? Please explain.

A: Yes. The capital structure is well within the norms of the Company's industry as indicated by the analysis comparing the Company's recommended capital structure with the comparable companies. The use of embedded cost of debt and preferred stock is well established in regulation. The prospective future debt issuance is assumed to pay the forecast expected market return. I have demonstrated that my cost of equity estimate sits well within the estimates arrived at using standard financial models and forecasts derived from market participants. In rebuttal to Mr. Hevert, I have shown that a cost of equity estimate should be under 10 percent.

[25] Federal Power Commission et. al. v. Hope Natural Gas Company,320 U.S. 591 (1942).

Q: Besides the technical development of a cost of equity estimate are there other considerations to be made?

A: Yes. Part of Bluefield and Hope criteria is the ability to attract capital. At this time, I know of no evidence that Wall Street (i.e. the financial markets) would be expecting cost of equity awards in the low 9 percent range. An award of 9.25 percent by the Commission might have ramifications for the Company's bond rating and otherwise its ability to attract capital.

Q: How might the authorized cost of equity affect Questar Gas' ability to attract capital?

A: First, bond rating agencies analyze certain financial measures of a company and compare them to the industry norms as well as guidelines that have been developed for each of the bond ratings. For example, capital structure and the ratio funds from operations (FFO) to interest are two of the measures Standard & Poor's considers.

Q: Have you tried to quantify the effects of your recommended costs of equity on the Company?

A: Yes. DPU Exhibit 2.16 sets forth my *pro forma* estimate of the ratios for 2006 and 2007 if the Company had earned different returns on equity. The column for 2005 is the actual results in all cases. Page 1 of Exhibit 2.16 sets forth the ratios based upon the actual results of the Company. Page 2 assumes that Questar Gas earned 9.25 percent return on equity for 2006 and 2007. Page 3 sets forth the results for 2006 and 2007 assuming that the return on equity was at the high end of my range of 9.75 percent.

Q: Besides please explain how you estimated the 2006 and 2007 *pro forma* statements.

A: I kept as many as possible of the financial statement amounts for 2006 and 2007 at their actual historical levels. On the balance sheet, the only items changed where a line item I call additional loans which was required to keep the balance sheets balanced and retained earnings which naturally differed as net income declined due to the lower rates of return. The additional loans were assumed to cost 6.25 percent in annual interest.

Revenues were adjusted in order to arrive at a net income that would result in the specified return on equity. As revenues and income changed, income taxes amounts changed and interest expense was incurred on the additional loans. Income tax rates were assumed to be the same as what was actually incurred in the years in question.

Q: What were the results?

A: For the actual results the equity capital structure percentage rises steadily from 49.6 percent in 2005 to 52.1 percent in 2007. As shown previously on DPU Exhibit 2.3, 52.1 percent is almost exactly the mean of the comparable companies in 2007. However, if the return on equity were fixed at 9.25 percent, the common equity percentage is 49.6 percent in 2005, 49.4 percent in 2006, and then rises slightly to 49.9 percent in 2007. These percentages are about 2.5 percentage points below the mean of the comparable companies. As set forth on Page 3 of Exhibit 2.16, if the return on equity is 9.75 percent, the equity capital structure percentage is flat in 2006 with 2005, and then improves to 50.4 percent in 2007.

The ratios of FFO/Interest and FFO/Total Debt are more variable. In the actual results FFO/Interest ranges from 4.45 in 2005 to 2.95 in 2006 and up to 3.53 in 2007. FFO/Total

Debt ranges from 22.4 percent in 2005 to 19.8 in 2006 and then back to nearly 22 percent in 2007. With a 9.25 return on equity FFO/Interest returns to 3.1 in 2007 but FFO/Total Debt remains below 20 percent at 19.1 percent. A 9.75 percent return on equity gives better results at 3.2 for FFO/Interest and 19.8 percent for FFO/Total Debt.

Q: What are the ramifications of these results?

A: DPU Exhibit 2.17 sets forth a comparison of our current understanding of the Standard & Poor's guidelines for these financial measures by business risk profiles 3 through 5. It is our present understanding that Questar Gas has a business risk profile of 3. Based on the statistics on Exhibit 2.17, if Questar is able to maintain a "3" business risk profile, then arguable it should not face a potential debt rating downgrade. If the business profile falls to 4 or 5, then the Company potentially faces a downgrade. However, in the end all rating agencies use their judgment to arrive at a rating after looking at all factors quantitative and qualitative that they consider relevant. One factor that the rating agencies might consider is the lower interest rates would logically result in lower costs of equity. At 9.75 percent, the high end of my range, there appears to be a good chance of keeping the capital structure above 50 percent equity which would help, and generally the would be less chance of a rating down grade.

Q: What are your final conclusions?

Based upon established models and credible data I conclude that the cost of capital estimates set forth on DPU Exhibit 2.2 are just and reasonable and in the public interest.

Q: What is your recommendation?

A: My recommendation is that the Commission adopt as the authorized cost of equity for Questar Gas for its operations in Utah of 9.25 percent and an overall weighted average cost of capital of 8.02 percent. However, consideration could be given to the effects that a lower cost of equity authorization may have on the Company's ability to raise debt capital at a reasonable cost. I would note however, that the Company has recently completed a $150 million debt issuance as mentioned earlier and may not require significant additional financing for some time.

Q: Does this conclude your testimony?

A: Yes.