BEFORE THE WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

Washington Utilities and Transportation Commission,

Complainant,

v.

PUGET SOUND ENERGY, INC.

Respondent.

DOCKET NOs. UE-072300 and UG-072301

DIRECT TESTIMONY OF STEPHEN G. HILL (SGH-1T)

ON BEHALF OF

PUBLIC COUNSEL

CORRECTED

THE FOLLOWING PAGES HAVE BEEN CORRECTED: 43, 46, 47, 48 AND 49

JULY 2, 2008

NON-HIGHLY CONFIDENTIAL

DIRECT TESTIMONY OF STEPHEN G. HILL (SGH-1T)
DOCKET NOs. UE-072300 AND UG-072301

TABLE OF CONTENTS

		PAGE
I.	INTRODUCTION / SUMMARY	1
II.	OBJECTIVE COST OF EQUITY EVIDENCE	7
III.	CAPITAL STRUCTURE	18
	A. PSE CAPITAL STRUCTURE HISTORY	19
	B. PARENT-SUBSIDIARY CAPITAL STRUCTURE LINKEAGE	25
	C. INDUSTRY-AVERAGE CAPITAL STRUCTURE/RECOMMENDATION	31
IV.	COST OF EQUITY EVALUATION	33
	A. DISCOUNTED CASH FLOW	33
	1. Growth Rate	39
	2. Dividend Yield	45
	3. DCF Equity Cost Estimate	46
	B. CORROBORATIVE EQUITY COST ESTIMATION METHODS	47
	C. SUMMARY OF EQUITY COST ANALYSIS	48
	D. FLOTATION COSTS / ADDITIONAL CONSIDERATIONS	49
	E. OVERALL RETURN RECOMMENDATION	53
V.	COMPANY COST OF CAPITAL TESTIMONY	56
	A. TECHNICAL ISSUES	56
	B. DR. MORIN'S EQUITY COST METHODS	60
	1. Capital Asset Pricing Model	60
	2. Risk Premium	69
	C. DISCOUNTED CASH FLOW	75
	1. Summary	79
	D. DR. MORIN'S DCF CRITIQUE	80
	E. DR. MORIN'S CRITIQUE OF PENSION FUND RETURNS	97

TABLES

		PAGE
Table I.	2004 Projected Capital Structure v. Actual	21
Table II.	2006 Projected Capital Structure v. Actual	22
Table III.	Boards of Directors	26
Table IV.	Equity Cost Estimates	49
Table V.	Pre-tax Interest Coverage	54
Table VI.	Bond Rating Benchmarks Cash Flow Coverages	55
Table VII.	Marston Presentation Slide 2007 Annual Forum Society of Utility and Regulatory Financial Analysts	66
Table VIII.	Morin Integrated Electric Sample Group DCF – Value Line Projected Growth	78
Table IX.	Dr. Morin's Market-to-Book Example	84

CHARTS

Chart I.	Recent Interest Rate Changes	9
Chart II.	2008 ROE v. M/B (Morin Group)	90

DIRECT TESTIMONY OF STEPHEN G. HILL (SGH-1T)
DOCKET NOs. UE-072300 AND UG-072301

STEPHEN G. HILL'S EXHIBIT LIST

Exhibit No. ___ (SGH-2)	Education and Employment History
Exhibit No. ___ (SGH-3)	Arithmetic and Geometric Averages
Exhibit No. ___ (SGH-4)	Sustainable Long-Term Growth
Exhibit No. ___ (SGH-5)	**Corrected July 2, 2008** - Sample Company Growth Rate Analyses (Electric and Combination Gas & Electric Utilities)
Exhibit No. ___ (SGH-6)	**Corrected July 2, 2008 -** Corroborative Equity Capital Cost Estimation Methods (Capital Asset Pricing Model)
Exhibit No. ___ (SGH-7)	Puget Sound Energy, Inc Recent Historical Capital Structure
Exhibit No. ___ (SGH-8)	Electric Utility Sample Group Selection
Exhibit No. ___ (SGH-9)	DCF Growth Rate Parameters
Exhibit No. ___ (SGH-10)	**Corrected July 2, 2008 -** DCF Growth Rates
Exhibit No. ___ (SGH-11)	Stock Price, Dividends, Yields
Exhibit No. ___ (SGH-12)	**Corrected July 2, 2008 -** DCF Cost of Equity Capital
Exhibit No. ___ (SGH-13)	CAPM Cost of Equity Capital
Exhibit No. ___ (SGH-14)	Puget Sound Energy – Proof
Exhibit No. ___ (SGH-15)	Modified Earnings-Price Ratio Analysis
Exhibit No. ___ (SGH-16)	**Corrected July 2, 2008 -** Market-To-Book Ratio Analysis
Exhibit No. ___ (SGH-17)	Puget Sound Energy Overall Cost of Capital

I. INTRODUCTION / SUMMARY

Q: Please state your name, occupation and address.

A: My name is Stephen G. Hill. I am self-employed as a financial consultant, and principal of Hill Associates, a consulting firm specializing in financial and economic issues in regulated industries. My business address is P.O. Box 587, Hurricane, West Virginia, 25526 (e-mail: hillassociates@gmail.com).

Q: Briefly, what is your educational background?

A: After graduating with a Bachelor of Science degree in Chemical Engineering from Auburn University in Auburn, Alabama, I was awarded a scholarship to attend Tulane Graduate School of Business Administration at Tulane University in New Orleans, Louisiana. There I received a Master's Degree in Business Administration. More recently, I have been awarded the professional designation, "Certified Rate of Return Analyst" by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. I have also been elected to the Board of Directors of that national organization. A detailed account of my educational background and occupational experience appears in Exhibit No.___(SGH-2), attached to this testimony.

Q: Have you testified before this or other regulatory Commissions?

A: Yes, I have appeared previously before this Commission. In addition, I have testified on cost of capital, corporate finance and capital market issues in approximately 250 regulatory proceedings before the following regulatory bodies: the West Virginia Public Service Commission, the Texas Public Utilities Commission, the Arizona Corporation

Commission, the Oklahoma State Corporation Commission, the Public Utilities Commission of the State of California, the Pennsylvania Public Utilities Commission, the Maryland Public Service Commission, the Public Utilities Commission of the State of Minnesota, the Ohio Public Utilities Commission, the Insurance Commissioner of the State of Texas, the North Carolina Insurance Commissioner, the Rhode Island Public Utilities Commission, the City Council of Austin, Texas, the Texas Railroad Commission, the Missouri Public Service Commission, the South Carolina Public Service Commission, the Public Utilities Commission of the State of Hawaii, the New Mexico Corporation Commission, the State of Maine Public Utilities Commission, the Georgia Public Service Commission, the Public Service Commission of Utah, the Illinois Commerce Commission, the Kansas Corporation Commission, the Indiana Utility Regulatory Commission, the Virginia Corporation Commission, the Montana Public Service Commission, the Public Service Commission of Wisconsin, the Vermont Public Service Board, the Federal Communications Commission and the Federal Energy Regulatory Commission. I have also testified before the West Virginia Air Pollution Control Commission regarding appropriate pollution control technology and its financial impact on the company under review and have been an advisor to the Arizona Corporation Commission on matters of utility finance.

Q: On behalf of whom are you testifying in this proceeding?

A: I am testifying on behalf of the Public Counsel Section of the Washington State Attorney General's Office (Public Counsel).

Q: What is the purpose of your testimony?

A: In this testimony, I present objective information as well as studies I have performed related to the appropriate return on equity and capital structure to be applied to the integrated electric and gas distribution utility operations of Puget Sound Energy, Inc. (PSE, Puget, or the Company), a subsidiary of Puget Energy, Inc. (PE, the Parent). In addition to my testimony regarding the Company's current cost of capital for its electric and gas utility operations, I review the cost of capital testimony provided by Company witness Dr. Roger Morin and discuss the shortcomings contained in that testimony.

Q: Have you prepared exhibits in support of your testimony?

A: Yes, my narrative testimony is presented as Exhibit No.___ (SGH-1T). Exhibit No. ___ (SGH-2) through Exhibit No.___ (SGH-6) contain additional narrative detail regarding certain aspects of my testimony in this proceeding. Exhibit No. ___ (SGH-7) through Exhibit No. ___ (SGH-19) provide the analytical support for the conclusions reached regarding the overall cost of capital for the integrated electric utility and gas distribution operations of Puget Sound Energy presented in the body of the testimony. These Exhibits were prepared by me and are correct to the best of my knowledge and belief.

Q: Please summarize your testimony and findings concerning the rate of return that should be utilized in setting rates for PSE's utility operations in this proceeding.

A: My testimony is organized into four additional sections. First, I present objective information for the Commission's review that indicates the equity return most recently awarded Puget Sound Energy, 10.4 percent, now overstates the Company's current cost of equity capital. That information includes equity cost estimates for similar-risk

companies made by Puget's financial advisors and target returns for shareholders set by the Company's Board of Directors as well as the Company's expected return on the equity investments included in its pension fund portfolio. These data indicate that the Company's cost of equity capital ranges from **[Begin Highly Confidential U-072375] XXXXXXXXXXXX [End Highly Confidential.**[1]

Second, I review the capital structure requested by Puget for ratemaking purposes in comparison to capital structures employed historically by the Company as well as capital structures utilized, on average, in the utility industry. This analysis shows that while Puget Energy has increased the common equity ratio of the Company during rate cases, Puget Sound Energy has been capitalized on average over the past few years with far less equity capital than has been allowed in recent rate proceedings. This has caused ratepayers to provide a return on equity capital the Company did not have. I also discuss the linkage between the capital structure of Puget Sound Energy and its parent company, the ability of the parent company (Puget Energy) to achieve any particular target capitalization for its only subsidiary (Puget Sound Energy), as well as the actual capital mix used to finance the Company's utility assets.

Third, I evaluate the cost of equity capital for similar-risk utility operations using Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), Modified Earnings-Price Ratio (MEPR), and Market-to-Book Ratio (MTB) analyses. I have estimated the equity capital cost of combination electric and gas companies similar in risk to Puget

[1] Docket No. U-072375, PSE's Highly Confidential Response to Staff Data Request No. 1035.

Energy to fall in a range of 9.00 percent to 9.50 percent. Within that range, I estimate the equity cost of the Company's electric and gas utility operations to be near the mid-point of that range, or 9.25 percent.

Applying that 9.25 percent equity capital cost to a capital structure that is reasonable for ratemaking purposes produces an overall cost of capital of 7.86 percent.[2]

That overall cost of capital affords the Company an opportunity to achieve a pre-tax interest coverage level of 2.58 times. That level of pre-tax coverage is well above the level of interest coverage actually achieved by Puget over the past five years, which has ranged from 1.97x to 2.30x.[3] In addition, my recommended overall return will afford the Company an opportunity to achieve bond rating cash flow benchmarks that will support the Company's current financial position. Therefore, the equity return I recommend is sufficient to support and improve the Company's financial position and fulfills the requirement of providing the Company the opportunity to earn a return which is commensurate with the risk of the operation while maintaining the Company's ability to attract capital.

Finally, I comment on the pre-filed cost of capital testimony submitted by Company witness, Dr. Roger Morin. I show that Dr. Morin's equity cost estimation methods, when updated to recognize current interest rates and corrected for basic flaws, produce return on equity estimates ranging from 9.20 percent to 10.1 percent. I also respond to Dr. Morin's critique of the DCF methodology and explain how his change of

[2] Exhibit No. ___ (SGH-17).
[3] Puget Sound Energy, 2007 SEC Form 10-K, Exhibit No. ___ 12.2.

position on that issue undermines the reliability of his testimony on that subject.

Q: Why should the cost of capital serve as a basis for the proper allowed rate of return for a regulated firm?

A: The Supreme Court of the United States has established, as a guide to assessing an appropriate level of profitability for regulated operations, that investors in such firms are to be given an opportunity to earn returns that are sufficient to attract capital and are comparable to returns investors would expect in the unregulated sector for assuming the same degree of risk. The *Bluefield*[4] and *Hope*[5] cases provide the seminal decisions. These criteria were restated in the *Permian Basin*[6]. However, the Court also makes quite clear in *Hope* that regulation does not guarantee profitability and, in *Permian Basin*, that, while investor interests (profitability) are certainly pertinent to setting adequate rates, those interests do not exhaust the relevant considerations.

As a starting point in the rate-setting process, then, the cost of capital of a regulated firm represents the return investors could expect from other investments, while assuming no more and no less risk. Since financial theory holds that investors will not provide capital for a particular investment unless that investment is expected to yield their opportunity cost of capital, the correspondence of the cost of capital with the Court's guidelines for appropriate earnings is clear.

[4] *Bluefield Water Works v. PSC*, 262 U.S. 679 (1923).
[5] *FPC v. Hope Natural Gas Company*, 320 U.S. 591 (1944).
[6] *Permian Area Rate Cases*, 390 U.S. 747 (1968).

II. OBJECTIVE COST OF EQUITY EVIDENCE

Q: Why are you discussing objective cost of equity evidence at the outset of your testimony, Mr. Hill?

A. In Puget's most recent rate proceeding, the Commission made clear its intent to "look beyond" theoretical applications of economic theory in determining the cost of equity capital, "to a broader body of evidence."[7] While I will also ultimately present equity cost evidence based on long-standing regulatory practice and economic theory, in this section of my testimony I provide the Commission a broader body of objective evidence, which indicates that the equity return most recently allowed Puget Sound Energy by this Commission, 10.4 percent, is now significantly in excess of the Company's current cost of equity capital. This evidence is not found in cost of capital testimony. Rather, it is found in current interest rates, which are below the level in existence during Puget's last rate case, as well as in documents prepared by the Company's financial advisors and reviewed by its Board of Directors.

Q: How have interest rates changed since the Company's most recent rate proceeding?

A: Immediately following the Company's last rate proceeding, short-term interest rates declined somewhat while longer-term yields remained relatively steady. However, the interest rate "picture" began to change in July and August of 2007 with the advent of what is now called the sub-prime mortgage crisis. The slowdown in the housing industry combined with the shift in introductory-rate mortgage rates to higher permanent rates

[7] *WUTC v. Puget Sound Energy*, Docket Nos. UE-060266 , UG-060267, Order 08, ¶ 84 (January 5, 2007).

caused cascading troubles for the mortgage loan and banking industries. The financial fall-out from the sub-prime mortgage collapse continues currently with large banks, and even mortgage guaranty institutions incurring additional write-downs (reductions in profit levels) and bond rating downgrades.

In addition to, and perhaps because of, the difficulty experienced in the housing/banking industry, the overall U.S. economy experienced a significant slowdown in the fourth quarter of 2007. Responding dramatically to the mortgage crisis and the economic slowdown the Federal Reserve (Fed) has reduced short-term interest rates five times since September 2007 and the time this testimony was prepared. Long-term rates have also declined as shown in Chart I, below, which shows yields on 3-month T-Bills, 10-year T-Bonds and 20-year T-Bonds from September 2006 (the time of the hearing in Puget's last case) to the most recent month available (February 2008).

/ / /

/ / / /

/ / / / /

/ / / / / /

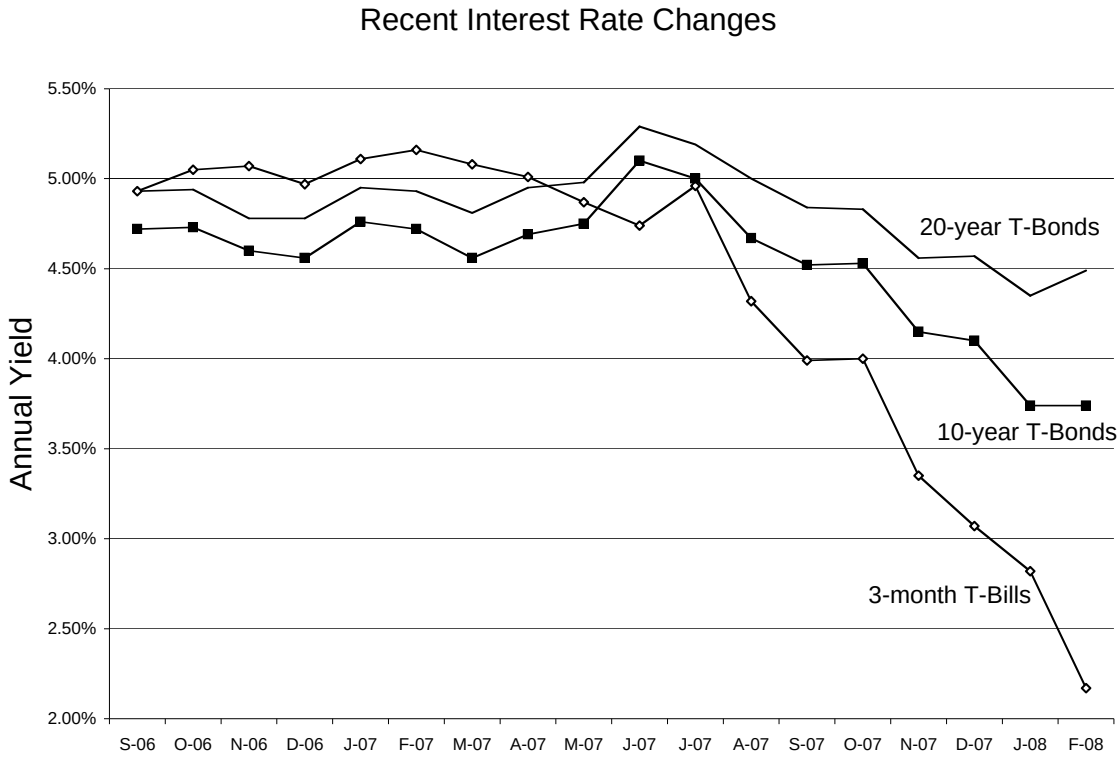
/ / / / / / /

/ / / / / / / /

/ / / / / / / / /

/ / / / / / / / / /

Chart I.



Data from Federal Reserve Statistical Release H.15.

The difference in capital cost rates between Puget's last case and the instant proceeding is also evidenced in the difference between the six-week average yield on 30-year T-Bonds and 3-month T-Bills used in my Capital Asset Pricing Model (CAPM) analysis. In my Direct Testimony in Puget's most recent rate case[8] the then-most recent six-week average T-Bill and T-Bond yields published in Value Line's *Selection & Opinion* were 4.69 percent and 4.97 percent, respectively (March 31 through May 5,

[8] *WUTC v. Puget Sound Energy*, Docket Nos. UE-060266/UG-060267, Hill Direct, Exhibit No. ___(SGH-5), p. 4)).

2006). In the current rate proceeding, the most recent six-week average yields published by Value Line are 2.54 percent for T-Bills and 4.48 percent for T-Bonds (February 1 through March 7, 2008). The reduction in short-term rates due to credit-loosening by the Federal Reserve is over 200 basis points, and the reduction in long-term Treasury rates is about 50 basis points.

Q: Is the difference in projected interest rates between Puget's last rate proceeding and now similar to that shown above?

A: The difference in projected growth rates is greater. While I believe that the current bond yield is the best indicator of investor opinion, in its Order in Puget's last rate case, the Commission referenced Treasury bond yield projections as representative of the change in capital costs. At paragraph 86 in Order No. 08 in Docket Nos. UE-060266/UG-060267, the Commission stated:

> Interest rates in the capital markets have increased, though mainly in the short-term part of the yield curve. The record in the 2005 general rate case contained a forecasted 30-year treasury rate of 4.89 percent. The record in this case includes 30-year treasury forecasts of 4.97 to 5.3 percent—an average of 5.14 percent. By this comparison, forecasted long-term risk free interest rates have increased by about 25 basis points.

The most recent (February 1, 2008) forecast of 30-year Treasury bond yields through the second quarter of 2009, from Blue Chip Financial Forecasts, ranges from 4.1 percent to 4.6 percent. Using the Commission's methodology from the previous Puget Order cited above, that range indicates an average projected yield of 4.35 percent. The current projected long-term Treasury bond yield is 79 basis points below the 5.14 percent cited

by the Commission in Puget's 2006 general rate case.

Assuming that the most recent equity return allowed by the Commission, 10.4 percent, equals the Company's cost of equity capital in 2006, the approximate 50 to 75 basis point reduction[9] in long-term interest rates that has occurred since the time when that case was decided indicates that, in this proceeding, a reasonable return on equity would range from 9.65 percent to 9.90 percent [10.4% - (0.75, 0.50%)].

Q: You mentioned other evidence from the Company and its financial advisors indicating that the Company's cost of equity is well below the last authorized equity return allowance of 10.4 percent. Can you explain that statement?

A: Yes, in the process of deciding whether or not to enter into an acquisition agreement, the board of directors of the firm being acquired must be assured that the price being offered for the firm is reasonable. In order to know if the offering price is reasonable, the value of the firm being acquired must be estimated. That task is undertaken by an independent investment banking firm. One important factor in the determination of the value of the firm being acquired is its cost of equity capital—the return at which equity investors would discount expected future cash flows.

As the Commission is well aware, Puget has entered an acquisition agreement with the Macquarie Group, which is before the Commission in a separate proceeding.[10] As noted at page 27 of Puget's February 18, 2008 Proxy Statement,[11] the Company was

[9] Current bond yields are about 50 basis points below their level during the last Puget rate case and projected yields are currently about 75 basis points lower than they were during that time period.
[10] *Puget Holdings LLC and Puget Sound Energy, Inc., Joint Application for an Order Authorizing Proposed Transaction*, Docket No. U-072375.
[11] SEC Form DEFM 14A, Official Notification of Matters Relating to a Merger or Acquisition.

first approached by Macquarie in late 2005 in regards to acquiring Puget's gas distribution business. Those discussions continued into mid-2006. In August 2006, the Puget Board retained Morgan Stanley to conduct a strategic review of the Company's options for the future, i.e., continuing as a stand-alone business, recapitalizing those operations or divesting the gas portion of the Company's operations. Following that review, Puget's Board decided not to pursue the sale of its gas distribution operations. Shortly after that decision, Puget was approached by Macquarie with regard to acquiring the entire company and, over the next several months, Puget investigated entering into an agreement to be acquired by Macquarie or other potential suitors. As we now know, an acquisition arrangement was made with Macquarie.

During the time Puget was reviewing offers for a portion or all of its operations, Morgan Stanley was the Company's financial advisor, and provided Puget's Board with estimates of the Company's value. Morgan Stanley also authored the "fairness opinion" regarding the price to be paid for Puget by Macquarie, and will receive $15 Million in fees for its investment banking services if the acquisition proceeds to conclusion, according to the Company's Proxy Statement.[12]

In response to Staff Data Request No.1035 in Docket No. U-072375, the Company provided copies of presentations made by Morgan Stanley to Puget's Board of

[12] SEC Form DEFM 14A, p. 10, Annex B, February 18, 2008.

Directors regarding the estimated value of Puget, as well as other documents.

- On August 21, 2006, in an analysis of strategic options for Puget, Morgan Stanley estimated the cost of equity capital of integrated utilities, gas distributors and electric companies similar in risk to Puget to range from **[Begin Highly Confidential U-072375]** **XXXXXXXXXXXXXX** **[End Highly Confidential]** [13]
- On April 6, 2007, Morgan Stanley reviewed Puget's strategic plan and valuation, estimating a DCF-type equity cost of similar-risk companies to average **[Begin Highly Confidential U-072375]** **XXXXXXXXXXXXXX** **[End Highly Confidential]**[14]
- On September 5, 2007, Morgan Stanley reviewed Puget's acquisition plan and valuation, estimating an equity cost of similar-risk companies to average **[Begin Highly Confidential U-072375]** **XXXXXXXXXXXXXXXX**[End Highly Confidential] [15]
- On October 10, 2007, Morgan Stanley estimated the equity cost of similar-risk firms to average **[Begin Highly Confidential U-072375]** **XX XXXXXXXXXXXXX** **[End Highly Confidential]**[16]

[13] Docket No. U-072375, PSE's Highly Confidential Response to Staff Data Request No. 1035, Project Umbrella, Discussion Materials, pp. 56-58.
[14] *Id.*, Panda, Discussion Materials, p. 44.
[15] *Id.*, Project Padua, Discussion Materials, p. 33.
[16] *Id.*, Project Padua, Board of Directors Discussion Materials, p. 36.

In that same Data Response in the acquisition docket,[17] the Company provided materials reviewed by Puget's Board of Directors on September 12 and 13, 2005 at a strategic planning Board retreat. In those materials was a review of utility mergers and acquisitions by a different investment banker—Mr. Roger Wood, a managing director of Rothschild, an international investment-banking firm. Using a DCF-type calculation, Mr. Wood estimated the cost of equity for Puget to be **[Begin Highly Confidential U-072375]** **XXXXXXX** **[End Highly Confidential]** based on a **[Begin Highly Confidential U-072375]** **XXXXXXX**[End Highly Confidential] dividend yield and a **[Begin Highly Confidential U-072375]** **XXXXXX** **[End Highly Confidential]** growth rate. Using a Capital Asset Pricing Model analysis, the Rothschild director estimated the equity capital cost of Puget to be **[Begin Highly Confidential U-072375]** **XXXXXX XXXXXXX** **[End Highly Confidential]** based on a risk-free rate of **[Begin Highly Confidential U-072375]** **XXXXXXX** **[End Highly Confidential]** 10-year T-Bonds) and a market risk premium of **[Begin Highly Confidential U-072375]** **XXXXXXX XXXXX** **[End Highly Confidential]** and a beta of**[Begin Highly Confidential U-072375]** **XXXX.** **[End Highly Confidential]** [18]

Finally, in a review of its 10-year financial forecast in an October 12-13, 2006 Board Retreat (also provided in response to Staff Data Request No. 1035 in Docket No. U-072375), at the top of its list of Financial Objectives for the Company, the Puget Board

[17] Docket No. U-072375, PSE's Highly Confidential Response to Staff Data Request No. 1035.
[18] Docket No. U-072375, PSE's Highly Confidential Response to Staff Data Request No. 1035, September 12-13, 2005, Board Strategic Planning Retreat, Rothschild Attachment, p. 7.

listed "provide a competitive return of **[Begin Highly Confidential U-072375] XXXX". [End Highly Confidential]** Moreover, that return percentage is defined by the Board as "annual EPS growth plus dividend yield"—the DCF formula for the cost of equity capital.[19] In that same document, the Puget Board reviewed management's projections indicating that the annual average return for Puget between 2007 and 2016 was expected to be **[Begin Highly Confidential U-072375] XXXXXXXX [End Highly Confidential]** comprised of **[Begin Highly Confidential U-072375]** a **XXXXXXX [End Highly Confidential]** dividend yield and a **[Begin Highly Confidential U-072375] XXX XXXXX [End Highly Confidential]** growth in earnings per share.

These data reviewed by the Company's Board of Directors regarding its cost of equity capital, total return to investors and the valuation of the Company (which were used as a basis to approve the Macquarie offer of $30 per share for Puget Energy), all indicate that Puget Sound Energy's cost of equity capital is substantially lower than the equity return allowed by the Commission in the Company's most recent rate proceeding.

Q: Has the Company provided other information that indicates the Company's cost of equity is likely to be lower than the equity return most recently allowed by this Commission?

A: Yes. In response to Public Counsel Data Request No. 12, the Company provided support from its pension fund managers regarding the long-term equity return expectation. The Company's pension plan administrator, RV Kuhns & Associates, projects a long-term

[19] 2006 10 Year Financial Forecast, October 12-13, 2006 Board Retreat, p. 3.

return for a diversified portfolio of common equities of about 8.41 percent to 8.63 percent. Importantly, that long-term equity return expectation is for common stocks, generally, not for utility stocks, which would have a lower equity return expectation due to their lower risk. That long-term equity return expectation for the common stocks in Puget's own pension fund is well below the equity return allowed by the Commission in the Company's most recent rate proceeding.

Q: Is the equity return expectation embodied in Puget's retirement portfolio return projections relevant to the determination of the cost of equity?

A: Yes. The definition of the cost of equity capital for a firm is the return investors expect to earn over the long-term. A firm must provide an investor the return he/she expects in order for the investor to have an incentive to purchase the securities of that firm. That investor-expected return is the parameter we seek to estimate in regulated rate proceedings in order to determine an appropriate level of profit to be included in rates. Investors' expected return for utility stock can be estimated using econometric models like the DCF, CAPM and Risk Premium. However, the Company's published long-term expected return on the common stock portion of its investment portfolio provides direct evidence regarding investors' expected return. Therefore, the return Puget expects to earn on its own equity investments complies with the Commission's desire to review "a broader body of evidence," in determining the equity return to be allowed in this proceeding.

Q: In its response to Public Counsel Data Request No. 12, the Company describes those single-digit pension fund return expectations as "conservative." is it reasonable that pension fund managers would utilize a conservative equity return expectation in order not to exaggerate the future value of the funds invested?

A: Yes. It is reasonable to believe that the Company would not use return expectations that are too high for its pension fund assets because that would exaggerate the expected future value of that fund. If the expected returns are over-estimated, the current funding requirement would be understated and the firm would be left with unfunded pension liabilities that could add unnecessarily to its financial risk profile.

However, it is also reasonable to believe that the Company would not want to under-estimate the pension fund return estimates either. Under-estimating the expected return would call for an unnecessarily high annual contribution every year to reach the future targeted amount of pension funds. An unnecessarily large annual pension expense would reduce profitability. In addition, if ultimate returns turn out to be higher than predicted through under-estimating the portfolio return, the firm will, effectively, have funded its pension requirements with internally generated funds that could have been put to other uses such as production or distribution facilities.

Therefore, because there are negatives associated with either over- or under-stating expected pension portfolio returns, it is reasonable to assume that Puget management seeks to accurately estimate its expected investment returns and believes that, over the long-term, the common equity return expectations for its pension fund investments are in the 8 percent-9 percent range, cited above.

Q: Did you present information regarding Puget's expected pension fund equity return in the Company's most recent rate proceeding?

A: Yes.

Q: Did the Company provide a rebuttal response to the use of those data as an indicator of investors' required return on equity?

A: Yes, Dr. Morin, who was Puget's cost of capital witness in the 2006 rate proceeding provided rebuttal on that issue. Because surrebuttal was not provided for in that prior case schedule, I did not have an opportunity to respond that testimony. Subsequently in this testimony, in Section V addressing Dr. Morin's positions in this proceeding, I discuss why Dr. Morin's arguments against the use of pension fund equity return expectations are not well-founded.

Q: Does this conclude your discussion of objective measures of the Company's cost of equity?

A: Yes. The decline in interest rates since the close of Puget's last rate case as well as other information provided by both the Company and its financial advisors, constitute a "broader body" of information that indicates the Company's cost of equity capital is substantially lower than the 10.4 percent awarded by the Commission in 2006.

III. CAPITAL STRUCTURE

Q: What is the capital structure requested by the Company in this proceeding?

A. The Company's requested capital structure is shown on page 1 of Company witness Gaines' Exhibit No. ___ (DEG-5C) attached to his Direct Testimony in this proceeding. That capital structure consists of 45.00 percent common equity, 0.3 percent preferred

stock, 50.04 percent long-term debt, and 4.93 percent short-term debt. That capital structure is the average of monthly capital balances projected for the 13-month period November 2008 through December 2009.

A. PSE CAPITAL STRUCTURE HISTORY

Q: Is that capital structure similar to the manner that Puget has been capitalized over the past several quarters?

A: No. The Company's requested capital structure contains a higher percentage of common equity and a lower percentage of debt capital than the Company has actually utilized over the most recent five quarters. As shown on page 1 of Exhibit No. ___ (SGH-7), during the five-quarter period, September 2006 through September 2007, Puget Sound Energy was capitalized with 40.71 percent common equity, on average. During that time, the equity capital portion of Puget's capital structure decreased from about 41.5 percent of total capital in September 2006 to 40.2 percent in September 2007, but at no time was the Company's common equity ratio as high as that which it requests in this proceeding.

In response to Public Counsel Data Request No. 2, the Company indicates that its capital structure for the 12 months ending September 30, 2007 consisted of 40.84 percent common equity, 0.04 percent preferred stock and the remainder various forms of debt (Trust Preferred, Long-term and Short-term Debt).

Q: Has the Company very recently increased its common equity ratio?

A: Yes. With the contribution of approximately $300 Million in equity capital from Macquarie Infrastructure Partners (MIP) in conjunction with the potential acquisition of Puget Energy by MIP, Puget Energy contributed approximately $300 Million in equity

capital to Puget Sound Energy. According to PSE's 2007 SEC Form 10-K (p. 79), that equity contribution raised the Company's common equity ratio to 44.39 percent of total capital. At year-end 2007, the remainder of PSE's capital structure consisted of 0.03 percent preferred stock, 50.67 percent long-term debt and 4.90 percent short-term debt.

Q: The Company has recently achieved an equity ratio very close to the level with which they seek to set rates in this proceeding (45 percent). Does that provide a rationale sufficient to grant the Company's capital structure request?

A: No. The fact that Puget has recently increased its equity ratio to levels near its equity ratio request in this proceeding does not provide sufficient rationale for this Commission to set rates using a 45 percent common equity ratio for two primary reasons. First, over the past three years, which includes the Company's last two rate cases, Puget has exhibited a pattern in which the Company increases its common equity ratio during the rate proceeding, but, on average, remains capitalized less expensively with more debt and less equity.

In Puget's 2004 rate proceeding,[20] the Company requested that its rates be set using a 45 percent common equity ratio, which was based on a projected rate-effective period of February 2005 through February 2006. The Commission authorized an equity ratio of 43 percent in that proceeding. However, the actual average common equity ratio for Puget during the March 2005 through March 2006 period (a period only one month different from that used by the Company in support of its 45 percent equity ratio) was

[20] *WUTC v. Puget Sound Energy*, Docket Nos. UE-040640/UG-040641.

only 41.2 percent. The Company's requested capital structure from its 2004 rate case, and the subsequent actual average capital structure (reported in its quarterly SEC Forms) is shown in Table I, below.

Table I

2004 Projected Capital Structure v. Actual

2004 Rate Case Request Proj. Feb. 2005-Feb. 2006	
Type of Capital	Percent
Common Equity	**45.00%**
Preferred Stock	0.04%
Trust Preferred	6.31%
Long-term Debt	45.44%
Short-term Debt	3.21%
TOTAL	100.00%

Actual PSE Capital Structure Mar. 2005-Mar. 2006	
Type of Capital	Percent
Common Equity	**41.23%**
Preferred Stock	0.04%
Trust Preferred	5.72%
Long-term Debt	50.38%
Short-term Debt	2.64%
TOTAL	100.00%

In Puget's 2006 rate proceeding,[21] the Company again requested that its rates be set using a 45 percent common equity ratio, which was based on a projected rate-effective period of December 2006 through December 2007. The Commission authorized a level of 44 percent. However, the actual average equity ratio for Puget during that period was only 40.86 percent. The Company's requested capital structure from its 2006 rate case, and the subsequent actual average capital structure (reported in

[21] *WUTC v. Puget Sound Energy*, Docket Nos. UE-060266/UG-060267.

its quarterly SEC Forms) is shown in Table II, below.

Table II

2006 Projected Capital Structure v. Actual

2006 Rate Case Request Proj. Dec. 2006-Dec. 2007	
Type of Capital	Percent
Common Equity	**45.00%**
Preferred Stock	3.75%
Trust Preferred	0.70%
Long-term Debt	47.87%
Short-term Debt	2.68%
TOTAL	100.00%

Actual PSE Capital Structure Dec. 2006-Dec. 2007	
Type of Capital	Percent
Common Equity	**40.86%**
Preferred Stock	0.04%
Trust Preferred	0.28%
Long-term Debt	52.02%
Short-term Debt	6.80%
TOTAL	100.00%

Q: What does this analysis indicate?

A: Over the last two rate case cycles, the Company has requested a common equity ratio of 45 percent, based on forward projections (just as it has in this proceeding). However, the average common equity ratios actually utilized by Puget during those post-rate case projected periods were substantially lower. The Company has actually been capitalized with substantially less common equity and more debt than the percentages with which it indicated it would be capitalized.

Moreover, based on these Company projections, this Commission set rates for Puget based on a 43 percent equity ratio in the 2004 rate proceeding and a 44 percent

equity ratio in the 2006 rate proceeding. As a result, the Company has been capitalized, on average, with less common equity and more debt than was included in the rate-setting capital structures allowed by this Commission. Because debt is substantially less costly than common equity, the actual capital structure used by the Company has been less costly than the capital structure allowed in determining rates. This has required customers to pay for capital costs the Company did not incur.

Page 2 of Exhibit No. ___ (SGH-7) attached to this testimony shows Puget's quarterly capital structure from December 2004 through December 2007, as reported in its SEC filings. Over that three-year period, Puget Sound Energy has been capitalized, on average with just over 41 percent common equity as a percent of total capital. Page 2 of Exhibit No. ___(SGH-7) also shows how the Company has increased it common equity ratio to near-45 percent levels during the rate cases (December 2005 and December 2007), while utilizing average equity levels that were much lower. Page 3 of Exhibit No. ___ (SGH-7) shows the Company's quarterly common equity ratio over that three-year period in bar graph form.

During the past three years, with an average common equity ratio of just over 41 percent, Puget's financial position had been improving and its bonds were on review for a possible upgrade. That favorable situation changed, as shown in Company witness Gaines' Exhibits No. ___ (DEG-6) and (DEG-7), with the announcement of the possible acquisition of Puget Energy by MIP and the issuance of over $1 Billion of additional debt at Puget Energy to fund the acquisition. However, prior to the announcement of the acquisition, Puget's financial position had improved with an average 41 percent common

equity ratio. That fact is important in light of the Company's claim that its requested 45 percent common equity ratio is necessitated, in part, by its reliance on purchased power contracts, which are expected to comprise a portion of its generation mix in the future similar to that which it comprised in the past. If the Company has been able to improve its financial position (with purchased power and an average common equity ratio of 41 percent) then, unless it intends to substantially increase its reliance on purchased power, a move to a 45 percent common equity ratio would not be not justified. In fact, the Company's intent with regard to its infrastructure plans appears to be to reduce reliance on purchased power in the future, not increase it. [22]

In summary, a review of the Company's capital structure changes over the past three years, shows that Puget increases its common equity ratio during rate cases, but actually capitalizes its operations, on average, with substantially less equity and more debt than authorized by the Commission. That information indicates that the recent equity infusion to Puget Sound Energy by Puget Energy, resulting from the parent's stock purchase agreement with MIP, does not provide rationale to set rates for Puget with a 45 percent common equity ratio.

Q: How much does a one percent increase in common equity ratio cost Puget customers annually?

A: According to Mr. Markell's response to Public Counsel Data Request No. 13, a one percent (1%) common equity ratio increase raises Puget's total revenue requirement by

[22] See Markel Exhibit No. ___ (EMM-3C.

$4,153,410 annually. Therefore, if rates are set with a 45 percent equity ratio and Puget continues to capitalize its operations, as it has in the past, with a 41 percent common equity ratio, that four percent equity ratio difference would require ratepayers to provide approximately $16.6 Million more annually in capital costs than the Company would actually incur.

B. PARENT-SUBSIDIARY CAPITAL STRUCTURE LINKAGE

Q: You noted there were two primary reasons why a recent equity ratio increase for Puget Sound Energy is not sufficient rationale on which to base a ratemaking common equity ratio. What is the other reason?

A: The other reason that this Commission cannot rely solely on the new, post-infusion capital structure of Puget Sound Energy as a basis for ratemaking is that the capital structure of Puget Sound Energy is determined by the manner in which the parent company, Puget Energy, elects to allocate capital investment to its subsidiary. Moreover, Puget Sound Energy is the only subsidiary of Puget Energy and the board of directors of both companies are comprised of the same individuals. [23]

/ /

/ / /

/ / / /

/ / / / /

/ / / / / /

[23] See PSE's Response to Public Counsel Data Request No. 3030 in Docket No. U-072375.

Table III

Boards of Directors

PUGET ENERGY	PUGET SOUND ENERGY
Stephen P. Reynolds	Stephen P. Reynolds
William S. Ayer	William S. Ayer
Phyllis J. Campbell	Phyllis J. Campbell
Craig W. Cole	Craig W. Cole
Stephen E. Frank	Stephen E. Frank
Tomio Moriguchi	Tomio Moriguchi
Dr. Kenneth P. Mortimer	Dr. Kenneth P. Mortimer
Sally G. Narodick	Sally G. Narodick
Herbert B. Simon	Herbert B. Simon
George W. Watson	George W. Watson

In addition, most of the executive officers of Puget Sound Energy are also executive officers of the parent company, Puget Energy. This includes Reynolds, Eldridge, Gaines, Markell, and O'Connor.[24]

While Puget Energy and Puget Sound Energy are separate legal entities, they are run by the same people, and are, effectively the same company. Therefore, the capital structure of Puget Sound Energy is determined by Puget Energy, and that capital structure can be structured or shaped by the parent to appear different from the manner in which the Company's assets are actually capitalized. In other words, this Commission should look beyond the capital structure on the books of the subsidiary, PSE, to the actual mix of

[24] Puget Energy 2007 10-K, p. 26.

capital on the books of the parent company, Puget Energy, in order to know how the assets of the regulated entity are actually capitalized.

As I noted above, in conjunction with the pending acquisition of Puget Energy by MIP, that investment consortium purchased approximately $300 Million of parent company stock. That capital was then invested in the equity of Puget Energy's subsidiary, Puget Sound Energy, resulting in the pre-rate case spike in the Company's common equity ratio. However, a very different scenario could produce exactly the same capital structure results. For example, if Puget Energy received no equity capital from MIP and had, instead, issued $300 Million of medium-term notes, the parent company could have invested that capital (obtained from the issuance of debt) in the common equity of its subsidiary, PSE. In that instance, PSE's capital structure would appear to be the same as it is today. However, that additional capital, which appears on the balance sheet of PSE to be subsidiary equity, would have been provided by the parent company's issuance of debt.

Q: Why does that make any difference in the determination of the appropriate ratemaking capital structure for the subsidiary, PSE?

A: It makes a difference because the cost of the capital that appears to be common equity on the balance sheet of the regulated subsidiary is not 9.0 percent to 9.5 percent (the cost of equity capital) it is 3 percent to 6 percent (the cost of debt, depending on the length of the debt issue). Therefore, if ratepayers are required to pay an equity return on capital that is actually supplied by issuing debt, they would be providing rates that are not cost-based as well as providing the Company a return in excess of a fair return. When an equity return

is applied to debt capital, the difference in the cost increases the bottom line and contributes to over-earning the cost of capital.

Q: Are there additional costs that ratepayers would incur in such a situation?

A: Yes. In addition, the cost to ratepayers of that additional subsidiary equity capital would include the income tax responsibility associated with that equity capital. In that way, a 9 percent after-tax return becomes a 13.8 percent pre-tax return requirement [9% ÷ (1-35% tax rate)]. However, because the parent is the tax-paying entity, and debt expense is deducted prior to the calculation of income taxes, no income tax associated with that capital will be paid by the parent. In other words, ratepayers would be required to pay the income taxes associated with that amount of capital because it is included as common equity on the balance sheet of the subsidiary, but the parent company will not pay those taxes to the Federal government. Therefore, if the subsidiary capital structure is used to determine rates, in addition to providing an equity return for what is actually debt capital, ratepayers would be required to provide monies to pay the income taxes on that capital even though the company will not pay those taxes. This tax effect also contributes to a mismatch between the capital-related costs included in rates and the costs actually incurred by the company.

Q: Are there other factors that can have a harmful effect on ratepayers?

A: Yes. In the situation where the subsidiary capital structure is different from that of the parent, there are other factors that can negatively impact ratepayers. If the parent company, as in our example, issues debt to supply equity to the subsidiary, the financial risk of the entire consolidated company is increased. The cash flows provided by the

subsidiary (the only source of funds for the parent) must be sufficient to support not only its own debt but also the debt at the parent company level. That additional debt responsibility raises financial risk as well as the potential for a bond rating downgrade or, if very large amounts of debt are issued at the parent company level, the potential for default.

Q: Does the Parent Company have other options for shaping the capital structure of its subsidiary besides allocating all capital contributions as equity capital?

A: Yes. Puget Energy could issue debt and use those funds to buy back PSE debt without first investing those monies in the equity of PSE. That action would not change the consolidated company capitalization, but would move some debt responsibility to the parent, and would raise the common equity ratio of the subsidiary. For example, when Puget sold its Infrastrux unregulated subsidiary, it invested part of the proceeds in PSE equity and loaned some of the proceeds to PSE, thereby raising both the equity and debt balances.[25] Approximately $15.8 Million of that loan remained on Puget Sound Energy's books at year-end 2007.

As another example, Puget Energy could also issue debt, invest those monies in PSE's equity accounts and then, in turn, PSE could use those funds to buy down a similar amount of its debt. That action would both increase equity balances and reduce debt balances at PSE, causing a more dramatic swing in subsidiary common equity ratio,

[25] The intent to loan a portion of the funds derived from the sale of Infrastrux to PSE is discussed in the Company's filing in Docket Nos. UE-060822/UG-060823 (*see* May 19, 2006 letter to Carole Washburn, Secretary, Washington Utilities and Transportation Commission, from Donald Gaines, which includes May 18, 2006 Minutes from Puget's Securities Pricing Committee Meeting, p. 4).

while having no impact on the consolidated capital structure. The parent company also has the ability to take larger or smaller than normal dividend payments from the subsidiary, which would affect the common equity levels of PSE.

These examples illustrate that there are a number of ways in which Puget Energy can select the capital structure of its only subsidiary, Puget Sound Energy, making the capital structure of the regulated entity appear different from the mix of capital actually used to finance PSE's assets.[26]

Q: Is the consolidated capital structure of Puget Energy currently different from that of Puget Sound Energy?

A: No. Because Puget Energy has no debt currently outstanding and because Puget Sound Energy is now Puget Energy's only subsidiary, the parent company consolidated capital structure is very similar to that of its regulated subsidiary. However, it does not appear this will be the case if the acquisition of Puget Energy by Macquarie proceeds.

According to Puget Energy's February 15, 2008 Proxy Statement,[27] which is a non-confidential document available on the SEC's website, Macquarie has arranged for debt financing totaling $2.4 Billion to finance the acquisition ($1.4 Billion) and future capital expenditures ($1.0 Billion). That debt will reside at Puget Energy following the acquisition. That debt will be in addition to the debt Puget Sound Energy currently has outstanding. With that influx of debt capital, the parent company will be able to maintain

[26] PSE's Responses to Staff Data Requests Nos. 76 and 77 state that Puget Energy's only subsidiary is Puget Sound Energy.
[27] SEC Form DEFM14A, p. 56.

any particular capital structure it desires through the means described above, but the actual capital mix supporting PSE regulated assets (shown only in Puget Energy's consolidated capital structure) will be considerably more debt-heavy than will appear on PSE's balance sheet. In order to accurately assess the Company's actual capital costs in that instance, this Commission should look beyond the subsidiary company's capital structure to the capital structure of the consolidated parent company.

Q: Does this conclude your discussion of the linkage between the capital structure of Puget Energy and Puget Sound Energy?

A: Yes.

C. INDUSTRY-AVERAGE CAPITAL STRUCTURE / RECOMMENDATION

Q: How are other combination gas and electric companies currently capitalized?

A: Page 4 of Exhibit No. ___ (SGH-7) attached to this testimony shows the average common equity ratio as a percent of total capital for 41 combination gas and electric companies as reported in the March 2008 edition of AUS Utility Reports. Those data show an average common equity ratio for the entire group of 44 percent. For the combination electric and gas companies that have at least one "BBB" bond rating from either Standard & Poor's or Moody's, the average common equity ratio is 40 percent of total capital.

Q: Taking into account the factors you have discussed in this section of your testimony, what common equity ratio do you believe is appropriate for setting rates for Puget at this time?

A: As discussed, the average common equity ratio employed by Puget over the most recent five quarters at the time of the Company's filing (September 2006 through September 2007), is 40.71 percent. Even if the nearly $300 million equity infusion from MIP via Puget Energy is included, PSE's average common equity ratio from December 2006 through December 2007 is 40.86 percent.[28] As shown, the average common equity ratio of the combination gas and electric utility industry is 44 percent, while for combination companies with a "BBB" bond rating, the average common equity ratio is 40 percent of total capital.

Considering those factors, I believe a range of 41 percent to 43 percent would be reasonable, and to be conservative, I will use the 43 percent common equity ratio selected as reasonable by the Commission in the Company's 2004 rate proceeding. This ratio remains a reasonable and conservative basis for ratemaking. Page 5 of Exhibit No. ___ (SGH-7) shows that reducing the Company's projected average common equity balances by approximately $120 Million and replacing that capital with long-term debt (similar to the adjustment procedure used by the Commission in its Final Order in Puget's 2004 rate proceeding) produces a capital structure of 43.0 percent common equity, 0.03 percent preferred stock, 52.04 percent long-term debt and 4.93 percent short-term debt.

It is also important to note that included in the Company's projected long-term debt balances is $250 Million of recently-issued Junior Subordinated Notes, which

[28] This average equity percentage, derived from Puget's SEC filings shown on page 2 of Exhibit No. ___ (SGH-7), does not exclude negative retained earnings related to PSE subsidiaries or other comprehensive income. At 9/30/07 those balances approximated -$60 Million (PSE response to Public Counsel Data Request No. 2). Removing that amount from the average 2007 quarterly balances would increase the 12/2006 to 12/2007 five-quarter equity ratio averages to 41.55 percent.

receive 50 percent "equity credit" by the bond rating agencies.[29] This indicates that, based on the 43 percent common equity ratio I recommend, the effective equity ratio for bond rating credit purposes is approximately 45 percent of total capital, absent consideration of any other factors. That calculation is also shown on page 5 of Exhibit No. ___ (SGH-7).

Q: What cost rates for debt and preferred stock have you used for rate setting purposes?

A: I have reviewed the Company's projected cost rates for preferred stock, and long-term debt, have found them to be reasonable and will use them for the purpose of determining an overall return. For purposes of preparing my Direct Testimony, have also used the Company's projected short-term debt cost rate. However, as shown on Chart I, Federal Reserve action to avert liquidity concerns in the banking industry has recently dramatically lowered short-term interest rates. I believe it is likely that the forward-looking short-term rates will be lower than the level projected by the Company in its original filing. I have not recalculated the Company's request, but recommend that its short-term debt cost rate projections be updated prior to the close of the record in this proceeding.

IV. COST OF EQUITY EVALUATION

A. DISCOUNTED CASH FLOW MODEL

[29] See Mr. Gaines' Direct Testimony, Exhibit No. ___ (DEG-1T), pp. 8, 9.

Q: Please describe the discounted cash flow (DCF) model you used to arrive at an estimate of the cost rate of common equity capital for Puget Sound Energy in this proceeding.

A: The DCF model, the primary method of estimating equity capital cost in regulatory proceedings, relies on the equivalence of the market price of the stock (P) with the present value of the cash flows investors expect from the stock, providing the discount rate equals the cost of capital. The total return to the investor, which equals the required return according to this theory, is the sum of the dividend yield and the expected growth rate in the dividend.

The theory is represented by the equation,

$$k = D/P + g, \qquad (1)$$

where "k" is the equity capitalization rate (cost of equity, required return), "D/P" is the dividend yield (dividend divided by the stock price) and "g" is the expected sustainable growth rate.

Q: What growth rate (g) did you adopt in developing your DCF cost of common equity for the Company in this proceeding?

A: The growth rate variable in the DCF model is quantified theoretically as the dividend growth rate investors expect to continue into the indefinite future. The DCF model is actually derived by 1) considering the dividend a growing perpetuity, that is, a payment to the stockholder which grows at a constant rate indefinitely, and 2) calculating the present value (the current stock price) of that perpetuity. The model also assumes that the

company whose equity cost is to be measured exists in a steady state environment, i.e., the payout ratio and the expected return are constant and the earnings, dividends, book value and stock price all grow at the same rate, forever. As with all mathematical models of real-world phenomena, the DCF theory does not exactly "track" reality. Although a very long stock market history has shown that dividends, earnings, book value and stock prices do increase at approximately the same rate, payout ratios and expected equity returns do change over time. Therefore, in order to properly apply the DCF model to any real-world situation and, in this case, to find the long-term sustainable growth rate called for in the DCF theory, it is essential to understand the determinants of long-run expected dividend growth.

Q: Can you provide an example to illustrate the determinants of long-run expected dividend growth?

A: Yes, in Exhibit No. ___ (SGH-4), I provide an example of the determinants of a sustainable growth rate on which to base a reliable DCF estimate. In addition, in Exhibit No. ___ (SGH-4), I show how reliance on earnings or dividend growth rates alone, absent an examination of the underlying determinants of long-run dividend growth, can produce inaccurate DCF results.

Q: Did you use a sustainable growth rate approach as a basis for developing an estimate of the expected growth rate for the DCF model?

A: Yes. I have calculated both the historical and projected sustainable growth rate for a sample of utility firms with similar-risk operations. However, I have not relied solely on that type of growth rate analysis. In addition to the sustainable growth rate analysis, I

have also analyzed published data regarding both historical and projected growth rates in earnings, dividends, and book value for the sample group of utility companies. Through an examination of those data, which are available to and used by investors, I am able to estimate investors' long-term growth rate expectations. To that long-term growth rate estimate, I add any additional growth that is attributable to investors' expectations regarding the on-going sale of stock for each of the companies under review.

Q: Why have you used the technique of analyzing the market data of several companies?

A: I have used the "similar sample group" approach to cost of capital analysis because it yields a more accurate determination of the cost of equity capital than does the analysis of the data of one individual company. Any form of analysis, in which the result is an estimate, such as growth in the DCF model, is subject to measurement error, i.e., error induced by the measurement of a particular parameter or by variations in the estimate of the technique chosen. When the technique is applied to only one observation (e.g., estimating the DCF growth rate for a single company) the estimate is referred to, statistically, as having "zero degrees of freedom." This means, simply, that there is no way of knowing if any observed change in the growth rate estimate is due to measurement error or to an actual change in the cost of capital. The degrees of freedom can be increased and exposure to measurement error reduced by applying any given estimation technique to a sample of companies rather than one single company. Therefore, by analyzing a group of firms with similar characteristics, the estimated value (the growth rate and the resultant cost of capital) is more likely to equal the "true" value

for that type of operation.

Q: How were the firms selected for your analysis?

A: In selecting a sample of utility firms to analyze, I screened all the electric utilities followed by Value Line, because that investor service, in addition to providing a wealth of historical data, provides projected information, which is important in gauging investor expectations. Because approximately 60 percent of Puget Energy's revenues are derived from electric utility operations, I selected electric companies that had at least 50 percent of revenues from electric operations, had generation assets, did not have a recent dividend cut, had stable book values and a bond rating between "A-" and "BBB-". I also eliminated other companies with pending mergers, while including Puget Energy in the sample group. Because Puget Energy is currently an acquisition target and has experienced an increase in stock price because of that pending acquisition, my sample group results are reported with and without the results for Puget.

The screening process for the electric companies is shown on Exhibit No. ___ (SGH-8) attached to my testimony. The Companies selected for analysis are: Central Vermont Public Service (CV), FirstEnergy Corp. (FE), Northeast Utilities (NU), Ameren Corp. (AEE), American Electric Power (AEP), Cleco Corp. (CNL), Empire District Electric (DPL), Entergy Corp. (ETR), Hawaiian Electric (HE), PNM Resources (PNM), Pinnacle West Capital Corp. (PNW), and Unisource Energy (UNS), and Xcel Energy (XEL).[30] According to the March 2008 publication by AUS Utility Reports, the average

[30] In the Exhibits accompanying this testimony, the sample group companies are referred to by their stock ticker symbols.

S&P senior bond rating of the sample group is "BBB" while that of Puget Sound Energy is "BBB+". That same publication indicates that the average Moody's senior bond rating for the sample group is between "Baa2" and "Baa1", while Moody's senior bond rating for PSE is "Baa2." According to these measures, the sample group is similar in risk to Puget.

I have elected not to analyze a separate group of gas distributors for two primary reasons. First, there are very few pure-play gas distributors and many of the former gas distributors now have energy trading operations which, although gas-related, are unregulated operations that increase overall investment risk (e.g. New Jersey Resources. AGL Resources, Atmos Energy). Therefore, analysis of those companies would overstate the cost of equity of a gas distributor and defeat the purpose of their inclusion in an attempt to estimate the cost of equity for Puget's gas distribution operations. Second, in my experience, the cost of equity of gas distributors has been similar to that of electric utility operations and the analysis of the cost of equity of a separate sample group of gas companies would not provide a substantially different result. For example, averaging all the cost of equity estimates for the electric company and gas company sample groups in my direct testimony in Puget's 2006 rate proceeding produced an average estimate of 9.34% for both groups. Therefore, in this analysis I have utilized a sample group that contains mostly gas and electric combination utilities as well as electric utilities, with generation, to proxy the investment risk of Puget Sound Energy and have not analyzed

the equity capital cost of a separate group of gas companies.

1. Growth Rate

Q: How have you calculated the DCF growth rates for the sample of comparable companies?

A: Exhibit No. ___ (SGH-9) pages 1 through 5, shows the retention ratios, equity returns, sustainable growth rates, book values per share, and number of shares outstanding for the comparable electric and combination gas and electric companies for the past five years. Also included in the information presented in Exhibit No. ___ (SGH-9), are Value Line's projected values for equity return, retention ratio, book value growth rates, and number of shares outstanding.[31]

Q: Please describe your analysis of these data.

A: In evaluating these data, for each of the companies in the similar-risk sample group I first calculate the five-year average sustainable growth rate, which is the product of the earned return on equity (r) and the ratio of earnings retained within the firm (b). A description of the growth rate analyses of each of the companies in the sample group is set out in Exhibit No. ___ (SGH-5). In addition, Exhibit No. ___ (SGH-10), page 1 shows the internal, external and resultant overall growth rates for each of the similar-risk electric companies analyzed.

In this portion of my testimony, I have included the details of my growth rate

[31] Due to the timing of Value Line publications, the projections for the companies in the Central and West are for 2007, 2008 and 2010-2012; while the projections for the companies in the East are for 2008, 2008 and 2011-2013.

analysis for Pinnacle West Capital Corporation (PNW) as an example of the methodology I use in determining the DCF growth rate for each company. For example, Exhibit No. ___ (SGH-9), page 4, shows that the five-year average sustainable growth rate for PNW is 2.38 percent. The simple five-year average sustainable growth value is used as a benchmark against which I measure the company's most recent growth rate trends. Recent growth rate trends are more investor-influencing than are simple historical averages. Continuing to focus on PNW, we see that sustainable growth in 2006 was about 3.3 percent—above the average growth for the five-year period. The historical data, therefore, indicate an increasing growth rate trend. However, by the 2010-2012 period, Value Line projects PNW's sustainable growth will reach a level below the recent five-year average—about 2 percent. These forward-looking data indicate that investors expect PNW to grow at a rate in the future below the growth rate that has existed, on average, over the past five years.

At this point I should note that, while the five-year projections are given consideration in estimating a proper growth rate because they are available to and are used by investors, they are not given sole consideration. Without reviewing all the data available to investors, both projected and historic, sole reliance on projected information may be misleading. Value Line readily acknowledges to its subscribers the subjectivity

/ /

/ / /

necessarily present in estimates of the future:

> We have greater confidence in our year-ahead ranking system, which is based on proven price and earnings momentum, than in 3- to 5-year projections. [32]

Another factor to consider is that PNW's book value growth is expected to increase at a 2 percent level over the next five years, after increasing at a 4 percent rate historically. This information would also tend to moderate growth rate expectations. Also, as shown on Exhibit No. ___ (SGH-10), page 2, that Company's dividend growth rate, which was 6 percent historically, is also expected to decline to a 3 percent rate of growth in the future, but that level is higher than the sustainable growth rate projections. That information would tend to confirm investor expectations regarding more moderate growth in the future, but not as low as indicated by the sustainable growth data. Earnings growth rate data available from Value Line indicate that investors can expect a higher growth rate in the future (1.5 percent) than has existed over the past five years (-5 percent). Although the Value Line earnings growth projection, alone, is rather low, it does indicate an improving trend for PNW. Reuters and Zack's (investor advisory services that poll institutional analysts for growth earnings rate projections) project higher earnings growth rate for PNW of 5.5 percent and 6.7 percent, respectively, over the next five years.

PNW's projected sustainable growth, as well as Value Line's projected dividend and book value growth, indicate that investors can expect higher growth than has

[32] Value Line Investment Survey, Selection and Opinion, June 7, 1991, p. 854.

occurred, on average, in the past. Those projections are moderated by an expectation of higher of earnings growth projections. A long-term sustainable growth rate of 3.5 percent is a reasonable expectation for PNW.

Q: Is the internal growth rate the final growth rate you use in your DCF analysis?

A: No. An investor's sustainable growth rate analysis does not end upon the determination of an internal growth rate. Investor expectations regarding growth from external sources (sales of stock) should also be considered and examined. For PNW, page 4 of Exhibit No. ___ (SGH-9) shows that the number of outstanding shares increased at a 2.3 percent rate over the most recent five-year period. However, Value Line expects the number of shares outstanding to increase more slowly through the 2010-20012 period, bringing the share growth rate down to a 0.2 percent rate by that time. An expectation of share growth of 0.5 percent is reasonable for this company. As shown on page 1 of Exhibit No. ___ (SGH-10), because PNW is currently trading at a market price that is slightly more than book value, issuing additional shares will only slightly increase investors' growth rate expectations. Multiplying the expected growth rate in shares outstanding (0.5%) by (1-B/M)[33], increases the growth rate by 0.02 percent, and the combined internal and external DCF growth rate for PNW is 3.52 percent.

Q: Have you checked the reasonableness of your growth rate estimates against other, publicly available, growth rate data?

A: Yes. Page 2 of Exhibit No. ___ (SGH-10) shows the results of my DCF sustainable

[33] This is Gordon's formula for "v" the accretion rate related to new stock issues. B=book value, M=market value.

growth rate analysis as well as 5-year historic and projected earnings, dividends and book value growth rates from Value Line, earnings growth rate projections from Reuters, the average of Value Line and Reuters growth rates and the 5-year historical compound growth rates for earnings, dividends and book value for each company under study.

My DCF growth rate estimate for all the electric and combination gas and electric utility companies included in my analysis is ~~4.97~~5.07 percent. This figure is higher than Value Line's projected average growth rate in earnings, dividends and book value for those same companies (4.88%), and is well above the five-year historical average earnings, dividend and book value growth rate reported by Value Line for those companies (1.26%). My growth rate estimate is above the projected dividend growth rate of the sample companies, 4.43 percent.

My earnings growth rate estimate for the electric and combination gas and electric companies under review is below analysts' growth rate projection. Reuters and Zack's earnings growth projections for the companies in my sample are, 8 percent and 7 percent, respectively. As shown on page 2 of Exhibit No. ___ (SGH-10), the average earnings growth of my sample group over the past five years was negative and the relatively high earnings growth projections, while evidence of a recovery from negative historical growth, are unlikely to represent sustainable long-term future growth. In addition, studies have shown that analysts' earnings growth estimates are overly-optimistic and, if used as a sole basis for the determination of a DCF cost of equity estimate would tend to

overstate investor return requirements.[34]

Q: Are there other reasons not to rely exclusively on analysts' earnings growth rate projections in the determination of a DCF equity cost estimate?

A: Yes, there are additional reasons to be cautious about placing exclusive reliance on analysts' earnings growth rate projections. First, the exclusive use of analysts' projected earnings growth rates is often associated with an erroneous notion of "consensus," i.e., projected earnings growth rates are used by investors to estimate return requirements and such estimates closely agree. However, what is called a "consensus" earnings growth expectation is, in reality, often quite divergent and earnings growth rate expectations show wide variation. A simple average of those projected growth estimates may or may not represent investors' expectations regarding the long-term growth. For example, Reuters' 12 percent earnings growth projection for PNM Resources shown on page 2 of Exhibit No. ___ (SGH-10) is based on an earnings estimate range of 18% with a standard deviation of 6.5 percent, more than half the average. Those data certainly do not represent a "consensus" expectation.

Second, as evidenced in headlines in the financial media in recent years, the sell-side institutional analysts that are polled by IBES, Reuters, Zacks and similar services offer relatively "rosy" expectations for the stocks they follow—even when the analyst's actual expectations for the stock are less sanguine. Simply put, some analysts overstate growth expectations to make the stocks look better. Although claims are often made that

[34] Brealey, Meyers, Allen, Principles of Corporate Finance, 8th Ed., McGraw-Hill Irwin, Boston MA, 2006, p. 67,

the opinions of sell-side analysts are not affected by the profits made by the other parts of their firms that actually trade those securities, recent events in the marketplace underscore that concern.

The concern regarding investors' use of analysts' growth estimates is highlighted by an investor's advisory service sponsored by the *Wall Street Journal*:

> You should be careful when looking at analyst recommendations for several reasons. First of all, many analysts suffer from a conflict of interest between the firm that employs them and the company whose stock they track. Often times, an analyst will be responsible for issuing reports on a company that is a current or potential client of their employer (usually an investment bank). Since they know that their employer would like to keep the client's business, the analyst may be tempted to issue a rosier outlook for the stock than what it really deserves. [35]

Q: Does this conclude the growth rate portion of your DCF analysis?

A: Yes, it does. My analysis indicates that the appropriate long-term growth rate for the sample of similar-risk combination gas and electric firms is 4.97 percent. The next step in determining the DCF cost of equity capital is the development of the dividend yield.

2. Dividend Yield

Q: How have you calculated the dividend yields?

A. I have estimated the next quarterly dividend payment of each firm analyzed and annualized them for use in determining the dividend yield. If the quarterly dividend of any company was expected to be raised in the next quarter (2nd quarter 2008) I increased

[35] Investorguide.com, "University," Analysts and Earnings Estimates, www.investorguide.com/igustockanalyst.html.

the current quarterly dividend by (1+g). For the utility companies in the sample groups, a dividend adjustment was unnecessary for most of the companies under study because they either recently raised their dividend or were not projected to raise the dividend in 2008. A dividend adjustment was required only for Pinnacle West and Unisource Energy.

The next quarter annualized dividends were divided by a recent daily closing average stock price to obtain the DCF dividend yields. I use the most recent six-week period to determine an average stock price in a DCF cost of equity determination because that period of time is long enough to avoid daily fluctuations and recent enough so that the stock price captured during the study period is representative of current investor expectations.

Exhibit No. ___ (SGH-11) contains the market prices, annualized dividends and dividend yields of the utility companies under study. Exhibit No. ___ (SGH-11) indicates that the average dividend yield for the sample group of electric companies is 4.37 percent. The year-ahead dividend yield projection for the electric utility sample group published by Value Line is 4.46 percent (Value Line, *Summary & Index*, March 7, 2006). By that measure, my dividend yield calculation is representative of investor expectations.

3. DCF Equity Cost Estimate

Q: What is your cost of equity capital estimate for the electric and gas utility companies, utilizing the DCF model?

A: Exhibit No. ___ (SGH-12) shows that the average DCF cost of equity capital for the entire group of electric and combination gas and electric utilities is ~~9.37~~9.46 percent, absent consideration of the DCF result for Puget Energy (9.11%). Including the result for

Puget indicates an average DCF result of ~~9.35~~ 9.44 percent.

B. CORROBORATIVE EQUITY COST ESTIMATION METHODS

Q: In addition to the DCF, what other methods have you used to estimate the cost of equity capital for Puget Sound Energy?

A: To support and temper the results of my DCF analysis, I have used three additional econometric methods to estimate the cost of equity capital for a group of firms similar in investment risk to Puget. The three methodologies are: 1) the Capital Asset Pricing Model (CAPM), 2) the Modified Earnings-Price Ratio (MEPR) analysis, and 3) the Market-to-Book Ratio (MTB) analysis. The similar risk sample group of firms analyzed with these three methods is the same as that selected for the DCF analysis, discussed previously. The theoretical details of each of those analyses are contained in Exhibit No. ___ (SGH-6), attached to this testimony. The calculations and data supporting the results of each of these models are shown in the attached exhibits.

Q: Please describe the results of your CAPM analysis.

A: Exhibit No. ___ (SGH-13) shows the detail regarding the CAPM analysis. Exhibit No. ___ (SGH-13) shows a CAPM cost of capital for the electric companies ranging from 8.59 percent to 9.83 percent, with a mid-point of 9.21 percent. The average beta of the group (0.82) does not change when Puget Energy's beta (0.80) is removed. However, that difference in beta indicates that a CAPM cost of equity analysis performed solely on Puget Energy would produce a slightly lower result than 9.21 percent.

Q: Please describe the results of your modified earnings price ratio analysis.

A: Exhibit No. ___ (SGH-14) and Exhibit No. ___ (SGH-15) show the theoretical basis and

the data and calculations, respectively, regarding the Modified Earnings Price Ratio (MEPR) analysis. The MEPR analysis indicates a current cost of equity capital for electric and gas companies in a range from 8.45 percent to 8.64 percent. Including the result for Puget Energy would lower the average MTB results slightly for a range of 8.34 percent to 8.64 percent.

Q: Please describe the results of your market-to-book ratio analysis.

A: Pages 1 and 2 of Exhibit No. ___ (SGH-16) attached to this testimony contain the supporting detail for the Market-to-Book Ratio (MTB) analysis, which indicates a current cost of equity capital for the electric and combination gas and electric utility companies of ~~9.21~~ 9.31 percent (near-term) to ~~9.36~~ 9.45 percent (long-term). Including Puget Energy results in the average indicates a range of ~~9.18~~ 9.27 percent to ~~9.35~~ 9.44 percent.

C. SUMMARY OF EQUITY COST ANALYSIS

Q: Please summarize the results of your equity capital cost analyses for the sample groups of similar-risk utility companies.

A: My analysis of the cost of common equity capital for the sample group of electric utility and combination gas and electric utility companies, absent results for Puget Energy, is summarized in Table IV below.

/ /

/ / /

/ / / /

/ / / / /

/ / / / / /

Table IV

Equity Cost Estimates

METHOD	Electric & Combination Companies
DCF	~~9.37~~9.46%
CAPM	8.59%—9.83%
MEPR	8.45%—8.64%
MTB	~~9.21~~9.31%—~~9.36~~9.45%

For the similar-risk utility sample group, the DCF result is ~~9.37~~ 9.46 percent. In addition, the corroborating cost of equity analyses (MEPR, MTB, and CAPM) show that DCF result may be somewhat overstated. Averaging the lowest and highest results of all the corroborative analyses for the electric companies produces an equity cost range of ~~8.75~~ 8.78 percent to ~~9.28~~ 9.31percent, with a mid-point of ~~9.02~~ 9.04 percent, ~~35~~ 42 basis points below the DCF result.

Therefore, weighing all the evidence presented herein, my best estimate of the cost of equity capital for a company facing similar risks as this group of combination electric and gas utilities, ranges from 9.00 percent to 9.50 percent, with a mid-point of 9.25 percent.

D. FLOTATION COSTS / ADDITIONAL CONSIDERATIONS

Q: Does your equity cost estimate include an increment for flotation costs?

A: No, it does not.

Q: Can you please explain why an explicit adjustment to the cost of equity capital for flotation costs is unnecessary?

A: An explicit adjustment to "account for" flotation costs is unnecessary for several reasons. First, Dr. Morin notes at pages 57 and 58 of his Direct Testimony that flotation costs associated with common stock issues are similar to flotation costs associated with bonds. As a preliminary matter, that is not a correct statement because bonds have a fixed cost and common stock does not. Moreover, even if it were true, the current relationship between the electric utility sample group's stock price and its book value would indicate a reduction to the market-based cost of equity, not an increase.

When a bond is issued at a price that exceeds its face (book) value, and that difference between market price and the book value is greater than the flotation costs incurred during the issuance, the embedded cost of that debt (the cost to the company) is *lower* than the coupon rate of that debt.

In the current economic environment for the electric utility common stocks studied to determine the cost of equity in this proceeding, those stocks are selling at a market price 50 percent above book value.[36] The difference between the market price of electric utility stock and book value dwarfs any issuance expense the companies might incur. Therefore, if common equity flotation costs are, as Dr. Morin testifies, analogous to bond flotation costs, if an explicit adjustment to the cost of common equity were necessary, it should be downward, not upward.

[36] Exhibit No. ___ (SGH-10), p. 1.

Second, flotation cost adjustments are usually predicated on the prevention of the dilution of stockholder investment. However, the reduction of the book value of stockholder investment due to issuance expenses can occur only when the utility's stock is selling at a market price at or below its book value. As noted, the companies under review are selling at a substantial premium to book value. Therefore, every time a new share of that stock is sold, existing shareholders realize an *increase* in the per share book value of their investment. No dilution occurs, even without any explicit flotation cost allowance.

Third, the vast majority of the issuance expenses incurred in any public stock offering are "underwriter's fees" or "discounts". Underwriter's discounts are not out-of-pocket expenses for the issuing company. On a per share basis, they represent only the difference between the price the underwriter receives from the public and the price the utility receives from the underwriter for its stock. As a result, underwriter's fees are not an expense incurred by the issuing utility and recovery of such "costs" should not be included in rates.

In addition, the amount of the underwriter's fees are prominently displayed on the front page of every stock offering prospectus and, as a result, the investors who participate in those offerings (e.g., brokerage firms) are quite aware that a portion of the price they pay does not go to the company but goes, instead, to the underwriters. By electing to buy the stock with that understanding, those investors have effectively accounted for those issuance costs in their risk-return framework by paying the offering

price. Therefore, they do not need any additional adjustments to the allowed return of the regulated firm to "account" for those costs.

Fourth, my DCF growth rate analysis includes an upward adjustment to equity capital costs which accounts for investor expectations regarding stock sales at market prices in excess of book value, and any further explicit adjustment for issuance expenses related to increases in stock outstanding is unnecessary.

Fifth, research has shown that a specific adjustment for issuance expenses is unnecessary.[37] There are other transaction costs which, when properly considered, eliminate the need for an explicit issuance expense adjustment to equity capital costs. The transaction cost that is improperly ignored by the advocates of issuance expense adjustments is brokerage fees. Issuance expenses occur with an initial issue of stock in a primary market offering. Brokerage fees occur in the much larger secondary market where pre-existing shares are traded daily. Brokerage fees tend to increase the price of the stock to the investor to levels above that reported in the Wall Street Journal, i.e., the market price that analysts use in a DCF analysis. Therefore, if brokerage fees were included in a DCF cost of capital estimate they would raise the effective market price, lower the dividend yield and lower the investors' required return. If one considers transaction costs that, supposedly, raise the required return (issuance expenses), then a symmetrical treatment would require that costs that lower the required return (brokerage fees) should also be considered. As shown by the research noted above, those transaction

[37] "A Note on Transaction Costs and the Cost of Common Equity for a Public Utility," Habr, D., National Regulatory Research Institute Quarterly Bulletin, January 1988, pp. 95-103.

costs essentially offset each other and no specific equity capital cost adjustment is warranted.

Q: Are there other factors to be considered before determining a point-estimate for Puget within a reasonable range for similar-risk firms?

A: Yes. As I discussed in Section III of my testimony, the sample group companies have very similar bond ratings to Puget Sound Energy, according to both Standard & Poor's and Moody's. AUS Utility Reports indicates in its most recent publication (March 2008) that the average common equity ratio of the sample group, excluding Puget, is 43.8 percent of total capital. The ratemaking capital structure I recommend is slightly lower that that, at 43 percent, indicating that Puget has similar financial risk. In addition, Standard & Poor's assigns Puget a business risk ranking of "4" ("1" being the lowest risk and "10" being the highest), while the average business risk ranking of the sample group, without Puget, is considerably higher—5.7. The electric and combination gas and electric utilities in my sample group have a fundamental business risk that exceeds that of Puget. An equity return in the middle of the range would be reasonable in this instance. For purposes of determining an overall rate of return for Puget Sound Energy, then, the mid-point of the current range of equity capital costs for similar-risk electric and gas utilities, 9.25 percent, is reasonable.

E. OVERALL RETURN RECOMMENDATION

Q: What would be the overall cost of capital for Puget's electric and gas utility operations, based on an allowed equity return of 9.25 percent?

A. Exhibit No. ___ (SGH-17) attached to my testimony shows that an equity return of 9.25 percent, operating through a reasonable ratemaking capital structure and the Company's forward-looking capital cost rates, produces an overall return of 7.86 percent for Puget. That Exhibit also shows that a 7.86 percent overall cost of capital affords the Company an opportunity to achieve a pre-tax interest coverage level of 2.58 times.

According to the Company's 2007 SEC Form 10-Q (Exhibit 12.2 to the 10-Q), the pre-tax interest coverage for Puget Sound Energy has been as shown below:

Table V

Pre-tax Interest Coverage[38]

2007	2006	2005	2004	2003
2.14x	2.30x	2.24x	2.10x	1.84x

Q: Have you also examined bond rating benchmarks that would result from your recommendation?

A: Yes. I have examined the bond rating benchmark indications afforded the Company by my overall return recommendations. In response to Public Counsel Data Request No. 29, Company witness Gaines provided supporting documentation for his calculation of the Standard & Poor's cash flow bond rating benchmarks shown in Table VII on page 29 of his Direct Testimony in this proceeding. Using the Company's projections for imputed debt and other cash flow projections for 2008, along with Public Counsel's 43 percent

[38] Interest coverage ratios are adjusted to remove interest related to rentals included in the Company's SEC publication.

equity ratio capital structure and 9.25 percent equity return recommendations, the cash flow coverages and debt ratios, along with S&P's benchmarks for a "BBB" rating are shown in Table VI below.

Table VI
BOND RATING BENCHMARK
CASH FLOW COVERAGES

FFO to Interest	3.6
S&P "BBB"	2.5x -3.5x
FFO to Debt	17.8%
S&P "BBB"	12%-20%
Debt to Capital	57.4%
S&P "BBB"	52%-62%

Table VI shows that, with the overall cost of capital recommended by Public Counsel, the Funds From Operations coverage of interest (including interest imputed for purchased power obligations) exceeds the upper bound benchmark required by Standard & Poor's for a "BBB" bond rating for companies with Puget's level of business risk. In addition, the overall cost of capital recommended affords the Company an opportunity to achieve FFO/Debt and Debt/Capital ratios that are within the benchmarks set out for "BBB" rated companies similar in risk to Puget.

Q: What do you conclude from this analysis?

A: This analysis verifies that the equity return and capital structure I recommend offers the Company an opportunity to realize a pre-tax interest coverage that exceeds that which the

Company has realized over the past six years and falls within or exceeds the bond rating benchmark requirements for the Company's current bond rating. The equity return I recommend fulfills the legal requirement of *Hope* and *Bluefield* and provides the Company the opportunity to earn a return which is commensurate with the risk of the operation and serves to support and maintain the Company's financial position and its ability to attract capital.

V. COMPANY COST OF CAPITAL TESTIMONY

A. TECHNICAL ISSUES

Q: Prior to addressing each of Dr. Morin's equity cost methods, please explain whether there are technical aspects of his analyses that cause his results to be overstated.

A: There are technical flaws in each of Dr. Morin's equity cost analyses which cause the results to be overstated to varying degrees and which I will discuss below when I discuss each of those methods in detail. However, there are two unnecessary adjustments applied by Dr. Morin to each equity cost estimate which cause his average ROE results to be overstated by approximately 40 basis points (0.40%): the dividend yield adjustment and the flotation cost adjustment.

Dr. Morin's Direct Testimony and Exhibits indicate that he has added flotation costs to the equity cost estimates he presents. His flotation cost increases his recommended return on equity by 30 basis points. As I have explained in Section IV of my testimony, an explicit adjustment for flotation costs is unnecessary. Removing that unnecessary 30 basis point adjustment from Dr. Morin's average equity cost estimate for

Puget indicates an average equity cost estimate ranging from 10.5 percent to 10.9 percent, not 10.8 percent to 11.2 percent.

Q: In addition to the flotation cost adjustment, what is the second unnecessary adjustment in Dr. Morin's equity cost estimates?

A: Dr. Morin's DCF analysis relies on dividend yields published in Value Line. I have no concerns with the use of that source of information. In calculating his DCF dividend yields, however, Dr. Morin increases the current dividend yield by one plus the DCF growth rate. As Value Line explains to its subscribers in "A Subscribers' Guide," the dividend yield published by Value Line, is based on the "cash dividends *estimated to be declared in the next 12 months* divided by the recent [stock] price." Therefore, in adjusting the dividend yield published by Value Line for one year's expected growth, Dr. Morin is double counting that growth.

As shown on Exhibit No. ___ (RAM-9), and Exhibit No. ___ (RAM-14) through Exhibit No. ___ (RAM-17) attached to Dr. Morin's testimony, his dividend growth adjustment (1+g) increases the cost of equity capital from 20 to 30 basis points. This represents an overstatement of the overall cost of equity of approximately 12 basis points because DCF analyses that include dividend increases represent 6 of Dr. Morin's 10 equity estimation methods. [20 basis points x 6 ÷ 10 = 12]

That 12 basis point overstatement caused by double-counting the dividend increase, combined with the inclusion of an unnecessary 30 basis flotation cost adjustment causes Dr. Morin's equity cost estimates to be overstated by approximately 40 basis points. Therefore Dr. Morin's equity cost analyses should correctly indicate an

average cost of equity capital range for Puget 10.4 percent to 10.8 percent, not the 10.8 percent to 11.2 percent he recommends.

Q: In addition to these issues, are there problems with Dr. Morin's sample group?

A: Yes. Instead of relying on one electric group and one gas utility group in his testimony in this proceeding, Dr. Morin has used two electric utility groups. While that fact alone is not troubling, there are other aspects of that selection process that indicate Dr. Morin's reliance on the second group—Moody's electric utility sample group—does not provide a reliable estimate of the cost of equity capital of Puget Sound Energy.

In selecting his primary sample group for the purpose of determining the cost of equity of Puget Sound Energy, Dr. Morin selected a group from companies that had "integrated" electric operations, like Puget (i.e., generation assets as well as transmission and distribution). He applied further screening to eliminate firms that were dissimilar to Puget (i.e., those with below investment-grade bond ratings, foreign companies, private companies, companies that do not pay dividends, those with market capitalization below $0.5 Billion, those that derive less than 50 percent of revenues from electric operations and those that were not followed by Value Line). That sample selection process is designed to create a group of companies with risks similar to Puget and appears to be reasonable.

However, Dr. Morin elects also to analyze the equity capital cost of another group of utilities (the Moody's electric utility group) that are, in the main, not similar in risk to Puget. First, eleven of the companies included in Dr. Morin's second group were specifically excluded from consideration in constructing his primary electric utility

sample. Seven of the companies were excluded because they did not have integrated electric utility operations and the other four were excluded because they did not have at least 50 percent of revenues from electric operations. (For example, Constellation Energy and NiSource Inc., both included in Dr. Morin's second group of companies, had 11 percent and 17 percent of revenues from electric operations, respectively, according to AUS Utility Reports, March 2008.) Dr. Morin excluded those companies from his primary sample group because they had characteristics that made them dissimilar in risk to Puget. It would be unreasonable, therefore, to re-include those companies in a separate sample group used to estimate Puget's cost of equity.

Second, the seven companies remaining in Dr. Morin's Moody's electric sample group are also in his first Puget-similar, integrated electric group and the analysis of their cost of equity is redundant. There is no need to apply the cost of equity methods to those companies twice.

Third, Moody's ceased publication of its electric utility index in 2002.[39] Therefore, the "Moody's group" is not based on any current publication and it is reasonable to believe that that group of electric utilities is not representative of investors' current expectations with regard to the utility industry. In referring to Dr. Morin's similar-risk sample group, then, I will refer only to his integrated electric utility group and not to his "Moody's electric" sample group.

[39] See Morin Direct Testimony, p. 39.

B. DR. MORIN'S EQUITY COST METHODS

Q: How is your discussion of Dr. Morin's individual equity cost estimation methods organized?

A: I will discuss Dr. Morin's equity cost analyses in the order they are presented in his testimony: CAPM, ECAPM, Risk Premium and the DCF.

1. Capital Asset Pricing Model

Q: What are your comments on Dr. Morin's CAPM analysis?

A: There are three factors in any CAPM cost of equity estimate: the risk-free rate, the market risk premium and the beta coefficient. According to CAPM theory, the cost of equity equals the risk-free rate plus beta times the market risk premium. Each of these elements in Dr. Morin's CAPM analysis serves to overstate the cost of equity capital.

With regard to the risk-free rate, Dr. Morin uses a 5 percent long-term Treasury yield as the risk-free rate. Interest rates have fallen since he performed his cost of equity analysis. Currently, long-term T-Bonds are yielding about 4.5 percent.[40] Therefore, Dr. Morin's CAPM estimate is 50 basis points too high due to the decline in interest rates, which is not captured in this analysis.

Q: What are your comments regarding the beta coefficient in Dr. Morin's standard CAPM analysis?

[40] See Exhibit No. ___ (SGH-13).

A: Dr. Morin's integrated electric utility sample group has a current average beta coefficient of 0.82, according to Value Line.[41] In his analysis in this proceeding, Dr. Morin used a Value Line beta of 0.92. Using a more current 0.82 beta rather than the 0.92 beta used by Dr. Morin, along with the 7.1 percent market risk premium used in his analysis, causes a reduction of 71 basis points in Dr. Morin's CAPM results.

As shown on page 33 of his Direct Testimony, Dr. Morin's original CAPM cost of equity estimate is 11.5 percent (without flotation costs). Substituting the current risk-free rate and the current Value Line beta for his similar-risk sample group indicates a CAPM result more than 100 basis point lower—10.32 percent [4.5% (risk-free rate) + 0.82 (beta) x 7.1% Morin's market risk premium = 10.325%].

Q: What are your comments regarding Dr. Morin's calculation of the market risk premium in his CAPM analysis?

A. Dr. Morin averages a long-term historical market premium provided by Ibbotson Associates and a forward-looking market premium calculated by applying a DCF analysis to a group of stocks followed by Value Line. With regard to Dr. Morin's market risk premium, there are two points of issue.

First, when using the historical Ibbotson data, Dr. Morin elects to rely only on the difference between the earned return of stock and the yields of bonds. The rationale supporting that method is that there have been unanticipated gains with bond investments and the historical yields (which are lower) better represent investor expectations.

[41] *Summary & Index*, March 7, 2008. By definition the beta of "the market" is 1.0, and the beta of a firm with higher-than-average risk will be above one. For companies like utilities that have lower-than-average

However, there is no analogue for stocks and the metric used by Morningstar is the earned return on either the S&P 500 or the NYSE index. The return series are better balanced and have more meaning for determining expectations if earned returns are used for both series.

As Dr. Morin notes at page 28 of his Direct Testimony, the difference between the earned return series is 6.5 percent (i.e., the average historical return on stocks has been 6.5% higher than the average historical return on bonds). Dr. Morin has elected to use 7.1 percent based on historical bond yields, because, as he notes in his Direct Testimony at page 28, "Ibboston Associates recommend" its use.

However, a 2003 paper published by Ibbotson in the *Financial Analysts' Journal* indicates that the maximum expected market risk premium (the return equity investors expect over bond yields) is 5.9 percent, not the 7.1 percent used by Dr. Morin in his testimony.[42] In that paper, Dr. Ibboston discusses the current theoretical debate over the market risk premium, which I summarized in Exhibit No. ___ (SGH-6) attached to this testimony. As Ibbotson noted, research indicates that the market risk premium going forward ranges from 0 percent to a maximum of about 5 percent.[43] Ibbotson disagreed with that research and provided his analysis of the issue, which showed a prospective market risk premium to range from 3.97 percent (based on a geometric average), to 5.90 percent (based on an arithmetic average).

---

investment risk, their betas are usually below 1.0.
[42] Ibbotson, R., Peng, C., "Long-Run Stock Returns: Participating in the Real Economy," *Financial Analysts' Journal*, January/February 2003, pp. 88-98.
[43] *Id*., pp. 88, 89.

Dr. Morin has selected a particular historical market risk premium for his CAPM because Ibbotson recommended it, but in a different publication, Dr. Ibbotson indicates the prospective market risk premium is 5.9 percent (at the upper end), not the 7.1 percent Dr. Morin ultimately uses in his CAPM analysis. The use of a 7.1 percent risk premium instead of Ibbotson's forward-looking 5.9 percent maximum, given the use of a 0.82 beta coefficient, would cause an overstatement in Dr. Morin's CAPM of 98 basis points [0.82 (beta) x (7.1% Morin's MRP – 5.9% Ibbotson MRP) = 0.98]. That would reduce Dr. Morin's updated CAPM from 10.32 percent to 9.34 percent.

Second, Dr. Morin also constructed a forward-based market risk premium based on a DCF analysis of the universe of stocks followed by Value Line. Dr. Morin advises the Commission to be cautious about relying on DCF estimates, yet, he bases his preferred risk premium methodology, in part, on a DCF analysis. If the DCF provides a reasonable estimate of the expected return for the entire Value Line universe of stocks, it is reasonable to believe it would provide an accurate estimate of the cost of equity for utilities. This presents a conflict of logic in Dr. Morin's testimony.

Q: Are there other considerations regarding the market risk premium of which this Commission should be aware?

A: Yes. Because I discuss this issue in detail in Exhibit No. ___ (SGH-3) and Exhibit No. ____ (SGH-6), I will only summarize it here. Historical return data can be averaged in two different ways—arithmetic averaging and geometric averaging. The arithmetic average takes the sum of the returns and divides by the number of periods. The geometric average measures the rate of return from the beginning of the period to the end of the

period. When returns are volatile the arithmetic average is higher than the geometric average. The higher arithmetic average is the only one that Dr. Morin has considered.

However, research has shown that there is negative autocorrelation in the historical return data, which means that periods of high returns are followed by periods of low returns and vice versa. Given that fact, the arithmetic average, which assumes strict independence of the periodic returns, provides a misleading indication of the historical average. Therefore, consideration of only the higher arithmetic mean is improper.

Also, there has been considerable research regarding the market risk premium and whether or not long-term historical data such as that published by Morningstar (on which Dr. Morin relies) is representative of forward-looking investor opinion. Dr. Morin discusses that research in his 2006 text[44] but fails to mention it in his testimony in this proceeding, again electing to use only the highest end of a reasonable range of market risk premium indications.

Q: Doesn't Dr. Morin point to a 2003 paper by Harris and Marston to support his 7.4 percent market risk premium estimate?

A: Yes, he does. However, the author of that article now has a different opinion regarding a reasonable forward-looking market risk premium.

Q: Can you please explain that statement?

A: Yes. Dr. Morin, Professor Felicia Marston (one of the authors of the study referenced by Dr. Morin) and I made presentations at the 39th Annual Financial Forum of the Society of

[44] Morin, R., New Regulatory Finance, Public Utilities Reports, Vienna, VA, 2006, pp. 155-162.

Utility and Regulatory Financial Analysts in April of 2007 in Washington, DC. Dr. Morin made his presentation on the first day of the conference, and Professor Marston and I were on a panel during the second day of the conference, where the topic of the discussion was the market risk premium.

In her presentation, Professor Marston discussed the mechanics of her ex-ante market risk premium studies (she did a study in 2001 and well as 2003). She noted that the 2003 study (cited by Dr. Morin) finds a 7.1 percent market risk premium and a 4.15 percent risk premium for utilities. She also noted that the 7.1 percent market risk premium should be considered an upper bound due to the data anomalies contained in the study and concluded that a reasonable estimate of the current market risk premium is 5 percent to 6 percent. The final slide in Professor Marston's power-point presentation

/ /

/ / /

/ / / /

/ / / / /

/ / / / / /

/ / / / / / /

/ / / / / / / /

/ / / / / / / / /

/ / / / / / / / / /

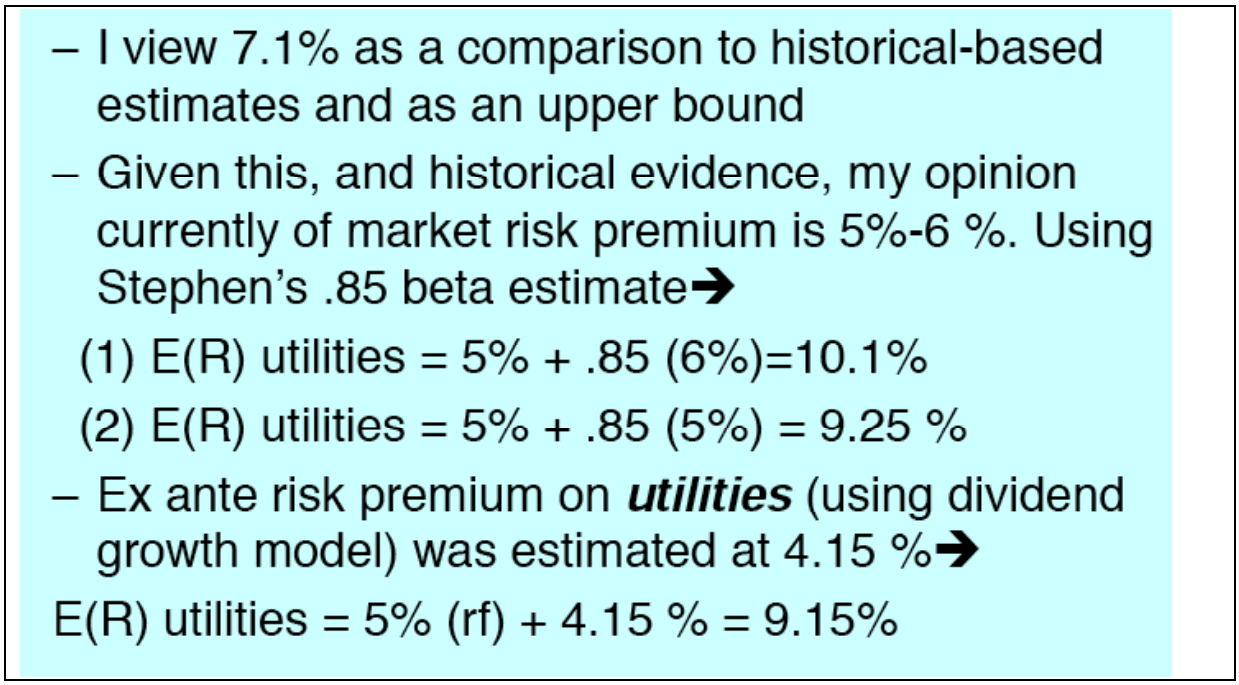
from the April 2007 financial conference is shown below:

Table VII

Marston Presentation Slide

2007 Annual Forum

Society of Utility and Regulatory Financial Analysts



As the slide shows, when Professor Marston's current risk premium is used, the cost of equity for the general market (shown as E(R) here), ranges from 9.25 percent to 10.1 percent. When Professor Marston's risk premium for utilities is used, the estimated utility cost of equity is 9.15 percent. In sum, Professor Marston's current opinions do not support Dr. Morin's choice of market risk premium or CAPM cost of equity estimates.

Q: What are your comments on Dr. Morin's use of the empirical CAPM—the ECAPM?

A: As Dr. Morin notes at page 34 of his Direct, the "empirical" CAPM (ECAPM) is designed to account for the fact that the security market line is believed to have a lower slope than postulated theoretically. A lower slope for the capital market line implies that the CAPM understates equity costs for low beta stocks like utilities and over-estimates the equity cost rate for high beta stocks like "dot-com" companies. The flaw in Dr. Morin's "empirical" CAPM analysis and the reason (in addition to the other reasons outlined above for the standard CAPM) that his ECAPM equity cost estimate overstates the actual cost of capital is that he uses "adjusted" betas in his ECAPM analysis while all the research on which the "low slope" theory is predicated uses betas that are not adjusted.

Beta estimates published by Value Line are adjusted for the theoretical tendency for beta coefficient to migrate toward the market average of 1.0. "Adjusted" betas are higher for low-beta stocks like utilities and lower for high-beta stocks like "dot-com" companies. In other words, when low betas are adjusted upward and high betas are adjusted downward, that has the same effect as lowering the slope of the capital market line. Using "adjusted" betas along with an ECAPM analysis double-counts the effect of changing the slope of the capital market line. All of the theoretical research Dr. Morin cites regarding the support for the ECAPM (except his own) is based on studies using "raw" or "unadjusted" betas.

Q: Doesn't Dr. Morin indicate that the ECAPM "slope" adjustment is different from the value line beta adjustment, and does not conflict?

A: That is his position. It is correct that the ECAPM "slope" adjustment and the Value Line beta adjustment originate from different theoretical concepts; however, they have the same effect. Raising low betas and lowering high betas (the result of Value Line's "adjustment"), works to lower the slope of the capital market line, which is also the result of the ECAPM. Therefore, Dr. Morin is incorrect to assume that using adjusted betas in an ECAPM calculation does not double-count the slope-lowering effect. Using adjusted betas in an ECAPM calculation results in an overstated cost of equity estimate.

Q: What result would Dr. Morin's ECAPM produce if unadjusted, or "raw" betas were used?

A: Except for the anomalies cited in the discussion above regarding risk-free rate, beta and the market risk premium, Dr. Morin's ECAPM analysis would not be problematic on theoretical grounds if he used "raw" betas rather than "adjusted" betas. Value Line has a standard formula for adjusting "raw" betas to the adjusted betas that are published by that investor service. It is possible, therefore, to calculate what "raw" beta supports the reported Value Line beta.

For a reported weighted-average Value Line beta coefficient of 0.82 for the utility groups studied by Dr. Morin, the average "raw" beta would have been 0.73.[45] Using that "raw" beta in Dr. Morin's ECAPM formula shown on page 36 of his Direct Testimony, a

[45] Beta (raw) = (Beta (adjusted) - 0.33) / 0.67.

current long-term T-bond risk-free rate (4.5%) and Ibbotson's projected maximum market risk premium (5.9%), the equity cost estimate would be 9.20% [k = 4.5% + 0.25(5.9%) + 0.75(0.73)(5.9%) = 9.63%]. Again, that estimate should be considered to be a high estimate of the current cost of common equity capital because of the high market risk premium used by Dr. Morin.

2. Risk Premium

Q: Please describe the risk premium analyses undertaken by Dr. Morin in his direct testimony in this proceeding.

A. Dr. Morin has performed two separate risk premium analyses based on historical data. The risk premium analyses Dr. Morin utilizes include an examination of the historical return difference between earned returns of electric and gas companies and the yield on long-term treasury bonds. Company witness Morin performs this analysis over a period beginning in 1931 through 2005 for electric utilities. In the final risk premium analysis, Dr. Morin compares the allowed returns for electric utilities with then-current T-Bond yields from 1996 through 2005. Each of those risk premium analyses is calculated using current bond yields.

Q: Prior to discussing the details of each of those risk premium analyses, do you have any comments of a general nature regarding risk premium-type analyses?

A: Yes. A fundamental precept on which the risk premium methodology is based holds that the higher risk of stocks over bonds requires an incrementally higher return for those stocks in order for investors to be compensated for assuming the higher risk. Although

that is generally true, it is most important to realize that, given a current bond yield of about 6.4 percent for BBB-rated utilities, an equity return of 8 percent, 10 percent, 13 percent or even 50 percent would fulfill the requirement of providing a "premium" over debt costs. The real issue with a risk premium analysis is determining that premium with any precision. It is not a directly observable phenomenon.

There are two other fundamental tenets, upon which risk premium-type analyses are grounded which, when examined, indicate that this equity cost estimation methodology should not be given primary consideration in setting allowed rates of return. First, since risk premium analyses look backward in time, they assume "past is prologue."

In other words, the investors' expectations for the future are assumed to mirror the average results they have experienced in the past. As I have noted, current research indicates that such is not the case. Second, implicit in the use of an average historical return premium of equities over debt is the assumption that the risk premium is constant over time. Neither of these assumptions upon which the risk premium analysis rests is true.

That the risk premium varies significantly from period to period is shown most clearly in Dr. Morin's Exhibit No. ___ (RAM-7), which shows the data on which his risk premium results are based. The common stock annual returns on which Company witness Morin relied have ranged from +77 percent to -37 percent, while bond annual returns have ranged from +33 percent to –10 percent.

Moreover, the risk premiums that result from these widely varying data series also, unsurprisingly, show very wide variation. The earned return difference between

electric utility stocks and Treasury Bonds shown in Exhibit No. ___(RAM-7) averages 5.5 percent, but ranges from +72.01 percent to –37.48 percent, with a standard deviation of 19.7 percent. Adding two standard deviation units to the average risk premium creates a statistical confidence interval in which we can be 95 percent confident that the "real" risk premium exists. That calculation produces a risk premium range of –33.9 percent to +44.9 percent [5.5% ± 2 x 19.7%]. This sort of extreme volatility is evidence that the risk premium is not a reliable equity cost estimation methodology.

The practical impact of the volatility of historical risk premium data is that, with the selection of any particular period over which to average the historical data, virtually any risk premium result can be produced. In addition, the use of historical earned return data to estimate current equity capital costs has been questioned in the financial literature, by authorities on whom Dr. Morin has elected to rely:

> There are both conceptual and measurement problems with using I&S [Ibbotson and Sinquefield] data for purposes of estimating the cost of capital. Conceptually, there is no compelling reason to think that investors expect the same relative returns that were earned in the past. Indeed, evidence presented in the following sections indicates that relative expected returns should, and do, vary significantly over time. Empirically, the measured historic premium is sensitive both to the choice of estimation horizon and to the end points. These choices are essentially arbitrary, yet they can result in significant differences in the final outcome.[46]
>
> **Other Methods**. Several other approaches have been used to estimate the cost of common equity. Two of these should be noted. First there is the risk premium method, which is based upon the premise that common equity carries a

[46] "The Risk Premium Approach to Measuring a Utility's Cost of Equity," Brigham, Shome and Vinson, Financial Management, (Spring 1985), p. 34.

> higher risk than debt. This approach is relatively straightforward: (1) determine the historic spread between the return on debt and the return on common equity, and (2) add this risk premium to the current debt yield to derive an approximation of current equity return requirements…. Like other methods, however, there are a number of specific problems. Over what historic period of time should the spread be established? Does the spread between the return on debt and the return on equity remain constant over time and at all interest levels? Should the spread be expressed on a before- or after-tax basis to the investor? What debt instruments should be used (e.g., government securities versus corporate or utility bonds)? What equity securities should be used? How should the resulting return requirement be adjusted for the risk that corresponds to a given utility? In light of these problems, many use the risk premium approach as a subsidiary method to test the results of other approaches."[47]

The type of data described in the quote above as both conceptually and empirically problematic forms the basis of Dr. Morin's Risk Premium methodology.

Q: What are your comments regarding Dr. Morin's historical risk premium analysis?

A. This form of the risk premium analysis measures the earned return on common stocks and subtracts from that the yield on long-term Treasury bonds to produce a risk premium. There have been fundamental changes in the nature of the relationship between stock returns and bond returns over the past sixty or seventy years. The data in Dr. Morin's Exhibit No. ___ (RAM-7), indicate that from about 1930 through 1960 stock returns were quite volatile showing very wide swings while bond returns were less volatile. However, in more recent years (since 1960), stocks have actually become less volatile while bonds have become more volatile, showing much wider swings in returns. Those data indicate

[47] Phillips, C. F., The Regulation of Public Utilities, Public Utilities Reports, Arlington, VA, (1993), p. 399.

that the current relationship between the returns of bonds and stock is different than it has been over the longer time frame.

Q: What are your comments regarding Dr. Morin's other risk premium analysis—the "allowed return" risk premium?

A: Dr. Morin's other risk premium analysis is one that compares historical allowed equity returns to annual average bond yields. That study indicates that the average risk premium between allowed returns for electric utilities and bond yields over the past 10 years is 5.5 percent. In prior testimony before this Commission,[48] Dr. Morin concluded that a negative correlation existed between current bond yields and risk premiums; in this proceeding he does not do so.

It is important to understand at the outset that the annual cost rate differences between the allowed returns and utility bond yields are not necessarily reliable indicators of investor-required risk premiums. First, the allowed returns are simply averaged over all the available rate case decisions during a calendar year. That means that the capital market data that the regulatory body considered was drawn from a time prior to the decision rendered and the allowed return might not correlate with decision time-specific macro-economic events. In some cases, that period of time between the hearing and the decision can be substantial.

Second, the relative risk of the utility for which the equity return was determined is not a factor in Dr. Morin's analysis. For example, the allowed return on equity for a

[48] *WUTC v. PSE*, Docket Nos. UE-060266/UG-060267, Exhibit No. 301, Morin Direct, pp. 45, 46.

"BB"-rated firm would simply be averaged in with the other returns allowed during a calendar year.

Third, while the inclusion of an outlier may not be problematic in years in which there are many rate case decisions that would not be the case in years in which the number of decisions is small. Moreover, regulatory rate case decision data with which I am familiar shows that the number of regulatory decisions has decreased in recent years (e.g., 7 decisions in 2004).[49] That source of regulatory return data also notes that "[a]s the number of equity return determinations has declined, the average authorized return now has less of a relationship to the return than the typical electric, gas, or telecommunications company has an opportunity to earn."

Fourth, Dr. Morin emphasizes the need, in a risk premium analysis, to use as long a data series as possible: "a risk premium study should consider the longest possible period for which data are available."[50] However, Dr. Morin's allowed return Risk Premium considers only 10 years of data.

Finally, even if we assume Dr. Morin's 5.6 percent allowed return risk premium is accurate, with a current T-bond yield of 4.5 percent, that risk premium would indicate a cost of equity for Puget of 10.1 percent—significantly lower than his recommendation of "the higher end" of a range of 10.8 percent to 11.2 percent.[51]

[49] Regulatory Research Associates, "Major Rate Case Decisions, Regulatory Focus" (Jan. 30, 2007).
[50] Morin Direct, p. 30.
[51] Morin Direct, p. 84.

C. DISCOUNTED CASH FLOW

Q: What are your comments regarding Dr. Morin's DCF analysis?

A: Dr. Morin's standard DCF analysis relies on dividend yields published in Value Line. I have no concerns with the use of that source of information. As I have noted previously, Dr. Morin increases the current dividend by one plus the DCF growth rate, which tends to overstate the dividend yield if applied to all companies in the sample group. Also, as Value Line explains to its subscribers in "A Subscribers' Guide," the dividend yield published by Value Line in its *Ratings & Reports*, is based on the "cash dividends *estimated to be declared in the next 12 months* divided by the recent [stock] price." Therefore, in adjusting the dividend yield published by Value Line for one year's expected growth, Dr. Morin is double counting that growth. His dividend yields are overstated for that reason.

The growth rate portion of Dr. Morin's DCF analysis is also problematic. First, Dr. Morin's growth rate analysis is mechanistic in that it simply plugs selected projected data into a formula to produce a growth rate with no underlying analysis of either the historical or projected growth rate fundamentals. Dr. Morin, in his own published work, warns against this type of analysis.[52]

Second, Dr. Morin's growth rate analysis relies exclusively on earnings growth rate projections. As I discussed in detail in Exhibit No. ___ (SGH-4) attached to this testimony, exclusive reliance on earnings growth, absent any examination of the

[52] Morin, R., Regulatory Finance, Utilities' Cost of Capital, Public Utilities Reports, Arlington, VA, 1994, p. 244.

underlying fundamentals of long-run growth, can lead to inaccurate equity cost estimates. For example, reliance on projected earnings growth in a situation in which projected earnings were expected to recover from reduced levels would include (in any DCF estimate) the assumption that equity returns will increase at the same exaggerated rate every five years into the indefinite future. Of course, this would not be a reasonable expectation, and any DCF analysis based on a mechanistic analysis that automatically includes such data would not produce a reasonable result. Therefore, while I have no problem with the consideration of earnings growth rate projections in determining DCF growth, they should not be afforded the exclusive weighting allowed by Dr. Morin, especially absent consideration of the underlying factors.

Third, Brealey & Meyer's latest textbook, which is a source on which Dr. Morin relies for authority, notes that analysts' earnings growth estimates have been shown to be overly-optimistic (i.e., too high), in comparison to actual results. Therefore, any DCF result obtained using those growth rates should be considered an upper bound of the cost of equity:

> Estimates of this kind [DCF] are only as good as the long-term forecasts on which they are based. For example, several studies have observed that security analysts are subject to behavioral biases and their forecasts tend to be over-optimistic [footnote omitted]. If so, such DCF estimates of the cost of equity should be regarded as upper estimates of the true figure. [footnote omitted]. *See, for example*, A. Dugar and S. Nathan, "The Effect of Investment Banking Relationships on Financial Analysts' Earnings Investment Recommendations," [53]

[53] *Contemporary Accounting Research* 12 (1995), pp. 131-160. Brealey, Meyers, Allen, Principles of Corporate Finance, 8th Ed., McGraw-Hill Irwin, Boston MA, (2006), p. 67.

Fourth, as I noted above, Dr. Morin uses both Zack's and Value Line earnings projections in determining his standard DCF growth rate. Earnings growth projections are the only growth rate that Zack's publishes, so the use of that parameter is reasonable, although there are other providers of analysts' projected earnings growth. However, in addition to and right along side of its earnings projections, Value Line also publishes 3- to 5-year dividend and book value growth rate projections for each company it follows. In his Exhibit No. ___ (RAM-8), showing why historical growth is not appropriate for the companies in his sample group, Dr. Morin references all three types of growth published by Value Line. Investors have equal access to all three growth rates (earnings, dividends and book value) and, it would be reasonable to assume, utilize all three when making a determination of long-term sustainable growth. Moreover, in theory, the DCF assumes that earnings, dividends and book value all grow at the same rate. Therefore, the use of the average of those three projected growth rate parameters published in Value Line would provide a more balanced growth rate analysis in Dr. Morin's mechanistic standard DCF model.

For example, Dr. Morin's Exhibit No. ___ (RAM-14) contains his DCF analysis of his integrated electric utility sample group, based only on Value Line's earnings projections. Table VIII, below, replicates Dr. Morin's analysis using the most recent projected earnings, dividends and book value published by Value Line for each company, as well as the year-ahead dividend yield published in the March 7, 2008 edition of Value Line (*Summary & Index)*:

Table VIII
Morin Integrated Electric Sample Group
DCF – Value Line Projected Growth

Company	Value Line Projected Growth			Year-ahead
	Earnings	Dividends	Book Value	Div. Yield
ALLETE	8.00%	nmf	5.50%	4.50%
Alliant Energy	5.50%	8.00%	4.00%	3.80%
American Electric Power	6.50%	7.50%	6.00%	3.90%
Ameren Corp.	3.00%	0.00%	3.00%	5.80%
Cleco Corp	6.50%	6.50%	6.50%	3.70%
DTE Energy	4.00%	2.50%	2.50%	5.20%
Edison International	6.50%	6.50%	8.50%	2.40%
Empire District Electric	8.50%	1.00%	3.00%	5.80%
Energy East Corp.	0.50%	3.50%	2.00%	4.60%
Entergy Corp.	9.50%	10.00%	6.50%	2.90%
FirstEnergy Corp.	8.50%	7.50%	5.50%	3.20%
FPL Group	11.50%	9.00%	10.50%	2.70%
Hawaiian Electric	1.50%	0.00%	-0.50%	5.30%
IDACORP Inc/	2.00%	0.00%	4.00%	3.90%
MGE Energy	6.00%	0.50%	7.00%	4.30%
Northeast Utilities	15.00%	6.00%	5.50%	3.20%
PG&E Corp.	4.50%	nmf	5.50%	3.90%
Pinnacle West Capital	1.50%	3.00%	2.00%	5.70%
PNM Resources	2.50%	6.00%	4.50%	7.60%
Progress Energy	3.50%	1.00%	1.50%	5.60%
Puget Energy Inc.	6.00%	3.00%	4.00%	3.70%
Southern Company	5.00%	4.50%	6.00%	4.60%
TECO Energy	4.00%	2.00%	6.50%	5.10%
Wisconsin Energy	8.00%	10.50%	6.00%	2.40%
Xcel Energy Inc.	5.50%	4.50%	4.00%	4.60%
Average	5.74%	4.48%	4.78%	
Overall Average		**5.00%**		**4.34%**
DCF Cost of Equity			**9.34%**	

Table VIII, above, shows that the average of Value Line's projected earnings, dividends and book value (all of which are available to investors) is 5.00 percent, roughly 70 basis points below the 5.74 percent earnings-only Value Line growth rate preferred by Dr. Morin. Moreover, simply by using all the projected growth rate data available in Value Line instead of just some of it, the DCF equity cost estimate for the combination electric utilities is 9.34 percent. That equity cost estimate, is roughly 75 basis points below the 10.1 percent DCF result Dr. Morin provides in his Exhibit No. ___(RAM-14).

1. Summary

Q: Do you have any summary comments regarding Dr. Morin's equity cost estimate in this proceeding, Mr. Hill?

A: Dr. Morin has emphasized the results of risk premium analyses, which are less reliable as primary indicators of the cost of equity capital than a DCF analysis. While Dr. Morin's DCF analyses provide equity cost results that are closer than his risk premium results to the current cost of capital for companies like Puget, those DCF results are overstated due to three factors. First, Dr. Morin has relied on only one growth rate measure, ignoring other data available to investors that indicate lower expected returns. Second, Dr. Morin has added unnecessarily 30 basis points to his recommendations in this case for flotation costs associated with common equity issuance that are already accounted for in the stock price investors are willing to provide. Third, Dr. Morin has increased dividend yields for one year's projected dividend growth when that growth is already included in the published yield.

Dr. Morin's historical risk premium analyses are overstated, in the main, due not only to the fact that long-term historical results do not replicate investors' current expectations, but also due to the general inaccuracy of those methods. His DCF results also include factors that cause them to be overstated. A thorough examination of the evidence provided by Company witness Morin indicates that his analysis contains numerous flaws.

D. DR. MORIN'S DCF CRITIQUE

Q: How has Dr. Morin estimated the cost of equity in the current rate proceeding?

A: Dr. Morin has analyzed the cost of equity capital for Puget using four risk premium analyses (two CAPM analyses, and two Risk Premium analyses) and six DCF analyses. The average equity cost estimate of his four risk premium analyses is 11.35 percent. The average DCF equity cost estimate reported by Dr. Morin in this proceeding is 10.76 percent.[54]

Q: Does Dr. Morin discuss the acceptance of the DCF methodology?

A: Yes. Dr. Morin acknowledges in his Direct Testimony in this proceeding that the DCF is "appropriate," enjoys "broad usage," and that some regulatory bodies place exclusive reliance on the DCF to estimate equity capital costs.[55] For example, during the 1980s and early 1990s the Federal Energy Regulatory Commission instituted a generic determination of the cost of equity capital for the electric utility industry. Following

[54] As noted previously, in his reported DCF results, Dr. Morin has included unnecessary additions to the market-based cost of equity. Absent flotation costs and an unnecessary adjustment to dividend yields, Dr. Morin's DCF results average 10.26 percent [(10.2%+9.7%+9.7%+10.7%+10.4%+10.9%)/6].
[55] Morin Direct, pp. 15-18.

literally years of comments and reply comments from many participants regarding different equity cost estimation methods, the FERC selected the constant growth DCF model as the single best method with which to estimate the cost of equity capital.[56] Also, a study of regulatory commission equity cost estimation methods by the National Association of Regulatory Utility Commissioners, found that while nearly every regulatory body in the U.S. and Canada listed DCF as a methodology on which it relied, only 11 listed CAPM.[57] During cross-examination in a relatively recent rate gas in Georgia, Dr. Morin referenced the NARUC study and noted that DCF use was "almost unanimous," while no Commission relied solely on the CAPM.[58]

Q: Does Dr. Morin therefore rely on the DCF as his primary equity cost estimation methodology?

A: No, he does not. In his testimony in this proceeding, Dr. Morin de-emphasizes his reliance on the DCF. While acknowledging that all cost of equity methodologies are undertaken with theoretical assumptions, Dr. Morin elects to provide considerable testimony and criticism regarding the enabling assumptions for the DCF, making the claim that those assumptions conflict with the current investment environment for utilities. At the same time, Dr. Morin neglects to discuss in detail the theoretical assumptions and application problems of risk premium methods such as the CAPM. The

[56] FERC anticipated that an administrative determination of an appropriate industry-wide cost of equity would limit debate on that issue in rate proceedings. It did not. Because FERC staff was devoting resources to producing a generic cost of equity estimate and continuing to litigate the issue in every rate proceeding, the Commission ultimately discontinued the generic rulemaking proceeding.
[57] National Association of Regulatory Utility Commissioners, "Utility Regulatory Policy in the United States and Canada," Compilation 1994-1995.
[58] *Atlanta Gas Light Company*, Georgia Public Service Commission Docket No. 18638-U, Tr. 500-501.

difficulties with risk premium models that Dr. Morin elects not to discuss are the very reason why those methodologies tend to be less reliable indicators of the cost of equity capital than the DCF. Dr. Morin's testimony de-emphasizes the most widely-used equity cost estimation technique, the DCF, which provides the lower results, and emphasizes the results of more unreliable risk premium methods, which provide higher equity cost estimates.

Q: Please explain why, contrary to Dr. Morin's testimony, it is reasonable to believe that the DCF is a reliable indicator of equity capital costs in the current capital market environment.

A: At page 19 of his Direct Testimony, Dr. Morin opines that "several fundamental and structural changes have transformed the energy utility industry since the standard DCF model and its assumptions were developed." While that is generally true, it is also true for all other market-based equity cost estimation methods including the CAPM, which was developed about the same time as the DCF (1960s and 1970s). Dr. Morin cannot reasonably claim the DCF is flawed because it was developed during another economic era, while simultaneously placing more emphasis on an econometric model developed at the same time. Moreover, cost of equity methods do not model particular economic conditions, rather they model the manner in which investors make decisions. Dr. Morin has made no attempt to show that the DCF is no longer a reasonable proxy for the manner in which investors value stocks (i.e., that investors do not believe that the current stock price is the present value of the future income stream generated by that stock). His claim that the DCF is unreliable is not supported.

Q: Has Dr. Morin testified recently that the DCF understates the cost of equity when market prices are above book value and overstates the cost of equity when market prices are below book value?

A: Yes. While he has not provided that opinion in Direct Testimony in this proceeding, he testified to that effect in his rebuttal testimony in Puget's' 2006 rate case[59] and more recently in direct testimony before the Hawaii Public Utilities Commission in 2007.[60]

Q: Has this always been his position?

A: No. Dr. Morin's first text on the cost of capital, Utilities' Cost of Capital, was published in 1984, and was conceived and written during a difficult time period for utilities in which interest rates were very high and market prices were generally below book value. There is nothing in that text that indicates that when market prices are below book value (as they were at that time), the DCF overstates the cost of equity (as Dr. Morin now claims).[61] At page 98 of his 1984 text, Dr. Morin states that the application of the standard DCF model to a public utility whose market-to-book ratio was below one would result in a "downward-biased estimate of the cost of equity."

When utility stock prices were generally below book value, Dr. Morin is on record stating that the DCF understates the cost of capital when market prices are below book value. Now that utility stock prices are generally above book value, Dr. Morin is on record stating that the DCF understates the cost of capital because market prices are

[59] *WUTC v. PSE*, Docket No, UE-060266/UG-060267, Exhibit No. 315, Morin Rebuttal, p. 8.
[60] Hawaiian Electric Company, H.P.U.C. Docket No. 2006-0386.
[61] The logic on which Dr. Morin bases his claim that the DCF understates the cost of equity when market prices exceed book value also indicates that the DCF overstates the cost of equity when market prices are less than book value.

above book value. This theoretical inconsistency of Dr. Morin's position regarding the fundamentals of the DCF, in my view, undermines the reliability of Dr. Morin's current testimony on this subject.

Q: What example does Dr. Morin use to support his current position regarding the reliability of DCF Estimates?

A. Dr. Morin, in his Rebuttal Testimony in Puget's last rate case, his more recent Direct Testimony in Hawaii and at pages 434 and 435 of his text, New Regulatory Finance (Public Utilities Reports, Vienna, VA, 2006), sets out the following numerical example:

Table IX

Dr. Morin's Market-to-Book Example

	Situation 1	Situation 2	Situation 3
1 Initial Purchase Price	$25.00	$50.00	$100.00
2 Initial Book Value	$50.00	$50.00	$50.00
3 Initial M/B	0.50	1.00	2.00
4 DCF Return 10% = 5% + 5%	10.00%	10.00%	10.00%
5 Dollar Return	$5.00	$5.00	$5.00
6 Dollar Dividends 5% Yield	$1.25	$2.50	$5.00
7 Dollar Growth 5% Growth	$3.75	$2.50	$0.00
8 Market Return	20.00%	10.00%	5.00%

Dr. Morin's explanation of the "impact" of market-to-book ratios on the DCF cost of

/ /

/ / /

/ / / /

/ / / / /

equity in "Situation 3" (when market prices are above book value) proceeds as follows:

> [t]he DCF cost rate of 10%, made up of a 5% dividend yield and a 5% growth rate, is applied to the book value rate base of $50 to produce $5.00 of earnings. Of the $5.00 of earnings, the full $5.00 are required for dividends to produce a dividend yield of 5% on a stock price of $100.00, and no dollars are available for growth. The investor's return is therefore only 5% versus his required return of 10%. A DCF cost rate of 10%, which implies $10.00 of earnings, translates to only $5.00 of earnings on book value, or a 5% return.[62]

In his testimony in Puget's prior rate proceeding, Dr. Morin elects not to discuss "Situation 1" in which market prices are below book value and the DCF, supposedly, overstates the cost of equity. Of course, as I noted previously, during the time period when market prices were actually below book value, Dr. Morin expressed no concerns that the DCF overstated the cost of equity due to differences in market price and book value—he expressed the opposite view.

Q: Does Dr. Morin's numerical example, set out above, support his thesis that the DCF is inaccurate when market prices are different from book value?

A: No. In attempting to show that the DCF estimates the cost of equity incorrectly when market prices are different from book value, Dr. Morin has created a hypothetical situation that cannot exist in reality and is contrary to one of the most fundamental precepts in finance.

In attempting to show that the DCF understates the cost of capital when market prices are above book value, Dr. Morin's "Situation 3" example posits a firm that has an

[62] Morin, R., New Regulatory Finance, Public Utilities Reports, Vienna VA, (2006), p. 435.

allowed return of 10 percent (which is assumed to be determined by the DCF), a book value of $50, and for which investors are paying a stock price equal to twice book value ($100). That company will earn $5 on its rate base investment (10 percent allowed return x $50 rate base/book value), and that $5 return represents only a 5 percent return to the investors that paid $100 for the stock. Dr. Morin, through this example, ostensibly concludes that the DCF does not provide the investors' required 10 percent return (the investor-required return assumed to be provided by the DCF) when it is applied to a rate base (book value) that is smaller than the market price. This is a spurious conclusion for two reasons.

First, if the investor's required return is actually 10 percent (which appears to be Dr. Morin's assumption) and the utility is expected to earn a 10 percent return on its book value of $50, or $5, then no investor would pay twice book value for that stock. Therefore, the situation on which Dr. Morin's DCF unreliability rationale is grounded, cannot exist.

Imagine a stockbroker trying to sell a stock to an investor who requires a 10 percent return. "I've got a stock for you that's going to pay you $5 annually, but each share will cost you $100. What do you say?" No investor would knowingly pay $100 for a stock that will earn $5 when he or she requires a 10% return for that type of stock, a fact which Dr. Morin himself confirms:

> "Investors will not provide equity capital at the current market price if the earnable return on equity is below the level they require..."[63]

[63] Exhibit No. ___ (RAM-1T), p. 85.

Yet, that is the logical construct on which Dr. Morin's "Situation 3" example rests.

Second, the only reason for an investor to pay $100 for a stock that will provide a $5 income stream is if that investor requires a 5 percent return for that type of stock. In Dr. Morin's "Situation 3" example if we take the 10 percent number to be the allowed return (the expected return on the $50 rate base), and the investor's cost of capital to be 5 percent (a DCF result derived from a 5 percent dividend yield and 0 percent growth), then, his numerical example makes economic sense. If the investor's required return is 5 percent and the stock in question is expected to pay a 10 percent return on a $50 book value, then, *and only then*, is the $100 stock price rational.

Therefore, the only situation under which the numerical conditions set out in Dr. Morin's example can exist is one that conforms to the widely accepted relationship between market price, book value, ROE and the cost of capital.[64] Namely, when the expected return (r = 10% in "Situation 3,"above) exceeds the investors' required return (K = 5% in "Situation 3," above) the market price (P = $100) will exceed the book value (B = $50).

In summary, Dr. Morin's numerical example, which purports to show that the DCF understates the cost of equity when market prices are different from book value, does not do so. Instead, under the only circumstance that makes economic sense, his

[64] Gordon, M.J., The Cost of Capital to a Public Utility, MSU Public Utilities Studies, East Lansing, Michigan, (1974), pp., 63-64; Kolbe, Read, Hall, The Cost of Capital, Estimating the Rate of Return for Public Utilities, 25-33 (1986); Lawrence Booth, ("The Importance of Market-to-Book Ratios in Regulation," NRRI Quarterly Bulletin, Vol. 18, No. 4, at 415-16 (Winter 1997).

example shows that when utility market prices are significantly above book value, the investors' required return (the cost of equity capital) is below the ROE expected to be earned by those companies. That long-standing truism indicates that Dr. Morin's recommended equity return of 11.2 percent is unlikely be an accurate estimate of Puget's cost of equity capital.

Q: Did the originator of the DCF, Professor Myron Gordon, indicate that the DCF would provide equity cost estimates that were skewed downward (upward) if the market price was above (below) book value?

A: No, he did not. Professor Gordon was certainly aware that utility market prices could differ from book value. However, there is no discussion in his text regarding differences between market price and book value having any impact on the ability of the DCF to estimate investors' expected return on common equity (the cost of equity capital). Professor Gordon does note, however, that if market prices are well above book value, that situation indicates that the expected accounting return (the return on book value) exceeds the cost of common equity. The integrated electric utilities shown in Dr. Morin's Exhibit No. ___ (RAM-13) have an expected return on book equity of 10.24 percent during the 2008 period, according to Value Line's most recent editions of *Ratings & Reports*. AUS Utility Reports indicates that those same companies have a current average market-to-book ratio of 1.62. While those relationships do not pinpoint the cost of capital, according to the originator of the DCF, they indicate that a current cost of equity capital of 11.2 percent (the cost of equity recommended in this proceeding by Dr. Morin) is not plausible.

In fact, as shown in Chart II, below, comparing the expected 2008 ROE published by Value Line for each of Dr. Morin's sample companies to each company's market-to-book ratio published by AUS Utility Reports, shows 1) expected return on book value is highly correlated with market to book ratio for utilities and 2) the expected return at which market price is only slightly above book value is approximately 8 percent. That value is very close to the cost of equity for Puget determined by the Company's financial advisors in advance of its pending acquisition by MIP. Again, a comparison of the expected return on equity and market-to-book ratios of Dr. Morin's sample group indicate that his 11.2 percent equity return recommendation does not comport with the data related to his sample group of companies and is not an accurate estimate of the cost of equity capital.

/ /

/ / /

/ / / /

/ / / / /

/ / / / / /

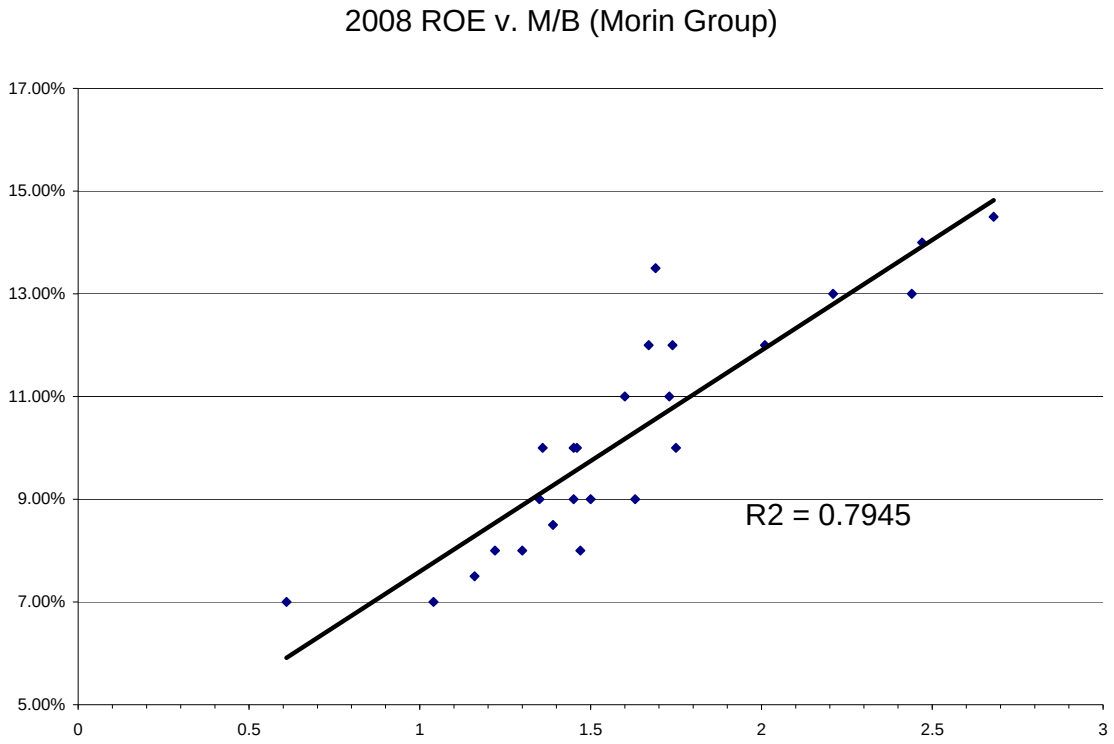
/ / / / / / /

/ / / / / / / /

/ / / / / / / / /

/ / / / / / / / / /

Chart II



Q: Doesn't Dr. Morin provide a quote from "one of the leading experts on regulation" that discusses the "dangers" of relying solely on the DCF?

A. Yes, he does. However, Dr. Morin failed to provide the Commission the opinion of that same "leading expert" regarding the CAPM, which follows immediately after the quote he chose to cite in his testimony. At page 18 of his Direct Testimony, Dr. Morin quotes from Dr. Charles Phillips' text The Regulation of Public Utilities Theory and Practice. The very next paragraph following the text provided by Dr. Morin reads as follows:

> The CAPM holds that the cost of equity capital or expected return on a utility's common equity is equivalent to that on a riskless security plus a risk premium related to the risk

> inherent in a particular utility's stock; that is, the model combines risk and return in a single measure.
>
> * * *
>
> Despite its appeal, the CAPM also has both theoretical and practical problems. The theoretical issues include the reliability of the model's basic assumptions and the static nature of the model. The practical problems surround the beta coefficient, "the only variable in the CAPM equation that is unique to the particular firm for which the cost of equity capital is being determined." They include: How should beta be measured—stock market price alone or total return on investment (i.e., dividends plus capital gains)? What period of time should be used for such measurement? What is the proper measure of stock market performance (e.g., Dow Jones index, Standard & Poor's index, etc.)? What is the proper measure of the risk-free return (e.g. Treasury notes or Treasury bonds)? Finally, the evidence suggests that betas are unstable over time and that they move in the opposite direction from investors' perceptions of risk. These issues have led some to conclude that the CAPM, at least at this stage in its development, "is inaccurate, incomplete, and unreliable as a measure of a firm's equity cost of capital."[65]

Q: Are the enabling assumptions of risk premium analyses restrictive?

A. Yes. The assumptions that enable the existence of the CAPM analysis are far more restrictive than those that support the DCF. At page 17 of his Direct Testimony, Dr. Morin references Dr. Eugene Brigham as a "widely respected scholar of finance and academician." Dr. Brigham provides a concise list of the assumptions that underlie the Capital Asset Pricing Model:

[65] Phillips, C.F., The Regulation of Public Utilities Theory and Practice, Public Utilities Reports, Arlington VA, 1993, pp. 396, 397, (footnotes omitted).

> 1. All investors think in terms of a single period, and they choose among alternative portfolio's expected return and standard deviation over that period.
> 2. All investors can borrow or lend an unlimited amount of money at a given risk-free rate of interest, k_{RF}, and there are no restrictions on short sales of any asset.
> 3. All investors have identical estimates of the expected values, standard deviations, and correlations of returns among all assets; that is, investors have "homogeneous expectations."
> 4. All assets are perfectly divisible and are perfectly marketable at the going price.
> 5. There are no transaction costs.
> 6. There are no taxes.
> 7. All investors are price takers (that is, all investors assume that their own buying and selling activity will not affect market prices).
> 8. The quantities of all assets are given and fixed.[66]

Those restrictive CAPM assumptions are also shown at page 170 of Dr. Morin's New Regulatory Finance.[67]

It should be clear, even to the most casual observer, that many of the assumptions on which the CAPM is predicated are violated in applying the CAPM to the determination of the cost of capital of a particular type of security. All investors are not single-period investors; all investors can't borrow and lend unlimited amounts of money at the risk-free rate; all investors do not have identical return expectations. Furthermore,

[66] Brigham, E, Gapenski, L., Intermediate Financial Management, 5th Ed., Dryden Press, Fort Worth TX, 1994, p. 68.

[67] In defense of his reliance on CAPM, Dr. Morin has recently taken the position that if the CAPM is considered to be a special case of the Arbitrage Pricing Model (APM), its assumptions are less restrictive (e.g., Company response to PC DR-032). Unfortunately, although the APM has less restrictive assumptions, it was derived after the CAPM as an attempt to solve some of the CAPM's problems and does not negate the assumptions on which the CAPM rests. Further, Dr. Morin has relied on the CAPM, not the APM to estimate the cost of equity capital and reference to the latter to mollify the strict nature of the assumptions on which the CAPM rests is inappropriate.

all assets are not perfectly divisible; there are taxes; there are transaction costs; and many large institutional investors are acutely aware that buying and selling large amounts of any particular stock may affect stock prices. Each of these everyday stock market realities violates at least one of the assumptions on which the CAPM is grounded.

There are broader theoretical questions regarding the CAPM that I discuss in some detail in Exhibit No. ___ (SGH-6) attached to this testimony. For example, while analysts commonly use a broad market index (S&P 500 or NYSE) to represent "the market" in the CAPM, the model is actually designed to consider all capital investments (bonds, art, real estate, human capital) not just stocks. Moreover, since there is no "index" for all capital investments, the "true" CAPM cost of equity is unknowable, technically speaking.

The CAPM also has problems with its primary risk measure beta, which are discussed briefly in Exhibit No. ___ (SGH-6). Although he fails to do so in his testimony in this proceeding, Dr. Morin discussed many of the problems with beta in his 2006 text:

> **Practical and Conceptual Difficulties**
> **Computational Issues.** Absolute estimates of beta may vary over a wide range when different computational methods are used. The return data, the time period used, its duration, the choice of market index, and whether annual, monthly, or weekly return figures are used will influence the final result.
>
> * * *
>
> **Beta Stability.** Several empirical studies of beta coefficients, notably by Blume (1975) and Levy (1971), have revealed the market instability of betas over time.
>
> * * *

> **Historical versus True Beta.** The true beta of a security can never be observed. Historically estimated betas serve only as proxies for the true beta.
>
> * * *
>
> **Relevance of Beta.** According to both financial theory and empirical evidence, betas are critical and sufficient measures of risk. …But the relevance of beta as the only measure of risk remains controversial.[68]

Two researchers that Dr. Morin cites for authority, Eugene Fama and Kenneth French, published findings in the early 1990s regarding beta that show the primary risk measure in the CAPM to be essentially meaningless.[69] As Value Line noted in its *Industry Review*, March 13, 1992, Fama and French established in dramatic fashion the lack of a statistical relationship between return and beta. That finding was important because Fama's early econometric work in the 1970s on the CAPM and beta had lent credibility to the model. Those findings led the researchers to conclude:

> In short, our tests do not support the most basic prediction of the SLB [Sharpe-Litner-Black, CAPM] model, that average returns are positively related to market ßs. [70]

Fama and French have continued their investigation of the CAPM since their 1992 article and have postulated that a more accurate CAPM would use two additional risk measures in addition to beta. However, it is important to note that while those

[68] Morin, R. New Regulatory Finance, Public Utilities Reports, Arlington VA, (2006), pp. 71-81.
[69] The Cross-Section of Expected Stock Returns," The Journal of Finance, Vol. XLVII, No. 2, (June 1992), pp. 427-465).
[70] *Id*., p. 428.

authors tout the superiority of their three-factor CAPM to the single-beta CAPM on theoretical grounds, they recognize that there are significant problems with any type of asset pricing model when it comes to using the model to estimate the cost of equity capital. Even in reference to their three-factor CAPM, Fama and French indicate the equity cost estimates produced are "woefully imprecise."[71] In 2004, those authors stated in the *Journal of Economic Perspectives*, that the CAPM's structural problems render the model "invalid".

> The attraction of the CAPM is that is offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk. Unfortunately, the empirical record of the model is poor—poor enough to invalidate the way it is used in applications. The CAPM's empirical problems may reflect theoretical failings, the result of many simplifying assumptions. But they may also be caused by difficulties in implementing valid tests of the model….In the end, we argue that whether the model's problems reflect weaknesses in the theory or in its empirical implementation, the failure of the CAPM in empirical tests implies that most applications of the model are invalid. [72]

In summary, the CAPM analysis has very strong assumptions that violate real-world financial market conditions. Also, the fundamental risk measure on which CAPM is based (beta) has many problems—a fact discussed in detail by Dr. Morin in his text as well as by others on whom Dr. Morin relies for authority. While the CAPM remains an elegant description of capital market behavior that is widely used in academia as a

[71] Fama, French, "Industry Costs of Equity, "*Journal of Financial Economics*, 43 (1977), pp. 153-193.
[72] Fama, E., French, K., "The Capital Asset Pricing Model: Theory and Evidence," *Journal of Economic Perspectives*, Vol. 18, No. 3, (Summer 2004), pp. 25-46.

theoretical framework, that model has significant application problems. Although those problems do not negate its use, they do call for the limits on use of the CAPM as a supporting equity cost estimation procedure. Unfortunately, Dr. Morin places primary emphasis on risk premium-type models in his equity cost analysis in this proceeding.

Q: Co you use the CAPM in determining your recommendation in this proceeding?

A: Yes, I do. Although the CAPM has numerous practical difficulties that can cause wide swings in the results, it remains a reasonable description of capital market behavior. I believe, with well-reasoned application of the risk-free rate, beta and a forward-looking market risk premium, it can produce reasonable estimates of the cost of equity.

Unlike Dr. Morin in this proceeding, I do not place primary reliance on the CAPM because of both the theoretical and practical implementation problems associated with the CAPM. Moreover, it is important to understand that the same "leading expert" Dr. Morin cites in downplaying the importance of DCF, also indicates the CAPM is "unreliable."[73]

Q: Are there other problems related to risk-premium analyses that you have not discussed in this portion of your testimony?

A: Yes, there are other important concerns regarding the risk premium-type analysis on which Dr. Morin elects to rely. I discuss those problems in Exhibit No. ___ (SGH-6) attached to my testimony. Simply put, historical risk premiums (e.g., the Moriningstar historical return data) overstate current investor expectations. There has been much

[73] Phillips, C.F., The Regulation of Public Utilities Theory and Practice, Public Utilities Reports, Arlington VA, 1993, p. 397.

research on this issue in the financial economic literature over the past decade, which indicates that investors' current risk premium expectations are considerably lower than that indicated by historical return data.

E. DR. MORIN'S CRITIQUE OF PENSION FUND RETURNS

Q: Previously in your testimony, in your discussion of Puget's expected return on its pension fund equity investments, you noted that, in Puget's most recent rate proceeding, Dr. Morin had provided rebuttal to the reliance on those data as indicative of investors' general level of equity return expectations, correct?

A: Yes, that is correct; and, in that proceeding, I was unable to address the issues raised in Dr. Morin's rebuttal.

Q: Can you summarize the company's concerns with the use of projected pension fund equity returns as an indication of the cost of equity capital?

A: At pages 42 through 44 of his Rebuttal Testimony in Docket Nos. UE-060266/UG-060267, Dr. Morin cited three concerns with the use of Puget's own equity return expectation for its pension fund investments as a guide to a reasonable equity return allowance in a regulatory proceeding. Dr. Morin indicated that the equity return expectations were "actuarial" and therefore not related to the cost of equity. He also indicated that pension fund expectations are, by nature, "conservative." Also, Dr. Morin expressed concern that pension fund return expectations were based on geometric average returns and not arithmetic average returns.

Q: How do you respond to the concerns that pension fund returns are "actuarial" and, by nature, "conservative?"

A: It is certainly true that pension fund expense is calculated by actuaries who adhere to generally accepted professional procedures of accounting, finance and actuarial science. It is also true that the expected return is only one part of the determination of the current annual pension fund expense. Neither of those facts affects, in any way, the validity of comparing the Company's expected return on the equity investments in its retirement portfolio to the cost of equity appropriate for setting utility rates. They are both investor-expected long-term equity return expectations.

In order to calculate the current pension fund expense many factors must be considered: the actual portfolio return earned in the most recent year must be determined, the differences between last year's expected return and the actual return must be accounted for, and the projected changes in the workforce or mortality statistics must be estimated. Those are all accounting/actuarial issues. However, those who calculate pension fund expense must also make economic assumptions, with regard to what returns are expected on the investments existing in the pension fund portfolio.[74] Therefore, any suggestion that the determination of pension fund expense is solely an accounting exercise, and is, therefore, an entirely different concept from the cost of equity (investors' expected return), is incorrect.

[74] Actuarial Standard Board, Actuarial Standards of Practice, No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, (December 1996).

A key economic assumption that must be made in the determination of current pension fund expense—and the one on which I focus as support for my equity cost estimate—is the long-term expected return on the equity capital assets in the Company's retirement portfolio. The Company has an obligation to its employees to provide a pension when they retire. Therefore, it has to have available a certain amount of money in the future to pay those retirees. In order to make sure they have that money available in the future, the Company currently has a large investment portfolio.[75] In order to know if the current investment portfolio will generate the monies necessary when their workers retire, the Company must estimate the annual rate of return it will earn on the equity and debt assets that it currently has invested.

The annual return on the equity portion of the Company's portfolio is an objective measure of investors' long-term equity return expectations—it is what one very large investor (Puget) believes it will earn on its equity investments over the long-term. That is precisely the parameter regulators seek to determine in setting utility profitability. Therefore, even though the expected long-term return on equity used by Puget to project the future value of its pension fund portfolio is only one part of a complicated process of determining the current pension expense, it is a legitimate measure of investors' long-term equity return expectations, which is directly equivalent to the cost of equity capital.

Also, when Dr. Morin was asked, in the 2006 PSE rate case, to define what he meant by "actuarial data," he responded: "Actuarial data pertain to the application of the

[75] Puget's 2007 SEC Form 10-K, p. 106, indicates that, at year-end 2007 the Company had about $560 Million invested in its pension fund.

theories of probability and statistics and the principles of finance to problems of insurance, pensions, population, etc."[76] Those theories of finance and statistics are also the foundation of cost of capital analysis and the return expected on the Company's pension fund, guided by the principles of finance, provide an indication that the rational equity return expectations of equity investors in today's market are modest, and, in fact, are well below Puget's current authorized rate of return.

When asked to define what he meant by the term "conservative" as related to actuarial data, Dr. Morin replied: "the term 'conservative' is meant to convey caution, moderation and carefulness."[77] When asked if a "conservative" return expectation was "low" or "not accurate," Dr. Morin referred again to his definition of conservative and did not respond in the affirmative.[78] It is certainly reasonable to assume the attempt to estimate the retirement needs of Puget's workforce should be undertaken with substantial doses of caution and carefulness. However, that caution would also call for as accurate an estimate of investment returns in the future as possible.

With regard to any concern that the expected return on Puget's pension plan assets may be somewhat downward-biased, I have previously discussed the factors that tend to limit both over- and under-statement of pension fund returns. An understatement of expected returns on pension fund assets will lead to an overstatement of current pension fund expense, unnecessarily lower corporate profits and forgone infrastructure

[76] Docket Nos. UE-060266/UG-060267, Exhibit No. 336, PSE Response to Staff Data Request No. 363(a).
[77] Docket Nos. UE-060266/UG-060267, Exhibit No. 336, PSE Response to Staff Data Request No. 363(c).
[78] Docket Nos. UE-060266/UG-060267, Exhibit No. 336, PSE Response to Staff Data Request No. 363(d).

investment opportunities.

Q: Prior to discussing Dr. Morin's concerns regarding geometric versus arithmetic averages of historical data, can you explain them?

A: Yes. A geometric average of a set of historical return data is a compound average growth rate that, if applied to the initial value will result in the value existing at the end of the period. An arithmetic average is calculated by summing the annual returns and dividing by the number of years. Exhibit No. ___ (SGH-3), attached to this testimony contains a description of the two types of averaging methods and the advantages and disadvantages of each.

Q: How do you respond to Dr. Morin's claim that pension fund returns are based on geometric returns, not arithmetic returns and therefore are too low?

A: According to data responses filed by Puget in this proceeding, the Company is basing its current pension fund expense on an assumption that the long-term return it will earn on the common stock investments in its retirement portfolio is approximately 8.4 percent to 8.6 percent. Dr. Morin assumes that return expectation is based only on geometric averages of historical return data and, therefore, the Company's "actual" return expectation should be an arithmetic mean, which would be higher. There are several problems with Dr. Morin's geometric/arithmetic averaging rationale.

First, in Puget's 2006 rate case, Dr. Morin stated that he "is not aware of the assumptions underlying Puget Sound Energy, Inc.'s pension fund investment

projections."[79] Therefore, his geometric/arithmetic logic is based his assumptions regarding Puget's return expectations.

Second, the Company's long-term equity return expectation is what it is. Puget expects to earn an 8.4 percent to 8.6 percent return on its equity portfolio; not something higher. If Puget actually expected to earn, say, a 10 percent return on its equity investments, a) its current pension expense would be lower and 2) it would have miss-represented its retirement portfolio return expectations in public information filings required by the SEC Therefore, the claim that Puget's expected return on its equity investments "ought to be" or "is really" something other than what it undeniably actually is, should simply be dismissed.

Third, Dr. Morin appears to base his claim that Puget's 8.4 percent to 8.6 percent equity return expectation is "really" something higher on the assumption that the expected equity return is based solely on historical earned return results. It is not the case that current return expectations for pension fund portfolios are based solely on historical return data. According to actuarial standards of practice, in making their economic decisions with regard to the expected long-term returns, actuaries consider current yields, projected market return information as well as historical results, and statistical factors related to those historical results, not just historical results as Dr. Morin seems to assume.

Fourth, the concept of a forward-looking arithmetic mean is a mathematical non sequitur. Unless one elects to assume a detailed pattern of future period-by-period return

[79] Docket Nos. UE-060266/UG-060267, Exhibit No. 336, PSE Response to Staff Data Request No. 363(b).

volatility over a specific time period, a forward-looking arithmetic mean cannot be calculated, and there is no evidence that Puget, its pension fund advisor, or Dr. Morin utilized any such measure of future return. An arithmetic mean is neither useful nor meaningful in a fully projected context. The arithmetic mean is useful for cost of capital purposes only in an analysis of historical returns.

In sum, Puget expects to earn a return on its own equity investments of less than 9% over the long term. That return expectation is indicative of a "broader body" of information regarding investors' equity return expectations, which indicate that the Commission's equity return award to Puget in the Company's 2006 rate proceeding overstates the Company's cost of equity capital—the return investors' require.

Q: Does this conclude your discussion of Dr. Morin's testimony in Puget's 2006 rate case regarding expected pension fund returns?

A: Yes, it does.

Q: Does this conclude your direct testimony, Mr. Hill?

A: Yes, it does.