EXHIBIT NO. ___(RAM-1T)
DOCKET NO. UE-09____/UG-09____
2009 PSE GENERAL RATE CASE
WITNESS: DR. ROGER A. MORIN

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-09__ ____** **Docket No. UG-09__ ____**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF DR. ROGER A. MORIN ON BEHALF OF PUGET SOUND ENERGY, INC.

MAY 8, 2009

PUGET SOUND ENERGY, INC.

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PUGET SOUND ENERGY, INC.

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I. INTRODUCTION

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

A. My name is Dr. Roger A. Morin. My business address is Georgia State University, Robinson College of Business, University Plaza, Atlanta, Georgia 30303. I am Emeritus Professor of Finance at the Robinson College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government.

Q. Have you prepared an exhibit describing your education, relevant employment experience, and other professional qualifications?

A. Yes, I have. It is Exhibit No. ___(RAM-2).

Q. Have you previously testified on cost of capital before utility regulatory commissions?

A. As a principal in Utility Research International, I regularly serve as a cost of

capital witness before some fifty (50) regulatory bodies in North America, including the Washington Utilities and Transportation Commission (the "Commission"), the Federal Energy Regulatory Commission, and the Federal Communications Commission. I have also testified before the following state, provincial, and other local regulatory commissions:

Alabama	Florida	Missouri	Ontario
Alaska	Georgia	Montana	Oregon
Alberta	Hawaii	Nevada	Pennsylvania
Arizona	Illinois	New Brunswick	Quebec
Arkansas	Indiana	New Hampshire	South Carolina
British Columbia	Iowa	New Jersey	South Dakota
California	Kentucky	New Mexico	Tennessee
City of New Orleans, Louisiana	Louisiana	New York	Texas
Colorado	Maine	Newfoundland	Utah
CRTC	Manitoba	North Carolina	Vermont
Delaware	Maryland	North Dakota	Virginia
District of Columbia	Michigan	Nova Scotia	Washington
FCC	Minnesota	Ohio	West Virginia
FERC	Mississippi	Oklahoma	

Please see Exhibit No. ___(RAM-2) for more detail regarding my participation in regulatory proceedings in more detail.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to present an independent appraisal of the just, fair, reasonable, and sufficient rate of return on the utility operations of Puget Sound Energy, Inc. ("PSE") in the State of Washington, with particular emphasis on the fair return on PSE's common equity capital ("ROE") committed to that business. Based upon this appraisal, I have formed my professional judgment as to an ROE that would: (i) be fair to PSE's customers, (ii) allow PSE to attract capital on reasonable terms, (iii) maintain PSE's financial integrity, and (iv) be comparable to returns offered on comparable risk investments.

Q. Please summarize your findings concerning a just, fair, reasonable and sufficient ROE for PSE.

A. I have examined PSE's risks, and concluded that PSE's risk environment slightly exceeds the industry average. It is my opinion that a conservative just, fair, reasonable and sufficient ROE for PSE falls in the upper portion of a range between 11.0% and 11.5%.

Q. What methodologies have you employed in arriving at such opinion?

A. My opinion derives from studies I performed using the Capital Asset Pricing Model ("CAPM"), Risk Premium, and Discounted Cash Flow ("DCF") methodologies.

I performed two CAPM analyses:

(i) a "traditional" CAPM and

(ii) a methodology using an empirical approximation of the CAPM.

I performed a historical risk premium analysis on the electric utility industry over the period 1931–2007.

I also performed DCF analyses on two surrogates for PSE's utility business:

(i) a group of investment-grade dividend-paying integrated electric utilities; and

(ii) a group consisting of the electric utilities that make up Standard & Poor's ("S&P") Electric Utility Index.

Q. Have you considered factors other than the above-listed methodologies in arriving at your recommended ROE for PSE?

A. Yes. I would recommend the Commission grant PSE an ROE at the higher end of the recommended range to account for the slightly above average risks faced by PSE relative to the industry and the highly unstable conditions in the capital markets during the ongoing financial crisis. Moreover, my recommended ROE is predicated on the assumption that the Commission will approve PSE's requested capital structure for ratemaking purposes, which consists of 48% common equity capital, as proposed in the prefiled direct testimony of Mr. Donald E. Gaines, Exhibit No. ___(DEG-1T).

Q. How does your current direct testimony compare with the direct testimony you filed in the previous PSE general rate case before this Commission in Docket Nos. UE-072300 & UG-072301?

A. This direct testimony is similar to my direct testimony before the Commission on behalf of PSE in Docket Nos. UE-072300 & UG-072301. In that proceeding, I recommended an ROE in the upper end of a range of 10.8% and 11.2%. In this case, I am recommending an ROE in the upper end of a range of 11.0% and 11.5%. For reasons of consistency, I have used the same three generic tests and estimating methods as in prior testimonies (i.e., the CAPM, Risk Premium, and DCF tests). Of course, the various tests have been updated using current economic and market data, including the tumultuous state of current financial markets.

Q. Please describe how your direct testimony is organized.

A. The remainder of my testimony is divided into four sections:

(i) Turmoil in the Financial Markets;

(ii) Regulatory Framework and Rate of Return;

(iii) Cost of Equity Estimates;

(iv) Summary and Recommendation; and

(v) Capital Structure.

The first section discusses the tumultuous state of current financial markets. The second section discusses the rudiments of rate of return regulation and the basic

notions underlying rate of return. The third section contains the application of CAPM, Risk Premium, and DCF tests. The fourth section summarizes the results from the various approaches used in determining a fair return and the factors that contribute to the slightly above average risks faced by PSE relative to the industry. The final section concludes that PSE's requested capital structure for the rate year is reasonable.

II. TURMOIL IN THE FINANCIAL MARKETS

Q. Please describe the current state of the financial markets.

A. Financial markets are currently in a state of turmoil. In the past six months, the financial markets, both in the U.S. and abroad, have become extremely volatile, unpredictable, and have displayed unusual behavior. To illustrate, daily percentage changes in the Dow Jones Industrial Index have experienced unprecedented swings. Moreover, the Chicago Board of Options Exchange Volatility Index (VIX), which measures the volatility of the S&P 500 Index, has increased to record highs. The turmoil in the capital markets is also reflected by the following, highly unusual events:

(i) The distress sale of Bear Stearns Companies, Inc. to JPMorgan Chase in March 2008;

(ii) The placement of Fannie Mae (Federal National Mortgage Association) and Freddie Mac (Federal Home Loan Mortgage Corporation), into conservatorship run by the Federal Housing Finance Agency in September 2008;

(iii) The distress sale of Merrill Lynch to Bank of America in September 2008;

(iv) The conversion of the last two major investment banks in the U.S., Morgan Stanley and Goldman Sachs, to traditional bank holding companies in September 2009.

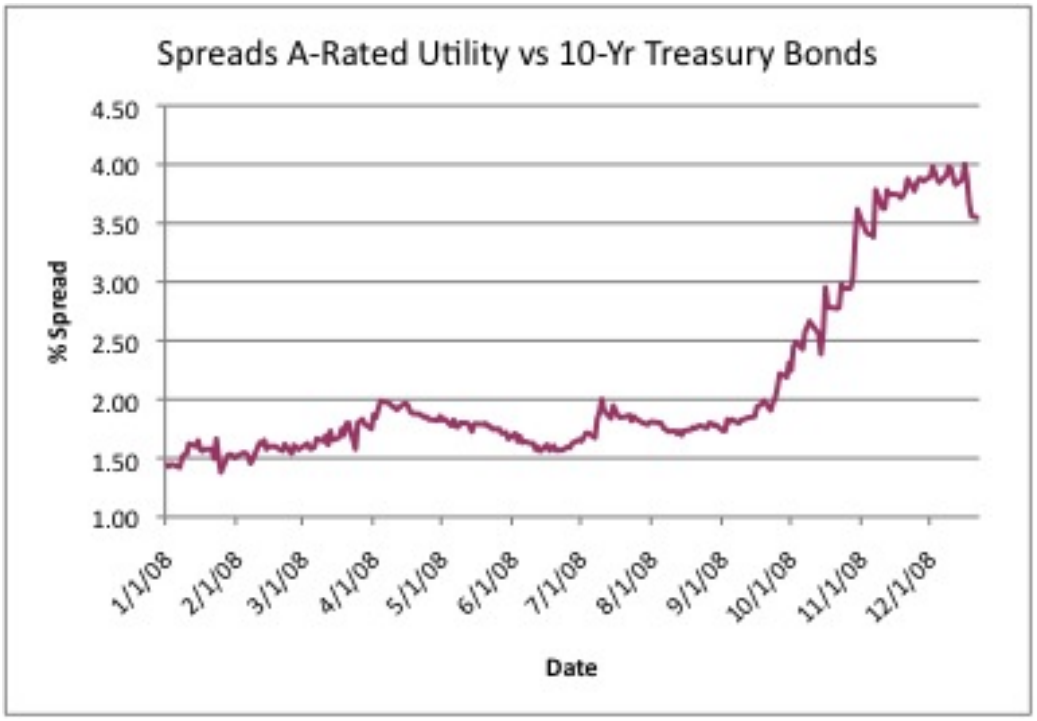
(v) The creation of secured credit facilities of over $100 billion by the U.S. Federal Reserve Bank and the Federal Reserve Bank of New York to prevent the collapse of American International Group, Inc. (AIG) in September and October 2008; and

(vi) The enactment of the Emergency Economic Stabilization Act of 2008 (commonly referred to as a bailout of the U.S. financial system), which authorized the U.S. Secretary of the Treasury to spend up to $700 billion to purchase distressed assets and make capital injections into banks, in October 2008.

Due to the tumultuous financial markets, borrowers must now compete with dramatically less capital to invest. As a result, the cost of money for corporations has increased—new debt issues are limited to the highest rated issuers. New stock issues are almost non-existent, and the commercial paper market functions only due to decisive intervention by the U.S. Treasury. Debt markets have witnessed record high yield spreads (i.e., the incremental yield over Treasury rates needed to issue debt) and a more severe differentiation between the spreads charged to companies with different credit ratings. These market conditions have led to an increased value for higher credit ratings and for conservative capital structures.

To illustrate, the chart below depicts the rising and record high spreads in recent months for utilities rated single "A". Whereas throughout most of early 2008 utilities were borrowing money at some 150–200 basis points over Treasuries, the

current secondary market spread (not including a significant new issuance premium) is 350 basis points, an increase of 150–200 basis points, virtually the same upward increase as has been observed in reliable DCF estimates.



In a nutshell, there is a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has become, and will continue to be, more expensive for all market participants.

Q. Can you briefly describe the behavior of interest rates since your last appearance before the Commission?

A. Yes. Appreciable changes have occurred in capital market conditions since I prepared my testimony in Docket Nos. UE-072300 & UG-072301. The current level of U.S. Treasury 30-year long-term bond yield is approximately 3.6%, whereas the U.S. Treasury 30-year long-term bond yield was approximately 5.0%

when I submitted direct testimony in the last PSE general rate case. The decrease in interest rates lowers the CAPM and Risk Premium estimates that are based on the risk-free rate. However, capital costs for non-government entities have escalated to unprecedented levels relative to government securities since the financial crisis began in 2008.

Q. What has happened to electric utility betas since you prepared your direct testimony in PSE's last general rate case?

A. Betas for electric utilities have decreased from the 0.90 level to the 0.80 level, thus lowering the CAPM estimates. It should be noted that beta estimates are based on five years of historical results, and thus do not yet reflect the impact of the current financial crisis.

Q. Has the market risk premium in the CAPM analysis changed since you prepared your direct testimony in PSE's last general rate case?

A. Although the historical market risk premium has not changed significantly, the prospective market risk premium has increased markedly, given the disastrous performance of the equity markets and the ongoing re-pricing of risk by investors. It should be noted that the historical market risk premium that is often used in the CAPM analysis is measured over a long term and likely does not capture the re-pricing of risk that is occurring in the financial marketplace.

Q. Please describe what has happened to DCF results since you prepared your direct testimony in PSE's last general rate case.

A. The following illustrates the movements of the Dow Jones Utility Average over the past six months.

The devastating downward impact of the financial crisis on utility stock prices is clear from the graph, with the utility index falling by more than 30% over the past six months. Lower stock prices imply higher dividend yields which in turn imply higher DCF estimates.

III. REGULATORY FRAMEWORK AND RATE OF RETURN

A. Legal and Regulatory Concepts Regarding Rate of Return

Q. Please explain how a regulated company's rates should be set under traditional principles of cost of service regulation.

A. Under the traditional regulatory process, a regulated company's rates should enable the regulated company to recover its costs, including taxes and depreciation, and earn a fair and reasonable return on its invested capital. The allowed rate of return must necessarily reflect the cost of the funds obtained (i.e., investors' return requirements). In determining a regulated company's rate of return, the starting point is investors' return requirements in financial markets. A rate of return can then be set at a level sufficient to enable the regulated company to earn a return commensurate with the cost of those funds.

Funds can be obtained in two general forms, debt capital and equity capital. The cost of debt funds can be easily ascertained from an examination of the regulated company's contractual interest payments. The cost of common equity funds (i.e., investors' ROE requirements) is more difficult to estimate.

Q. What fundamental principles underlie the determination of a fair and reasonable ROE?

A. The heart of utility regulation is the setting of just, fair, reasonable and sufficient rates by way of a fair and reasonable ROE. Two landmark U. S. Supreme Court

cases define the legal principles underlying the regulation of a public utility's rate of return and provide the foundations for the notion of a fair return:

(i) *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923), and

(ii) *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591 (1944).

The *Bluefield* case set the standard against which just, fair, reasonable and sufficient rates of return are measured:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public *equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties ... The return should be reasonable*, sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to *maintain and support its credit and enable it to raise money* necessary for the proper discharge of its public duties.

Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. at 692 (emphasis added).

The *Hope* case expanded on the guidelines for assessing the reasonableness of the allowed return. The Court reemphasized its statements in the *Bluefield* case and recognized that revenues must cover "capital costs." The Court stated:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock ... By that standard the *return to the equity owner should be commensurate with returns on*

> *investments in other enterprises having corresponding risks*. That return, moreover, should be sufficient to *assure confidence in the financial integrity* of the enterprise, so as to maintain its credit and attract capital.

Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. at 603 (emphasis added).

The U.S. Supreme Court reiterated the criteria set forth in *Hope* in *Federal Power Commission v. Memphis Light, Gas & Water Division*, 411 U.S. 458 (1973), in *Permian Basin Rate Cases*, 390 U.S. 747 (1968), and most recently in *Duquesne Light Co. vs. Barasch*, 488 U.S. 299 (1989). In the *Permian Basin Rate Cases,* the Supreme Court stressed that a regulatory agency's rate of return order should

> reasonably be expected to maintain financial integrity, attract necessary capital, and fairly compensate investors for the risks they have assumed.

Permian Basin Rate Cases, 390 U.S. at 792.

Therefore, the "end result" of this Commission's decision should be to allow PSE the opportunity to earn a return on equity that is: (i) commensurate with returns on investments in other firms having corresponding risks, (ii) sufficient to assure confidence in PSE's financial integrity, and (iii) sufficient to maintain PSE's creditworthiness and ability to attract capital on reasonable terms.

B. Economic and Financial Concepts Regarding Rate of Return

Q. How is the fair rate of return determined?

A. The aggregate return required by investors is called the "cost of capital." The

cost of capital is the opportunity cost, expressed in percentage terms, of the total pool of capital employed by PSE. It is the composite weighted cost of the various classes of capital (e.g., bonds, preferred stock, common stock) used by the utility, with the weights reflecting the proportions of the total capital that each class of capital represents. The fair return in dollars is obtained by multiplying the rate of return set by the regulator by the utility's "rate base." The rate base is essentially the net book value of the utility's plant and other assets used to provide utility service in a particular jurisdiction.

Although utilities like PSE enjoy varying degrees of monopoly in the sale of public utility services, they must compete with everyone else in the free, open market for the input factors of production, whether labor, materials, machines, or capital. The prices of these inputs are set in the competitive marketplace by supply and demand, and it is these input prices that are incorporated in the cost of service computation. This is just as true for capital as for any other factor of production. Utilities and other investor-owned businesses must (i) access capital on the open capital market and (ii) pay a market price for the capital they require (e.g., interest on debt capital and expected return on equity).

Q. How does the concept of a fair return relate to the concept of opportunity cost?

A. The concept of a fair return is intimately related to the economic concept of "opportunity cost." When investors supply funds to a utility by buying its stocks

or bonds, they are not only postponing consumption, giving up the alternative of spending their dollars in some other way, they are also exposing their funds to risk and forgoing returns from investing their money in alternative comparable risk investments. The compensation they require is the price of capital. If there are differences in the risk of the investments, competition among firms for a limited supply of capital will bring different prices. These differences in risk are translated by the capital markets into differences in required return, in much the same way that differences in the characteristics of commodities are reflected in different prices.

The important point is that the required return on capital is set by supply and demand, and is influenced by the relationship between the risk and return expected for those securities and the risks expected from the overall menu of available securities.

Q. What economic and financial concepts have guided your assessment of PSE's cost of common equity?

A. Two fundamental economic principles underlie the appraisal of PSE's cost of equity, one relating to the supply side and the other to the demand side of capital markets.

On the supply side, the first principle asserts that rational investors maximize the performance of their portfolios only if they expect returns on investments of comparable risk to be the same. If not, rational investors will switch out of those

investments yielding lower returns at a given risk level in favor of those investment activities offering higher returns for the same degree of risk. This principle implies that a company will be unable to attract capital funds unless it can offer returns to capital suppliers that are comparable to those achieved on competing investments of similar risk.

On the demand side, the second principle asserts that a company will continue to invest in real physical assets if the return on these investments equals, or exceeds, the company's cost of capital. This principle suggests that a regulatory commission should set rates at a level sufficient to create equality between the return on physical asset investments and the company's cost of capital.

Q. How does PSE obtain its capital and how is its overall cost of capital determined?

A. The funds employed by PSE are obtained in two general forms—debt capital and equity capital. The latter consists of common equity capital. The cost of debt funds can be ascertained easily from an examination of the contractual interest payments. The cost of common equity funds, that is, equity investors' required rate of return, is more difficult to estimate because the dividend payments received from common stock are not contractual or guaranteed in nature. They are uneven and risky, unlike interest payments.

Once a cost of common equity estimate has been developed, it can then easily be combined with the embedded costs of debt, based on the utility's capital structure,

in order to arrive at the overall cost of capital (overall return).

Q. What is the market required rate of return on equity capital?

A. The market required rate of return on common equity, or cost of equity, is the return demanded by the equity investor. Investors establish the price for equity capital through their buying and selling decisions in capital markets. Investors set return requirements according to their perception of the risks inherent in the investment, recognizing the opportunity cost of forgone investments in other companies, and the returns available from other investments of comparable risk.

Q. What must be considered in estimating a fair ROE?

A. The basic premise is that the allowable ROE should be commensurate with returns on investments in other firms having corresponding risks. The allowed return should be sufficient to assure confidence in the financial integrity of the firm, to maintain creditworthiness and ability to attract capital on reasonable terms.

The attraction of capital standard focuses on investors' return requirements that are generally determined using market value methods, such as the Risk Premium, CAPM, or DCF methods. These market value tests define fair return as the return investors anticipate when they purchase equity shares of comparable risk in the financial marketplace. This is a market rate of return, defined in terms of anticipated dividends and capital gains (as determined by expected changes in

stock prices) and reflects the opportunity cost of capital. The economic basis for market value tests is that new capital will be attracted to a firm only if the return expected by investors in the firm is commensurate with the return expected by investors in firms of comparable risk.

Q. How does PSE's cost of capital relate to that of its parent company, Puget Energy?

A. I treat PSE as a separate stand-alone entity, distinct from Puget Energy or any other "upstream" entity, because the cost of capital to measure in this proceeding is the cost of capital for PSE and not the cost of capital for consolidated activities of Puget Energy or any other "upstream" entity.

Financial theory establishes that the cost of equity is the risk-adjusted opportunity cost to the investor—in this case, Puget Energy. The true cost of capital depends on the use to which the capital is put—in this case, PSE's utility operations in the State of Washington. The specific source of funding for an investment and the cost of funds to the investor are irrelevant considerations.

For example, if an individual investor borrows money at an after-tax cost of 5% and invests the funds in a speculative oil extraction venture, the required return on the investment is not the investor's debt cost of 5% but rather the return foregone in speculative projects of similar risk, say 20%. Similarly, the required return on capital invested in PSE is the return foregone in comparable risk utility operations and not the cost of capital of Puget Energy. The identity of the shareholder(s) has

no bearing on ROE; in other words, the cost of capital is governed by the risk to which the capital is exposed and not by the source of funds.

Just as individual investors require different returns from different assets in managing their personal affairs, corporations should behave in the same manner. A parent company normally invests money in many operating companies of varying sizes and varying risks. These operating subsidiaries pay different rates for the use of investor capital (such as long-term debt capital) because investors recognize the differences in capital structure, risk, and prospects between subsidiaries. Therefore, the cost of investing funds in an operating utility subsidiary such as PSE is the return foregone on investments of similar risk and is unrelated to the identity of the investor.

IV. COST OF EQUITY CAPITAL ESTIMATES

A. Three Market-Based Methodologies: CAPM, Risk Premium and DCF

Q. How did you estimate the fair ROE for PSE?

A. I employed three methodologies: (i) the CAPM, (ii) the Risk Premium, and (iii) the DCF methodologies. All three are market-based methodologies and are designed to estimate the return required by investors on the common equity capital committed to PSE.

Q. Why did you use more than one approach for estimating the cost of equity?

A. No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence to facilitate the exercise of informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations because of possible measurement difficulties and vagaries in individual companies' market data. Examples of such vagaries include dividend suspension, insufficient or unrepresentative historical data due to a recent merger, impending merger or acquisition, and a new corporate identity due to restructuring activities. The advantage of using several different approaches is that the results of each one can be used to check the others.

As a general proposition, it is extremely dangerous to rely on only one generic methodology to estimate equity costs. The difficulty is compounded when only one variant of that methodology is employed. It is compounded even further when that one methodology is applied to a single company. Hence, several methodologies applied to several comparable risk companies should be employed to estimate the cost of capital.

Q. Are the CAPM, Risk Premium, and DCF methodologies accepted and used by the financial community and financial literature?

A. Yes. Each of the CAPM, Risk Premium, and DCF methodology is accepted and used by the financial community and financial literature. However, the weight

accorded to any one methodology may vary depending on unusual circumstances in capital market conditions.

When measuring ROE, which essentially deals with the measurement of investor expectations, no one single methodology provides a foolproof panacea. Each methodology requires the exercise of considerable judgment on the reasonableness of the assumptions underlying the methodology and on the reasonableness of the proxies used to validate the theory and apply the methodology. The failure of the traditional infinite growth DCF model to account for changes in relative market valuation, and the practical difficulties of specifying the expected growth component, are vivid examples of the potential shortcomings of the DCF model. It follows that more than one methodology should be employed in arriving at a judgment on the cost of equity and that all of these methodologies should be applied to multiple groups of comparable risk companies.

Moreover, there is no single model that conclusively determines or estimates the expected return for an individual firm. Each methodology has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. There is no guarantee that a single DCF result is necessarily the ideal predictor of the stock price and of the cost of equity reflected in that price, just as there is no guarantee that a single CAPM or Risk Premium result constitutes the

perfect explanation of a stock's price or ROE.

Q. Are there any practical difficulties in applying cost of capital methods in the current environment of changes in capital markets and in the utility industry environment?

A. Yes, there are, especially under current capital market conditions. All the traditional cost of equity estimation methodologies are difficult to implement when you are dealing with the unprecedented conditions of instability and volatility in the capital markets and the fast-changing circumstances of the utility industry. This is not only because stock prices are extremely volatile at this time, but also utility company historical data have become less meaningful for an industry in a state of profound change.

Past earnings and dividend trends are simply not indicative of the future. For example, historical growth rates of earnings and dividends have been depressed by eroding margins due to a variety of factors, including corporate structural transformation and the transition to a more competitive environment. As a result, these historical indicators are not representative of the future long-term earning power of these companies.

Moreover, historical growth rates are not representative of future trends for utilities involved in mergers and acquisitions, as these companies going forward would not be the same companies for which historical data are available.

B. CAPM Estimates

1. Background

Q. Please describe your application of the CAPM risk premium approach.

A. My first two risk premium estimates are based on the CAPM and on an empirical approximation to the CAPM ("ECAPM"). The CAPM is a fundamental paradigm of finance. The fundamental idea underlying the CAPM is that risk-averse investors demand higher returns for assuming additional risk, and higher-risk securities are priced to yield higher expected returns than lower-risk securities. The CAPM quantifies the additional return, or risk premium, required for bearing incremental risk. It provides a formal risk-return relationship anchored on the basic idea that only market risk matters, as measured by beta.

According to the CAPM, securities are priced such that:

$$\text{Expected Return} = \text{Risk-Free Rate} + \text{Risk Premium}$$

Denoting the risk-free rate by R_F and the return on the market as a whole by R_M, the CAPM is stated as follows:

$$K = R_F + \beta(R_M - R_F)$$

This is the seminal CAPM expression, which states that the return required by investors is made up of a risk-free component, R_F, plus a risk premium given by β times the market risk premium ($R_M - R_F$). To derive the CAPM risk premium

estimate, three quantities are required: the risk-free rate (R_F), beta (β), and the market risk premium, (R_M - R_F). For the risk-free rate, I used 3.6%, based on current interest rates on long-term U.S. Treasury bonds. For beta, I used 0.76 and for the market risk premium I used 6.5%. These inputs to the CAPM are explained below.

2. Risk-Free Rate

Q. What risk free rate did you use in your CAPM and risk premium analyses?

A. To implement the CAPM and Risk Premium methods, an estimate of the risk-free return is required as a benchmark. As a proxy for the risk-free rate, I have relied on the current level of 30-year Treasury bonds.

The appropriate proxy for the risk-free rate in the CAPM is the return on the longest term Treasury bond possible. This is because common stocks are very long-term instruments more akin to very long-term bonds rather than to short-term or intermediate-term Treasury notes, for example, 10-year Treasury notes. In a risk premium model, the ideal estimate for the risk-free rate has a term to maturity equal to the security being analyzed. Since common stock is a very long-term investment because the cash flows to investors in the form of dividends last indefinitely, the yield on the longest-term possible government bonds, (i.e., yield on 30-year Treasury bonds) is the best measure of the risk-free rate for use in the CAPM. The expected common stock return is based on very long-term cash flows, regardless of an individual's holding time period. Moreover, utility

asset investments generally have very long-term useful lives and should correspondingly be matched with very long-term maturity financing instruments.

While long-term Treasury bonds are potentially subject to interest rate risk, this is only true if the bonds are sold prior to maturity. A substantial fraction of bond market participants, usually institutional investors with long-term liabilities (e.g., pension funds, insurance companies), in fact hold bonds until they mature, and therefore are not subject to interest rate risk. Moreover, institutional bondholders neutralize the impact of interest rate changes by matching the maturity of a bond portfolio with the investment planning period, or by engaging in hedging transactions in the financial futures markets. The merits and mechanics of such immunization strategies are well documented by both academicians and practitioners.

Another reason for utilizing the longest maturity Treasury bond possible is that common equity has an infinite life span, and the inflation expectations embodied in its market-required rate of return will therefore be equal to the inflation rate anticipated to prevail over the very long-term. The same expectation should be embodied in the risk free rate used in applying the CAPM model. It stands to reason that the yields on 30-year Treasury bonds will more closely incorporate within their yields the inflation expectations that influence the prices of common stocks than do short-term or intermediate-term U.S. Treasury notes.

Among U.S. Treasury securities, 30-year Treasury bonds have the longest term to

maturity and the yield on such securities should be used as proxies for the risk-free rate in applying the CAPM, provided there are no anomalous conditions existing in the 30-year Treasury market. In the absence of such conditions, I have relied on the yield on 30-year Treasury bonds in implementing the CAPM and risk premium methods.

Q. Dr. Morin, why did you reject short-term interest rates as proxies for the risk-free rate in implementing the CAPM?

A. Short-term rates are volatile, fluctuate widely, and are subject to more random disturbances than are long-term rates. Short-term rates are largely administered rates. For example, as was seen recently in an attempt to combat the weak economy, Treasury bills are used by the Federal Reserve Board as a policy vehicle to stimulate the economy and to control the money supply, and are used by foreign governments, companies, and individuals as a temporary safe-house for money.

As a practical matter, it makes little sense to match the return on common stock to the yield on 90-day Treasury Bills. This is because short-term rates, such as the yield on 90-day Treasury Bills, fluctuate widely, leading to volatile and unreliable equity return estimates. Moreover, yields on 90-day Treasury Bills typically do not match the equity investor's planning horizon. Equity investors generally have an investment horizon far in excess of 90 days.

As a conceptual matter, short-term Treasury Bill yields reflect the impact of

factors different from those influencing the yields on long-term securities such as common stock. For example, the premium for expected inflation embedded into 90-day Treasury Bills is likely to be far different than the inflationary premium embedded into long-term securities yields. On grounds of stability and consistency, the yields on long-term Treasury bonds match more closely with common stock returns.

Q. What is your estimate of the risk-free rate in applying the CAPM?

A. The level of U.S. Treasury 30-year long-term bonds prevailing in February 2009 2008 as reported in Value Line is 3.6%. Accordingly, I use 3.6% as my estimate of the risk-free rate component of the CAPM.

3. <u>Beta</u>

Q. How did you select the beta for your CAPM analysis?

A. A major thrust of modern financial theory as embodied in the CAPM is that perfectly diversified investors can eliminate the company-specific component of risk, and that only market risk remains. The latter is technically known as "beta," or "systematic risk". The beta coefficient measures change in a security's return relative to that of the market. The beta coefficient states the extent and direction of movement in the rate of return on a stock relative to the movement in the rate of return on the market as a whole. The beta coefficient indicates the change in the rate of return on a stock associated with a one percentage point change in the rate of return on the market, and thus measures the degree to which a particular

stock shares the risk of the market as a whole. Modern financial theory has established that beta incorporates several economic characteristics of a corporation which are reflected in investors' return requirements.

As a wholly-owned subsidiary of Puget Energy, PSE is not publicly traded, and therefore, proxies must be used. In the discussion of DCF estimates of the cost of common equity below, I examine a sample of widely-traded investment-grade vertically integrated electric utilities covered by Value Line that have (i) at least 70% of their revenues from regulated utility operations, and (ii) market capitalization was less than $500 million. The average beta for this group is currently 0.76. Please see Exhibit No. ___(RAM-3) for the betas of this sample of widely-traded investment-grade vertically integrated electric utilities.

I also examined the average beta of the electric utilities that make up Standard & Poor's Electric Utility Index as a second proxy. The average beta for the group is 0.76, the same as the previous estimate. Please see Exhibit No. ___(RAM-4) for the betas of the companies in the Standard & Poor's Utility Index.

Finally, as a check on the two previous estimates, I examined the betas of widely-traded investment-grade dividend-paying Western electric utilities as reported in Value Line. The average beta for the Western electric utility group is 0.76, which is identical to the two previous estimates. Please see Exhibit No. ___(RAM-5) for the betas of the Western electric utilities as reported in Value Line.

Based on these results, I shall use 0.76 as an estimate for the beta applicable to

PSE's utility business. It is important to note that betas are estimated on five-year historical periods and, therefore, do not capture the dramatic increase in capital costs since October 2008.

4. Market Risk Premium

Q. What market risk premium estimate did you use in your CAPM analysis?

A. For the market risk premium, I used 6.5%. This estimate was based on the results of both forward-looking and historical studies of long-term risk premiums, mainly the latter. First, the Morningstar (formerly Ibbotson Associates) study, *Stocks, Bonds, Bills, and Inflation,* 2009 *Yearbook*, compiling historical returns from 1926 to 2008, shows that a broad market sample of common stocks outperformed long-term U. S. Treasury bonds by 5.6%. The historical market risk premium over the income component of long-term Treasury bonds rather than over the total return is 6.5%. Morningstar recommends the use of the latter as a more reliable estimate of the historical market risk premium, and I concur with this viewpoint. The historical market risk premium should be computed using the income component of bond returns because the intent, even using historical data, is to identify an expected market risk premium. This is because the income component of total bond returns (i.e. the coupon rate) is a far better estimate of expected return than the total return (i.e., the coupon rate + capital gain), as realized capital gains/losses are largely unanticipated by bond investors. The long-horizon (1926–2008) market risk premium (based on income returns, as required) is

specifically calculated to be 6.5% rather than 5.6%.

Q. On what maturity bond does the Morningstar historical risk premium data rely?

A. Because 30-year bonds were not always traded or even available throughout the entire 1926–2008 period covered in the Morningstar Study of historical returns, the latter study relied on bond return data based on 20-year Treasury bonds. To the extent that the normal yield curve is virtually flat above maturities of 20 years over most of the period covered in the Morningstar study, the difference in yield is not material. In fact, the difference in yield between 30-year and 20-year bonds is actually negative. The average difference in yield over the 1977–2006 period is 13 basis points, that is, the yield on 20-year bonds is slightly higher than the yield on 30-year bonds.

Q. Why did you use long time periods in arriving at your historical market risk premium estimate?

A. Because realized returns can be substantially different from prospective returns anticipated by investors when measured over short time periods, it is important to employ returns realized over long time periods rather than returns realized over more recent time periods when estimating the market risk premium with historical returns. Therefore, a risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods

during which investors earned a higher risk premium than they expected. Only over long time periods will investor return expectations and realizations converge.

I have therefore ignored realized risk premiums measured over short time periods, since they are heavily dependent on short-term market movements. Instead, I relied on results over periods of enough length to smooth out short-term aberrations, and to encompass several business and interest rate cycles. The use of the entire study period in estimating the appropriate market risk premium minimizes subjective judgment and encompasses many diverse regimes of inflation, interest rate cycles, and economic cycles.

To the extent that the estimated historical equity risk premium follows what is known in statistics as a random walk, one should expect the equity risk premium to remain at its historical mean. Since I found no evidence that the market risk premium in common stocks has changed over time, that is, no significant serial correlation in the Morningstar study, it is reasonable to assume that these quantities will remain stable in the future.

Q. Did you check your historical market risk premium estimate with any other source?

A. Yes, I did. As a check on the market risk premium estimate, I examined a 2003 comprehensive article published in *Financial Management*, by Harris, Marston, Mishra, and O'Brien ("HMMO") that provides estimates of the ex ante expected

returns for S&P 500 companies over the period 1983–1998.[1] HMMO measure the expected rate of return (cost of equity) of each dividend-paying stock in the S&P 500 for each month from January 1983 to August 1998 by using the constant growth DCF model. The prevailing risk-free rate for each year was then subtracted from the expected rate of return for the overall market to arrive at the market risk premium for that year. The table below, drawn from HMMO Table 2, displays the average prospective risk premium estimate (Column 2) for each year from 1983 to 1998. The average market risk premium estimate for the overall period is 7.2%, which is reasonably close to the historical estimate of 6.5% and almost identical to the historical estimate of 7.1% if the disastrous performance of the capital markets during 2008 is excluded from the historical average.

Year	**DCF Market Risk Premium**
1983	6.6%
1984	5.3%
1985	5.7%
1986	7.4%
1987	6.1%
1988	6.4%
1989	6.6%
1990	7.1%
1991	7.5%
1992	7.8%
1993	8.2%
1994	7.3%
1995	7.7%
1996	7.8%
1997	8.2%
1998	9.2%
MEAN	**7.2%**

[1] R.S. Harris, *et al.*, "*Ex Ante* Cost of Equity Estimates of S&P 500 Firms: The Choice Between Global and Domestic CAPM," Financial Management, Autumn 2003, at 51-66.

Q. Did you perform any other prospective analysis of the market risk premium?

A. No, I did not. In contrast to my past testimonies where I developed my own estimate of the prospective market risk premium by applying the DCF model to a broad stock market index, this same technique applied to current stock market data produces market risk premium estimates in the 9% range on account of the very low level of government interest rates and the current turmoil in equity markets. These estimates are higher than what seems reasonable based on the market risk premium literature. Given the unsettled conditions in the equity market and in the interest of conservatism I shall therefore retain the historical market risk premium estimate of 6.5%.

Q. What is your risk premium estimate of PSE's cost of equity using the CAPM approach?

A. Inserting those input values in the CAPM equation, namely a risk-free rate of 3.6%, a beta of 0.76, and a market risk premium 6.5 %, the CAPM estimate of the cost of common equity is: 3.6% + 0.76 x 6.5% = 8.5%.

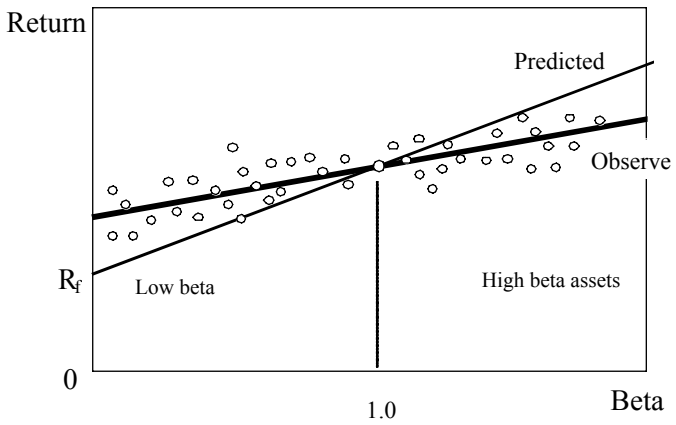
Q. What is your risk premium estimate using the empirical version of the CAPM?

A. With respect to the empirical validity of the plain vanilla CAPM, there have been countless empirical tests of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM. This

literature is summarized in Chapter 6 of my latest book, The New Regulatory Finance, published by Public Utilities Report Inc. The results of the tests support the idea that beta is related to security returns, that the risk-return tradeoff is positive, and that the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as the predicted CAPM. That is, empirical research has long shown that low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.

A CAPM-based estimate of cost of capital underestimates the return required from low-beta securities and overstates the return required from high-beta securities, based on the empirical evidence. This is one of the most well-known results in finance, and it is displayed graphically below.

CAPM: vs Observed



A number of variations on the original CAPM theory have been proposed to

explain this finding. The ECAPM makes use of these empirical findings. The ECAPM estimates the cost of capital with the equation:

$$K = R_F \alpha + \beta \times (MRP - \alpha)$$

where: K = investors' expected return on equity
R_F = risk-free rate
α = the "constant" of the risk-return line
MRP = market risk premium ($R_M - R_F$)
β = beta

Inserting the long-term risk-free rate as a proxy for the risk-free rate, an alpha in the range of 1%–2%, and reasonable values of beta and the market risk premium in the above equation produces results that are indistinguishable from the following more tractable ECAPM expression:

$$K = R_F + 0.25(R_M - R_F) + 0.75\beta(R_M - R_F)$$

An alpha range of 1%–2% is somewhat lower than that estimated empirically. The use of a lower value for alpha leads to a lower estimate of the cost of capital for low-beta stocks such as regulated utilities. This is because the use of a long-term risk-free rate rather than a short-term risk-free rate already incorporates some of the desired effect of using the ECAPM. In other words, the long-term risk-free rate version of the CAPM has a higher intercept and a flatter slope than the short-term risk-free version which has been tested. This is also because the use of adjusted betas rather than the use of raw betas also incorporates some of the desired effect of using the ECAPM. Thus, it is reasonable to apply a conservative alpha adjustment.

Exhibit No. ___(RAM-6) contains a full discussion of the ECAPM, including its theoretical and empirical underpinnings. In short, the following equation provides a viable approximation to the observed relationship between risk and return, and provides the following cost of equity capital estimate:

$$K = R_F + 0.25(R_M - R_F) + 0.75\beta(R_M - R_F)$$

Inserting 3.6% for the risk-free rate R_F, a MRP of 6.5% for $(R_M - R_F)$ and a beta of 0.76 in the above equation, the return on common equity is 8.9%.

Q. Is the use of the ECAPM consistent with the use of adjusted betas?

A. Yes, it is. Some have argued that the use of the ECAPM is inconsistent with the use of adjusted betas, such as those supplied by Value Line, Bloomberg, and Morningstar. This is because the reason for using the ECAPM is to allow for the tendency of betas to regress toward the mean value of 1.00 over time, and, since Value Line betas are already adjusted for such trend, an ECAPM analysis results in double-counting. This argument is erroneous. Fundamentally, the ECAPM is not an adjustment, increase or decrease, in beta. The observed return on high beta securities is actually lower than that produced by the CAPM estimate. The ECAPM is a formal recognition that the observed risk-return tradeoff is flatter than predicted by the CAPM based on myriad empirical evidence. The ECAPM and the use of adjusted betas comprised two separate features of asset pricing. Even if a company's beta is estimated accurately, the CAPM still understates the return for low-beta stocks. Even if the ECAPM is used, the return for low-beta

securities is understated if the betas are understated. Referring back to the previous graph, the ECAPM is a return (vertical axis) adjustment and not a beta (horizontal axis) adjustment. Both adjustments are necessary. Moreover, the use of adjusted betas compensates for the interest rate sensitivity of utility stocks not captured by unadjusted betas.

5. CAPM Estimates

Q. Please summarize your CAPM estimates.

A. The table below summarizes the common equity estimates obtained from the CAPM studies.

CAPM Method	% ROE
Traditional CAPM	8.5%
Empirical CAPM	8.9%

Q. How much weight should be accorded to the CAPM results under current market circumstances?

A. The CAPM estimates are not significantly above the cost of new debt capital and likely understate the cost of equity capital under current unsettled capital market conditions. I believe that less weight should be accorded to the CAPM results under present circumstances for two reasons. First, because the betas employed in the CAPM analysis are estimated over five-year historical periods, the impact of the ongoing financial crisis is not yet fully captured in the five-year historical betas. Second, government interest rates have decreased substantially following

the Federal Reserve's expansionary policies designed to jumpstart the stalled economy, thus lowering the CAPM results. At the same time, the cost of corporate debt and the cost of equity for utilities have increased significantly, as evidenced by the record high corporate yield spreads discussed earlier in my testimony, and by the DCF results for utilities that have increased significantly by some 150–200 basis points in response to lower stock prices (higher dividend yields) following the financial crisis. The DCF analysis is presented below.

This anomaly between actual market costs and the estimation techniques used in this proceeding puts PSE at significant financing risk. As such, much less weight should be accorded to the CAPM method at present. As I mentioned above, there is a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has become, and will continue to be, more expensive for all non-government market participants over the next 18–24 months at least.

C. Risk Premium Estimate

Q. Please describe your historical risk premium analysis of the electric utility industry.

A. An historical risk premium for the electric utility industry was estimated with an annual time series analysis applied to the utility industry as a whole over the 1930–2007 period, using the S&P Utility Index as an industry proxy. Please see Exhibit No. ___(RAM-7) for the historical risk premium for the electric utility industry, using the S&P Utility Index as an industry proxy. The risk premium

was estimated by computing the actual realized return on equity capital for the S&P Utility Index for each year, using the actual stock prices and dividends of the index, and then subtracting the long-term government bond return for that year.

As shown on Exhibit No. ___(RAM-7), the average risk premium over the period was 6.1% over historical long-term Treasury bond returns and 6.3% over long-term Treasury bond yields. Given that the risk-free rate is 3.6%, and using the historical estimate of 6.1%, the implied cost of equity for the average risk utility from this particular method is 3.6% + 6.1% = 9.7%.

In past testimonies, I have relied on the Moody's Electric Utility Index to perform my historical risk premium study. Following the acquisition of Moody's by Mergent in 2002, publication of the electric utility index was discontinued. Therefore, I chose to rely on the S&P Utility Index instead of the Moody's Index in order to ensure continuity and timeliness of the risk premium data. I note that the use of S&P Utility Index instead of the Moody's Index is consistent with the use of the electric utilities that make up the S&P Utility Index as one of my two proxy groups. Moreover, I note that the results using the S&P Index are not materially different from those using the discontinued Moody's index.

Q. What is currently happening in the debt and equity markets?

A. As discussed earlier, in the past six months, the financial markets, both in the U.S. and abroad, have become extremely volatile, unpredictable, and have displayed unusual behavior. The debt markets have witnessed record high yield spreads

(the incremental yield over Treasury rates needed to issue debt) and a more severe differentiation between the spreads charged to companies with different levels of credit. In light of a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, capital has become, and will continue to be, more expensive for all market participants, including utilities.

Q. Dr. Morin, given the current state of the capital markets at this time, is your historical risk premium analysis using government bond yields appropriate?

A. No, I do not believe it is. Trends in utility cost of capital are directly reflected in their cost of debt and are not directly captured by a risk premium estimate tied to government bond yields. This is especially germane in the current financial crisis where corporate spreads have reached record levels. Because a utility's cost of capital is determined by its business and financial risks, it is reasonable to surmise that its cost of equity will track its cost of debt more closely than it will track the government bond yield. To guard against this possibility, I have replicated my historical premium analysis using the utility bond yield instead of the government bond yield.

Q. Can you describe your historical risk premium analysis of the electric utility industry using utility bond yields?

A. Yes. The same risk premium analysis using Treasury bond yields is replicated on Exhibit No. ___(RAM-8), only this time using A-rated utility bond yields. The risk premium was estimated by computing the actual realized return on equity

capital for the S&P Utility Index for each year, using the actual year-to-year changes in the index, and then subtracting the long-term A-rated utility bond return for that year.

As shown on Exhibit No. ___(RAM-8), the average risk premium over the period was 5.0% over both utility bond returns and utility bond yields. Given that the current yield on utility bonds rated single A is 6.1%, and using the historical risk premium estimate of 5.0%, the implied cost of equity from this particular method is 6.1% + 5.0% = 11.1%.

Q. Dr. Morin, are risk premium studies widely used?

A. Yes, they are. Risk Premium analyses are widely used by analysts, investors, economists, and expert witnesses. Most college-level corporate finance and/or investment management texts, including Investments by Bodie, Kane, and Marcus, McGraw–Hill Irwin, 2002, which is a recommended textbook for CFA (Chartered Financial Analyst) certification and examination, contain detailed conceptual and empirical discussion of the risk premium approach. The latter is typically recommended as one of the three leading methods of estimating the cost of capital. Professor Brigham's best-selling corporate finance textbook, for example, Corporate Finance: A Focused Approach, 3rd ed., South–Western, 2008, recommends the use of risk premium studies, among others. Techniques of risk premium analysis are widespread in investment community reports. Professional certified financial analysts are certainly well versed in the use of this

method.

Q. Are you concerned about the realism of the assumptions that underlie the historical risk premium methodology?

A. No, I am not, for they are no more restrictive than the assumptions that underlie the DCF model or the CAPM. While it is true that the method looks backward in time and assumes that the risk premium is constant over time, these assumptions are not necessarily restrictive. By employing returns realized over long time periods rather than returns realized over more recent time periods, investor return expectations and realizations converge. Realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. By ensuring that the risk premium study encompasses the longest possible period for which data are available, short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods during which investors earned a higher risk premium than they expected. Only over long time periods will investor return expectations and realizations converge, or else, investors would never invest any money.

D. DCF Estimates

1. Background

Q. Please describe the DCF approach to estimating the cost of equity capital.

A. According to DCF theory, the value of any security to an investor is the expected discounted value of the future stream of dividends or other benefits. One widely used method to measure these anticipated benefits in the case of a non-static company is to examine the current dividend plus the increases in future dividend payments expected by investors. This valuation process can be represented by the following formula, which is the traditional DCF model:

$$K_e = D_1/P_o + g$$

where: K_e = investors' expected return on equity
D_1 = expected dividend at the end of the coming year
P_o = current stock price
g = expected growth rate of dividends, earnings, book value, stock price

The traditional DCF formula states that under certain assumptions, which are described in the next paragraph, the equity investor's expected return, K_e, can be viewed as the sum of an expected dividend yield, D_1/P_o, plus the expected growth rate of future dividends and stock price, g. The returns anticipated at a given market price are not directly observable and must be estimated from statistical market information. The idea of the market value approach is to infer 'K_e' from the observed share price, the observed dividend, and an estimate of investors' expected future growth.

The assumptions underlying this valuation formulation are well known, and are discussed in detail in Chapter 8 of my text, The New Regulatory Finance. The standard DCF model requires the following main assumptions: a constant average growth trend for both dividends and earnings, a stable dividend payout policy, a discount rate in excess of the expected growth rate, and a constant price-earnings multiple, which implies that growth in price is synonymous with growth in earnings and dividends. The standard DCF model also assumes that dividends are paid at the end of each year when in fact dividend payments are normally made on a quarterly basis.

2. <u>The Growth Component</u>

Q. How did you estimate the growth component of the DCF model?

A. The principal difficulty in calculating the required return by the DCF approach is in ascertaining the growth rate that investors currently expect. Since no explicit estimate of expected growth is observable, proxies must be employed.

As proxies for expected growth, I examined the consensus growth estimate developed by professional analysts employed by large investment brokerage institutions. Projected long-term growth rates actually used by institutional investors to determine the desirability of investing in different securities influence investors' growth anticipations. These forecasts are made by large reputable organizations, and the data are readily available to investors and are representative of the consensus view of investors. Because of the dominance of

institutional investors in investment management and security selection, and their influence on individual investment decisions, analysts' growth forecasts influence investor growth expectations and provide a sound basis for estimating the cost of equity with the DCF model.

Growth rate forecasts of several analysts are available from published investment newsletters and from systematic compilations of analysts' forecasts, such as those tabulated by Zacks Investment Research Inc. ("Zacks"). I used analysts' long-term growth forecasts contained in Zacks as proxies for investors' growth expectations in applying the DCF model. The latter are also conveniently provided in the Value Line software. I also used Value Line's own growth forecast as an additional proxy.

Q. Why did you reject the use of historical growth rates in applying the DCF model to electric utilities?

A. The average historical growth rates in earnings, dividends, and book value for electric utilities are 2.5%, 1.2%, and 3.4% over the past 5 years, respectively. Please see Exhibit No. ___(RAM-9), columns 2, 4, and 6, for the historical growth in earnings, dividends, and book value per share over the last five years for the electric utility companies that make up Value Line's Electric Utility composite group. Several companies have experienced negative earnings growth rates, as evidenced by the numerous historical growth rates reported on the table that are negative.

Historical growth rates have little relevance as proxies for future long-term growth at this time. They are downward-biased by the sluggish earnings performance in the last five/ten years, due to the structural transformation of the electric utility industry from a fully integrated regulated monopoly to a more competitive environment. These anemic historical growth rates are certainly not representative of these companies' long-term earning power, and produce unreasonably low DCF estimates, well outside reasonable limits of probability and common sense. To illustrate, adding the historical growth rates of 2.5%, 1.2%, and 3.4% to the average dividend yield of approximately 4.8% prevailing currently for those same companies, produces preposterous cost of equity estimates of 7.3%, 6.0%, and 8.2%, using earnings, dividends, and book value growth rates, respectively. Of course, these estimates of equity costs are outlandish as they are less than or barely above, the cost of long-term debt for these companies. A similar pattern emerges if ten-year instead of five-year historical growth rates are examined.

I have therefore rejected historical growth rates as proxies for expected growth in the DCF calculation. In any event, historical growth rates are somewhat redundant because such historical growth patterns are already incorporated in analysts' growth forecasts that should be used in the DCF model.

Q. Did you consider any other method of estimating expected growth to apply the DCF model?

A. Yes, I did. I considered using the so-called "sustainable growth" method, also referred to as the "retention growth" method. According to this method, future growth is estimated by multiplying the fraction of earnings expected to be retained by the company, 'b', by the expected return on book equity, 'ROE'. That is, g = b x ROE

where: g = expected growth rate in earnings/dividends
b = expected retention ratio
ROE = expected return on book equity

Q. Do you have any reservations in regards to the sustainable growth method?

A. Yes. First, the sustainable method of predicting growth is only accurate under the assumptions that the return on book equity (ROE) is constant over time and that no new common stock is issued by the company, or if so, it is sold at book value. Second, and more importantly, the sustainable growth method contains a logic trap: the method requires an estimate of ROE to be implemented. But if the ROE input required by the model differs from the recommended return on equity, a fundamental contradiction in logic follows. Third, the empirical finance literature demonstrates that the sustainable growth method of determining growth is not as significantly correlated to measures of value, such as stock prices and price/earnings ratios, as analysts' growth forecasts. I therefore chose not to rely on this method.

Q. Did you consider dividend growth in applying the DCF model?

A. No, not at this time. This is because it is widely expected that some utilities will

continue to lower their dividend payout ratio over the next several years in response to heightened business risk and the need to fund very large construction programs over the next decade. In other words, earnings and dividends are not expected to grow at the same rate in the future.

Whenever the dividend payout ratio is expected to change, the intermediate growth rate in dividends cannot equal the long-term growth rate, because dividend/earnings growth must adjust to the changing payout ratio. The assumptions of constant perpetual growth and constant payout ratio are clearly not met. Thus, the implementation of the standard DCF model is of questionable relevance in this circumstance.

Dividend growth rates are unlikely to provide a meaningful guide to investors' growth expectations for utilities in general. This is because utilities' dividend policies have become increasingly conservative as business risks in the industry have intensified steadily. Dividend growth has remained largely stagnant in past years as utilities are increasingly conserving financial resources in order to hedge against rising business risks. As a result, investors' attention has shifted from dividends to earnings. Therefore, earnings growth provides a more meaningful guide to investors' long-term growth expectations. Indeed, it is growth in earnings that will support future dividends and share prices.

Moreover, as a practical matter, while earnings growth forecasts are widely available, there are very few dividend growth forecasts.

Q. Is there any empirical evidence documenting the importance of earnings in evaluating investors' growth expectations?

A. Yes, there is an abundance of evidence attesting to the importance of earnings in assessing investors' expectations. First, the sheer volume of earnings forecasts available from the investment community relative to the scarcity of dividend forecasts attests to their importance. To illustrate, Value Line, Zacks Investment, First Call Thompson, Yahoo Finance, and Multex provide comprehensive compilations of investors' earnings forecasts. The fact that these investment information providers focus on growth in earnings rather than growth in dividends indicates that the investment community regards earnings growth as a superior indicator of future long-term growth. Second, Value Line's principal investment rating assigned to individual stocks, Timeliness Rank, is based primarily on earnings, which accounts for 65% of the ranking.

3. DCF Analysis

Q. How did you estimate PSE's cost of equity with the DCF model?

A. I applied the DCF model to two proxies for PSE: a group of investment-grade dividend-paying integrated electric utilities and a group consisting of the electric utilities that make up S&P's Electric Utility Index.

In order to apply the DCF model, two components are required: the expected dividend yield (D_1/Po) and the expected long-term growth (g). The expected dividend D_1 in the annual DCF model can be obtained by multiplying the current

indicated annual dividend rate by the growth factor (1 + g).

From a conceptual viewpoint, the stock price to employ in calculating the dividend yield is the current price of the security at the time of estimating the cost of equity. This is because the current stock prices provide a better indication of expected future prices than any other price in an efficient market. An efficient market implies that prices adjust rapidly to the arrival of new information. Therefore, current prices reflect the fundamental economic value of a security. A considerable body of empirical evidence indicates that capital markets are efficient with respect to a broad set of information. This implies that observed current prices represent the fundamental value of a security, and that a cost of capital estimate should be based on current prices.

In implementing the DCF model, I have used the dividend yields reported in the February 2009 edition of Value Line's VLIA software. Basing dividend yields on average results from a large group of companies reduces the concern that the vagaries of individual company stock prices will result in an unrepresentative dividend yield.

Q. Can you describe your first proxy group for the electric utility business?

A. As a first proxy for PSE, I started with a group of investment-grade utilities designated as "integrated" utilities by Moody's , meaning that these companies all possess integrated (generation, distribution, transmission) electric utility assets.

From this original group, I eliminated foreign companies, private partnerships, private companies, and companies below investment-grade (i.e. companies with a bond rating below Baa3), and companies without Value Line coverage. From this narrowed group, I further eliminated companies that do no pay dividends and companies with market capitalization less than $500 million (to minimize any stock price anomalies due to thin trading). Finally, I further eliminated companies that derive less than 70% of their revenues from regulated electric utility operations. The final group of 21 companies is shown on Exhibit No. ___(RAM-10). (Please note that I used the same group earlier in connection with beta estimates).

Q. What DCF results did you obtain for the integrated electric utility group?

A. Exhibit No. ___(RAM-11) provides the DCF results for the proxy group of S&P integrated utilities using the average long-term growth forecast obtained from Value Line. No growth projection was available for ALLETE. As shown on Column 2 of Exhibit No. ___(RAM-11), the average long-term growth forecast obtained from Value Line is 7.9% for this group. Adding this growth rate to the average expected dividend yield of 5.1% shown in Column 3 produces an estimate of equity costs of 13.0% for the group. Using the median instead of the average, the estimate of equity costs is 12.1% for the group.

Please see Exhibit No. ___(RAM-12) for the DCF results for the proxy group of integrated utilities using the Zacks growth forecast for each company. Using the

Zacks analysts' consensus forecast of long-term earnings instead of the Value Line forecast, the cost of equity for the group is 12.7%. Using the median instead of the average, the cost of equity estimate for the group is 11.9%, which is very close to the result of 12.1% obtained using the Value Line growth forecast.

Q. What DCF results did you obtain for the S&P Utility Index Group?

A. Exhibit No. ___(RAM-13) displays the electric utilities that make up Standard & Poor's Utility Index. Exhibit No. ___(RAM-14) displays the DCF analysis using Value Line growth projections. As shown on Column 2 of Exhibit No. ___(RAM-14), the average long-term growth forecast obtained from Value Line is 7.6% for this group.

Coupling this growth rate with the average expected dividend yield of 5.2% shown in Column 3 for each company produces an estimate of equity costs of 12.9% for the group. *See* Exhibit No. ___(RAM-14). If we limit the sample to those companies with a majority of their revenues that are regulated utility operations, the median cost of equity estimate is 11.9%. This analysis is shown on Exhibit No. ___(RAM-15).

Using the consensus analysts' growth forecast from Zacks instead of the Value Line growth forecast, the median cost of equity estimate for the S&P group is 12.1%. This analysis is displayed on Exhibit No. ___(RAM-16). No growth projection was available for Centerpoint Energy and that company was therefore eliminated from the group. If we limit the sample to those companies with a

majority of their revenues that are regulated utility operations, the median cost of equity estimate is 12.0%. This analysis is shown on Exhibit No. ___(RAM-17).

4. DCF Estimates

Q. Please summarize your DCF estimates.

A. The table below summarizes the DCF estimates:

DCF STUDY	ROE
Integrated Electric Utilities Value Line Growth	12.1%
Integrated Electric Utilities Zacks Growth	11.9%
S&P Electric Utilities Value Line Growth	11.9%
S&P Electric Utilities Zacks Growth	12.0%

E. Flotation Cost Adjustment

Q. Please describe the need for a flotation cost allowance.

A. All the market-based estimates reported above include an adjustment for flotation costs. Common equity capital is not free, and flotation costs associated with stock issues are similar to the flotation costs associated with bonds and preferred stocks. Flotation costs are not expensed at the time of issue, and therefore must be recovered via a rate of return adjustment. This is done routinely for bond and preferred stock issues by most regulatory commissions, including FERC. Clearly, the common equity capital accumulated by PSE is not cost-free. The flotation cost allowance to the cost of common equity capital is discussed and applied in most corporate finance textbooks; it is unreasonable to ignore the need for such an adjustment. Investors must be compensated for flotation costs on an ongoing

basis to the extent that such costs have not been expensed in the past, and therefore the adjustment must continue for the entire time that these initial funds are retained in the firm.

Q. Is a flotation cost adjustment required for an operating subsidiary like PSE that does not trade publicly?

A. Yes. It is sometimes alleged that a flotation cost allowance is inappropriate if the utility is a subsidiary whose equity capital is obtained from its ultimate parent. This objection is unfounded because the parent-subsidiary relationship does not eliminate the costs of a new issue, but merely transfers them to the parent. It would be unfair and discriminatory to subject parent shareholders to dilution while individual shareholders are absolved from such dilution. Fair treatment must consider that, if the utility-subsidiary had gone to the capital markets directly, flotation costs would have been incurred.

Although flotation cost adjustments are necessary for privately held subsidiary utilities, I am not advocating a flotation cost adjustment for PSE in this proceeding because of the unique ownership structure of PSE. PSE's ultimate parent, Puget Holdings LLC, is owned by infrastructure investors that are predominantly pension funds. These pension funds do not issue equity to obtain funds and instead obtain funds from participants to a pension plan that must pay into such plan. In obtaining funds, these pension plans do not incur the types of costs that are normally associated with the flotation cost allowance. Additionally,

it is my understanding that neither PSE nor any affiliate of PSE has any current plans to issue equity. In other words, it is unlikely that any equity injected into PSE for the foreseeable future will be funded by any equity issuance by PSE or any affiliate entity. For this reason, I do not advocate a flotation cost adjustment for PSE in this proceeding.

V. SUMMARY AND RECOMMENDED ROE

Q. Can you summarize your results and recommendation?

A. To arrive at my final recommendation, I performed three risk premium analyses. For the first two risk premium studies, I applied the CAPM and an empirical approximation of the CAPM using current market data. The other risk premium analysis was performed on historical data from electric utility industry aggregate data, using the current yield on long-term utility bonds. I also performed DCF analyses on two surrogates for PSE: a group of investment-grade integrated electric utilities, and a group of electric utilities that make up the S&P Utility Index. The results are summarized in the table below.

STUDY	ROE
CAPM	8.5%
Empirical CAPM	8.9%
Historical Risk Premium Elec Utility Industry	11.1%
DCF Vert Integr Elec Utilities Value Line Growth	12.4%
DCF Vert Integr Elec Utilities Zacks Growth	12.1%
DCF S&P Elec Utilities Value Line Growth	12.2%
DCF S&P Elec Utilities Zacks Growth	12.3%

The overall average result is 11.10% and the truncated mean is 11.3% for the

average risk utility.

I stress that no one individual method provides an exclusive foolproof formula for determining a fair return, but each method provides useful evidence so as to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is hazardous when dealing with investor expectations. Moreover, the advantage of using several different approaches is that the results of each one can be used to check the others. Thus, the results shown in the above table must be viewed as a whole rather than each as a stand-alone. It would be inappropriate to select any particular number from the summary table and infer PSE's equity costs from that number alone.

VI. ADJUSTMENT TO THE ESTIMATED ROE TO ACCOUNT FOR THE FACT THAT PSE IS RISKIER THAN THE AVERAGE ELECTRIC UTILITY

Q. Have you adjusted the cost of equity estimates to account for the fact that PSE is riskier than the average utility?

A. Yes, I have. The cost of equity estimates derived from the various comparable groups reflect the risk of the average utility. To the extent that these estimates are drawn from a less risky group of companies, the expected equity return applicable to the riskier PSE is understated. In my judgment, a ROE in the upper end of my 11.0%–11.5% range is applicable to PSE in order to account for PSE's higher relative risks. As explained in detail below, PSE's distinguishing risk features relative to its peers is related mainly, but not exclusively, to PSE's gargantuan

capital spending program for the next several years and the various risks associated with such an ambitious construction program.

Q. Please comment on PSE's investment risks relative to other utilities.

A. Two major factors drive PSE's higher risk profile relative to other utilities: construction risk and regulatory lag.

A. Construction Risk

Q. Please comment on the construction risks faced by PSE.

A. The term construction risk refers to the financial risks caused by the magnitude of a company's capital budget. Capital expenditures to meet anticipated increases in demand, refurbish old infrastructure, and increase internal power generation to reduce power cost volatility represent an important source of risk. On the one hand, anticipated increases in demand are more difficult to forecast than existing demand. Because of the relatively long lead times associated with utility planning and construction of new plant and infrastructure there is significant risk that demand will be less than the level forecasted when the new capital investment was planned. On the other hand, a large construction program increases both financial and regulatory risks.

PSE has a massive construction program relative to its size, some estimated $1 billion scheduled capital spending for the each of the next five years, that is, a total of $5 billion. To place this number in perspective, that represents a doubling

of PSE's rate base over the next five years. PSE 's ability (through its parent) to tap capital markets and attract funds on reasonable terms occurs at a crucial point in time when PSE has an ambitious capital expenditures program and requires external financing. PSE's large capital expenditure program over the next several years, relative to its size, increases its dependence on capital markets which have become volatile and more unpredictable.

PSE's massive construction requirements also have a substantial impact on its financial risk. PSE will require substantial external financing over the next few years. It is imperative PSE have access to capital funds at reasonable terms and conditions. PSE must secure outside funds from capital markets to finance new required capacity, irrespective of capital market conditions, interest rate conditions and the quality consciousness of market participants. Construction is one of the key determinants of credit quality, and hence capital costs. The construction budget relative to internal cash generation is a key quantitative determinant of financial risk. PSE will need to rely heavily on capital markets to finance its construction program.

For debt markets, construction is one of several key determinants of credit quality and, hence, of capital costs. Company future construction plans are scrutinized by bond rating agencies before assessing credit quality. The construction budget in relation to internal cash generation is a key quantitative determinant of credit quality, along with construction expenditures as a proportion of capitalization. Construction to capitalization and common equity ratios are also analyzed by

investors and become key determinants of capital costs and funds availability. More generally, the empirical finance literature has demonstrated clearly that construction is a key determinant of a utility's capital costs.

Because of PSE's large construction program over the next few years, rate relief requirements and regulatory treatment uncertainty will increase regulatory risks as well. Generally, regulatory risks include approval risks, lags and delays, potential rate base exclusions, and potential disallowances. Continued regulatory support from the Commission will be required. Reviews of the economic and environmental aspects of new construction can consume as much as one year before approval or denial. Uncertainty of approval increases forecasting and planning risks and complicates the utility's ability to devise an optimum transmission/distribution system. Regulatory approval for financings required for new construction may also be required, injecting additional risks.

B. Regulatory Lag

Q. Is PSE's exposure to regulatory lag significant?

A. Yes, it is relative to other utilities. Although the state's regulatory climate has been restrictive in the past, the Commission's more recent orders have generally been fair and reasonable. It is crucial that the supportive regulatory climate continue given that strong regulatory relief is critical to PSE's future. As evidenced from several investment research and credit agency reports on PSE, investors are keenly aware of the need for strong regulatory support. In the

current environment of volatile and turmoil in capital markets and record-high capital spending to procure new generation resources, timely and adequate regulatory support is critical to PSE's future. However, because rate decisions cannot be implemented retroactively, PSE's exposure to regulatory lag remains substantial relative to other utilities.

The problem of regulatory lag is well-known in the utility industry and is particularly acute in the case of PSE. Its presence makes it difficult to earn a reasonable rate of return, especially in an inflationary environment. In fact, PSE has been unable to earn its allowed return for the past five years. Regulatory lag also creates mismatches between regulatory rates and supply-demand-costs so that prices are either too high or too low. Inefficient resource allocation and distorted consumer pricing signals may result. One expedient solution to the regulatory lag issue is the use of forward test years rather than historical test years.

Q. Dr. Morin, what is your final conclusion regarding PSE's cost of equity capital?

A. Based on the results of all my analyses, PSE's higher risk profile, and the application of my professional judgment, it is my opinion that a just and reasonable return on common equity lies in the upper end of a range of 11.0%–11.5%.

Q. What capital structure assumption underlies your recommended return on PSE's common equity capital?

A. My recommended return on common equity for PSE is predicated on the adoption of PSE's projected test year capital structure consisting of 48% common equity capital. Should the Commission decide to deviate from the capital structure, empirical finance literature demonstrates that with each reduction in common equity ratio of 1%, the return on equity increases by approximately 10 basis points, and conversely of course.

VII. PSE'S REQUESTED CAPTIAL STRUCTURE IS REASONABLE

Q. Did you examine the reasonableness of PSE's rate year capital structure?

A. Yes, I did. I have compared PSE's rate year capital structure with: 1) the capital structures adopted by regulators for electric utilities, and 2) the actual capital structures of integrated electric utilities.

The January 2009 edition of SNL Energy's (formerly Regulatory Research Associates) "*Regulatory Focus: Major Rate Case Decisions*" reports an average percentage of common equity in the adopted capital structure of 48.4% for electric utilities for 2008. I have also examined the actual capital structures of my comparable group of integrated electric utilities as reported by Value Line. As shown on Exhibit No. ___(RAM-18), the average common equity ratio for the group is 48.3%. I conclude that PSE's requested common equity ratio of 48% is

reasonable for ratemaking purposes.

If the Commission were to impute a capital structure consisting of substantially more (less) debt than the test year capital structure, the higher (lower) common equity cost rate related to a changed common equity ratio should be reflected in the approach. If the Commission ascribes a capital structure different from the test year capital structure, which imputes a higher debt amount for example, the repercussions on equity costs must be recognized. It is a rudimentary tenet of basic finance that the greater the amount of financial risk borne by common shareholders, the greater the return required by shareholders in order to be compensated for the added financial risk imparted by the greater use of senior debt financing. In other words, the greater the debt ratio, the greater is the return required by equity investors. Both the cost of incremental debt and the cost of equity must be adjusted to reflect the additional risk associated with the more debt-heavy capital structure. Lower common equity ratios imply greater risk and higher capital cost, and conversely.

Q. Dr. Morin, you mentioned earlier the need for an optimal bond rating of single A. Can you explain that point?

A. It is in both customers' and investors' interest that a regulated utility be financially sound and have the credit rating and financial flexibility needed to (1) cope with the increased operational challenges in today's much more volatile industry environment; (2) pursue initiatives to further increase performance, and

(3) finance in a timely and cost effective fashion the significant infrastructure investment needs faced in PSE's service territory.

In the utility regulation context, the idea of an optimal strong "A" bond rating for a utility's senior securities is widely supported. That is why the vast majority of utilities in North America migrate to such a bond rating.

I have performed several studies and I have frequently testified on the optimal capital structure for various utilities. One common theme in these studies and testimonies is the desirability of a strong "A" bond rating from both the customers' and investors' standpoint. Chapter 19 of my book *The New Regulatory Finance* describes a capital structure simulation model for electric utilities using market data prior to industry restructuring. The graph below illustrates the major finding of the model, and demonstrates how the cost of capital changes as the debt ratio increases and the bond rating declines.

The horizontal axis shows that as the company substitutes debt for equity, the bond rating progressively deteriorates from "AAA" all the way down to "BAA" and beyond. The vertical axis shows what happens to overall capital costs, hence to rates, as the company continues to substitute debt for equity and its bond rating deteriorates. With each successive substitution of lower-cost debt for higher-cost equity, the average cost of capital declines as the weight of low-cost debt in the weighted average cost of capital increases. An optimal point is reached where the cost advantage of debt is exactly offset by the increased cost of equity. This is the

optimal capital structure point. Beyond that point, the cost disadvantage of equity outweighs the cost advantage of debt, and the weighted cost of capital rises accordingly. The message from the graph is clear: over the long run, a strong "A" bond rating will minimize the cost of capital to customers.

Several intangible costs and distress costs associated with a low bond rating cannot be readily accommodated into a mathematical simulation model without the model becoming computationally prohibitive. Thus, the case for a strong "A" bond rating is understated in these studies. Several examples of such costs follow.

The need to maintain borrowing capacity is well known. During normal times, a utility company should conserve enough unused borrowing capacity so that during adverse capital market periods it can use this capacity to avoid foregoing investment opportunities, selling stock at confiscatory prices, or jeopardizing its mandated obligation to serve. The yield advantage of a higher bond rating increases dramatically in adverse capital market conditions, such as the current financial crisis.

Bond flotation costs, which must be borne by customers, increase also as bond ratings decline, particularly in years of difficult financial markets. Not only is lower bond quality associated with higher yields, but lower-rated utility bonds also carry shorter maturities, especially in poor years. The result is a maturity mismatch between the firm's long-term capital assets and its liabilities.

Moreover, lower bond quality is associated with more years of call protection, particularly during difficult financial markets; since bonds are frequently called after a decrease in interest rates, bonds which carry call protection for a greater number of years are more costly to utility companies. Finally, as bond ratings decline, the probability that a company will reduce the dollar amount or shorten the maturity of their bond issues increases dramatically; this in turn reduces the marketability of a bond issue, and hence increases its yield. Any reasonable quantification of such implicit costs reinforces the case for a strong "A" rating.

The implication for PSE is very clear. Long-term achievement and maintenance of a strong "A" rating is in investors' and PSE customers' best interests. Capital structure targets should be therefore set so as to achieve such ratings.

Q. Dr. Morin, in light of your discussion of an optimal bond rating, what are your thoughts regarding PSE's capital structure?

A. Long-term achievement and maintenance of a strong "A" rating is in investors' and PSE customers' best interests. Capital structure targets should therefore be set so as to achieve such ratings. In addition, although the legal definition of investment grade is "BBB", the actual practical definition of investment grade is "A". This is because a large majority of institutional investors are precluded from investing in bonds rated below "A". For all these reasons, sound public policy requires that the Commission establish rates so as to create financial conditions conducive to an optimal bond rating of at least single "A".

As discussed above, PSE's financial condition is not consistent with a single "A" credit rating. In light of PSE's capital expenditure requirements and the critical importance of preserving access to capital markets, PSE's long-term goal is to achieve strong single "A" credit ratings. Consequently, PSE's credit profile with the two major credit rating agencies needs to improve in order to support an upgrade from its current unsecured rating levels to a Single "A" rated level. This goal implies continued improvement in reducing debt, reducing interest expense and increasing cash flows.

The existence of a strong equity base favorably impacts the cost of debt by virtue of superior credit ratings, allows PSE to absorb operating deficits without violating debt servicing obligations, and provides flexibility and freedom in timing new debt issues, in that capital can be raised with discretion under favorable capital market conditions.

VIII. CONCLUSION

Q. Does this complete your direct testimony?

A. Yes, it does.