EXHIBIT NO. _____ (SCH-1T)
DOCKET NO. _____
2001 PSE RATE CASE
WITNESS: S. C. HADAWAY

BEFORE THE
WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY, INC.

Respondent.

DIRECT TESTIMONY OF SAMUEL C. HADAWAY ON BEHALF OF PUGET SOUND ENERGY, INC.

NOVEMBER 26, 2001

PUGET SOUND ENERGY, INC.

DIRECT TESTIMONY OF SAMUEL C. HADAWAY

I. INTRODUCTION AND QUALIFICATIONS

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

A. My name is Samuel C. Hadaway. I am a Principal in FINANCO, Inc., Financial Analysis Consultants, 3520 Executive Center Drive, Austin, Texas 78731.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Puget Sound Energy, Inc. (hereinafter "PSE" or the "Company").

Q. Please state your educational background and describe your professional training and experience.

A. I have provided a description of my educational background, professional training and my experience in Exhibit SCH-2.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to estimate PSE's market required rate of return on equity (ROE) and to present the Company's requested capital structure and overall cost of capital. I present two separate cost of equity recommendations using different methodologies applicable to different circumstances.

First, I apply the discounted cash flow (DCF) model to PSE as a stand-alone company, with the analysis based on PSE's average closing stock prices and analysts'

growth rate estimates from the past month. This PSE-only analysis vividly illustrates the Western energy risks and the current circumstance of PSE's lack of a purchased power cost recovery mechanism. These power cost risks and PSE's lack of a power cost recovery mechanism have become increasingly significant investor concerns. This cost of equity estimate, and the Company's requested ROE, is based on the assumption that PSE will not be granted interim relief during the pendency of this general rate proceeding. Thus, the Company would continue to bear significant cost recovery risk during that period.

Second, I apply the DCF and risk premium models to a group of investment grade (triple-B) and higher rated electric utilities. This "comparable company" approach provides a significantly different ROE estimate because the companies in the comparable group are generally protected by tracking mechanisms and other regulatory approaches that provide purchased power and fuel cost recovery. This approach assumes that power cost recovery risks are minimal and is applicable in the circumstance where the Company is granted both interim rate relief and recovery of ongoing power costs through the tracker and hedged rate mechanism proposed by PSE in this case. In the alternative, the comparable group ROE analysis provides a conservative cost of capital estimate, which assumes that power cost recovery risks are minimal.

By providing two separate cost of equity recommendations based on different methodologies and assumptions, this two-pronged approach can be used to match the Company's authorized ROE with the Commission's decisions on the matters that affect investor risk perceptions and the market cost of capital for the Company.

Q. Please outline and describe the testimony you will present.

A. My testimony is divided into six sections. In Section III, I present the Company's requested capital structure and overall rate of return. In Section IV, I review various methods for estimating the cost of equity. In this section, I discuss comparable earnings methods, risk premium methods, and discounted cash flow (DCF) methods. In Section V, I review general capital market costs and conditions and discuss recent developments in the electric utility that may affect the cost of capital. In Section VI, I discuss the details of my cost of equity studies and summarize my ROE recommendations.

Q. Please summarize your cost of equity studies and state your ROE recommendation.

A. My ROE recommendations are based on the DCF and risk premium models. I apply the DCF model to PSE as a stand-alone company and to a comparable company group comprised of all investment grade (triple-B or higher) electric utilities followed by *Value Line* for which complete and reliable data are available and for which domestic electric and gas utility revenues are at least 70% of total revenues. My risk premium analysis is based on *Moody's* average cost of debt for triple-B utilities. This is a conservative risk premium approach because PSE's senior secured bonds are presently rated BBB by *Standard & Poor's* and Baa1 by *Moody's*, and remain under review with negative implications by both rating agencies. Under current market and electric utility industry conditions, I believe a combination approach, based on the DCF and risk premium models, is the most reliable method for estimating the Company's cost

of equity capital. The data sources and the details of my rate of return analysis are contained in Exhibits SCH-4 through SCH-10.

The DCF analysis for PSE as a stand-alone company indicates that an ROE range of 12.6%-14.6% is appropriate, with a midpoint estimate from the traditional constant growth DCF model at 13.5%. My comparable company DCF analysis indicates that an ROE range of 10.6%-11.7% is appropriate. My risk premium analysis indicates that an ROE of 11.9% is appropriate. Based on these quantitative results and my review of the current market, industry, and company-specific factors discussed in the remainder of my testimony, I estimate the fair cost of equity for PSE at 13.5%, based on the assumption that PSE will not be granted interim relief during the pendency of this general rate proceeding, and at 11.5%, based on the assumption that requested interim relief is granted and a power cost tracker (and the other retail rate mechanisms requested by the Company) are provided in this proceeding.

III. CAPITAL STRUCTURE AND OVERALL RATE OF RETURN

Q. Please summarize the company's requested capital structure and overall rate of return.

A. The following table identifies the requested capital structure components and the resulting overall rate of return.

Capital Components	Ratio	Cost	Weighted Cost
Debt	45.66%	7.40%	3.38%
Trust Preferred	7.08%	8.58%	0.61%
Preferred Stock	2.26%	7.78%	0.18%
Common Equity	45.00%	14.0%	6.30%
TOTAL	100.0%		10.47%

Q. What is the basis for the company's requested capital structure?

A. The requested capital structure is also consistent with the average capital structure ratios for the comparable company group I use to estimate ROE. The comparable company capital structure percentages are provided in my Exhibit SCH-3. The requested capital structure is near the minimum equity percentage and maximum debt percentage that will support the Company's efforts toward a single-A bond rating. For example, for integrated electric utilities, Standard & Poor's debt ratio guideline for a single-A rating is 45%. (Standard & Poor's Rating Methodology, Corporate Ratings Criteria, page 33). Utilities need to be able to attract capital on reasonable terms. Bond ratings above minimum investment grade provide financial flexibility and lower financing costs, which in turn leads to lower customer rates. A solid investment grade bond rating is especially important during periods of uncertainty and capital market stress, as we face today.

I agree with the testimony of Donald E. Gaines that it is appropriate for the Company to reestablish and maintain a financial position that supports an A bond rating. As well as being consistent with sound financial theory and practice, as Mr. Gaines points out, this financial objective is appropriately pursued by various public agencies in the State of Washington providing essential public services, including the State of Washington and the majority of publicly owned utilities in the region. The objective of maintaining a solid credit rating for investor owned utilities has long been accepted and approved by public utility commissions, including the Commission. I agree with Mr. Gaines' conclusion that an "A" credit rating provides an optimal

balance of cost (economy) and risk (safety) while providing the Company with the financial flexibility needed to access the capital markets on reasonable terms in difficult times.

IV. ESTIMATING THE COST OF EQUITY CAPITAL

Q. What is the purpose of this section of your testimony?

A. The purpose of this section is to present a general definition of the cost of equity and to compare the strengths and weaknesses of several of the most widely used methods for estimating the cost of equity. Estimating the cost of equity is fundamentally a matter of informed judgment. The various models provide a concrete link to actual capital market data and assist with defining the various relationships that underlie the ROE estimation process.

Q. Please define the term "cost of equity capital" and provide an overview of the cost estimation process.

A. The cost of equity capital is the profit or rate of return that equity investors expect to receive. In concept it is no different than the cost of debt or the cost of preferred stock. The cost of equity is the rate of return that common stockholders expect, just as interest on bonds and dividends on preferred stock are the returns that investors in those securities expect. Equity investors expect a return on their capital commensurate with the risks they take and consistent with returns that might be available from other similar investments. Unlike returns from debt and preferred stocks, however, the equity return is not directly observable in advance and, therefore, it must be estimated or inferred from capital market data and trading activity.

An example helps to illustrate the cost of equity concept. Assume that an investor buys a share of common stock for $20 per share. If the stock's expected dividend is $1.05, the expected dividend yield is 5.25% ($1.05 / $20 = 5.25%). If the stock price is also expected to increase to $21.25 after one year, this one dollar expected gain adds an additional 6.25% to the expected total rate of return ($1.25 / $20 = 6.25%). Therefore, buying the stock at $20 per share, the investor expects a total return of 11.5%: 5.25% dividend yield, plus 6.25% price appreciation. In this example, the total expected rate of return at 11.5% is the appropriate measure of the cost of equity capital, because it is this rate of return that caused the investor to commit the $20 of equity capital in the first place. If the stock were riskier, or if expected returns from other investments were higher, investors would have required a higher rate of return from the stock, which would have resulted in a lower initial purchase price in market trading.

Each day market rates of return and prices change to reflect new investor expectations and requirements. For example, when interest rates on bonds and savings accounts rise, utility stock prices usually fall. This is true, at least in part, because higher interest rates on these alternative investments make utility stocks relatively less attractive, which causes utility stock prices to decline in market trading. This competitive market adjustment process is quick and continuous, so that market prices generally reflect investor expectations and the relative attractiveness of one investment versus another. In this context, to estimate the cost of equity one must apply informed judgment about the relative risk of the company in question and knowledge about the risk and expected rate of return characteristics of other available investments as well.

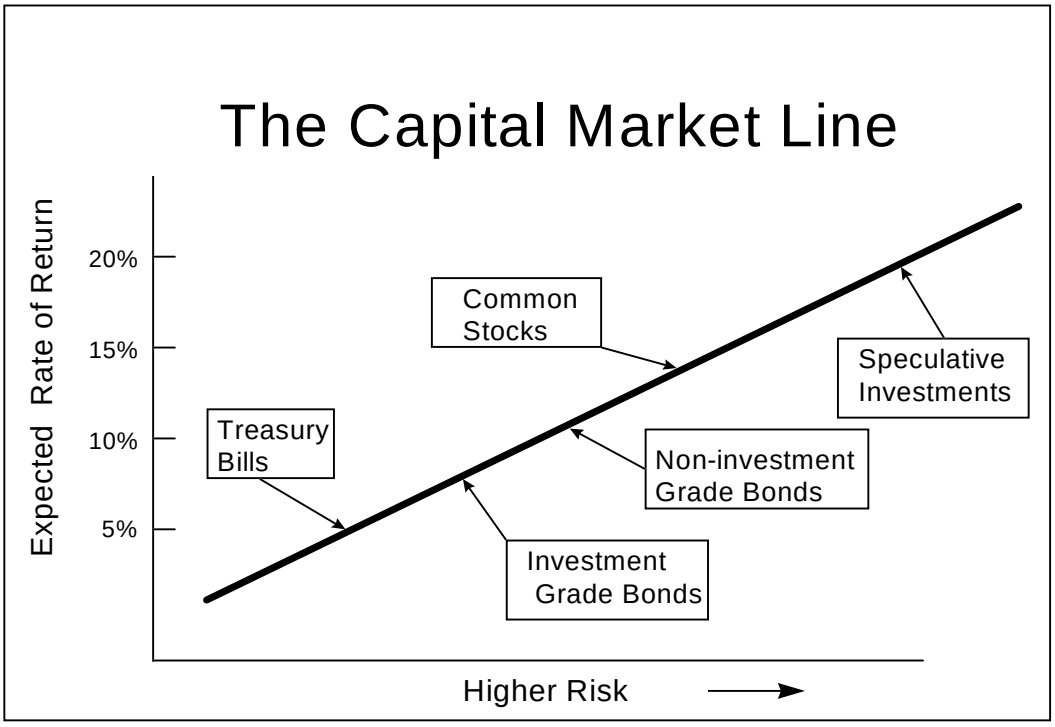
Q. How does the market account for risk differences among the various investments?

A. Risk-return tradeoffs among capital market investments have been the subject of extensive financial research. Literally dozens of textbooks and hundreds of academic articles have addressed the issue. Generally, such research confirms the common sense conclusion that investors will take additional risks only if they expect to receive a higher rate of return. Empirical tests consistently show that returns from low risk securities, such as U.S. Treasury bills, are the lowest; that returns from longer-term Treasury bonds and corporate bonds are increasingly higher as risks increase; and generally, returns from common stocks and other more risky investments are even higher. These observations provide a sound theoretical foundation for both the DCF and risk premium methods for estimating the cost of equity capital. These methods attempt to capture the well founded risk-return principle and explicitly measure investors' rate of return requirements.

Q. Can you illustrate the capital market risk-return principle that you just described?

A. Yes. The following graph depicts the risk-return relationship that has become widely known as the Capital Market Line (CML). The CML offers a graphical representation of the capital market risk-return principle. The graph is not meant to illustrate the actual expected rate of return for any particular investment, but merely to illustrate in a general way the risk-return relationship.

Risk-Return Tradeoffs



As a continuum, the CML can be viewed as an available opportunity set for investors. Those investors with low risk tolerance or investment objectives that mandate a low risk profile should invest in assets depicted in the lower left-hand portion of the graph. Investments in this area, such as Treasury bills and short-maturity, high quality corporate commercial paper, offer a high degree of investor certainty. In nominal terms (before considering the potential effects of inflation), such assets are virtually risk-free.

Investment risks increase as one moves up and to the right along the CML. A higher degree of uncertainty exists about the level of investment value at any point in time and about the level of income payments that may be received. Among these

investments, long-term bonds and preferred stocks, which offer priority claims to assets and income payments, are relatively low risk, but they are not risk-free. The market value of long-term bonds, even those issued by the U.S. Treasury, often fluctuates widely when government policies or other factors cause interest rates to change.

Farther up the CML continuum, common stocks are exposed to even more risk, depending on the nature of the underlying business and the financial strength of the issuing corporation. Common stock risks include market-wide factors, such as general changes in capital costs, as well as industry and company specific elements that may add further to the volatility of a given company's performance. As I will illustrate in my risk premium analysis, common stocks typically are more volatile (have higher risk) than high quality bond investments and, therefore, they reside above and to the right of bonds on the CML graph. Other more speculative investments, such as stock options and commodity futures contracts, offer even higher risks (and higher potential returns). The CML's depiction of the risk-return tradeoffs available in the capital markets provides a useful perspective for estimating investors' required rates of return.

Q. How is the fair rate of return in the regulatory process related to the estimated cost of equity capital?

A. The regulatory process is guided by fair rate of return principles established in the U.S. Supreme Court cases, *Bluefield Waterworks* and *Hope Natural Gas*:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and

> uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. *Bluefield Waterworks & Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-693 (1923).
>
> 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 to attract capital. *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).

Based on these principles, the fair rate of return should closely parallel investor opportunity costs as discussed above. If a utility earns its market cost of equity, neither its stockholders nor its customers should be disadvantaged.

Q. Have these same principles been applied by high courts in the State of Washington?

A.. Yes. These principles were endorsed by the Washington state Supreme Court in People's Org. for Wash. Energy Res. v. WUTC, 104 Wn.2d 798 (1985). The Court citing both the *Hope* and the *Bluefield* standards stated:

> [T]he court must determine whether the order may reasonably be expected to maintain financial integrity, attract necessary capital, and fairly compensate investors for the risks they have assumed... People's Org. for Wash. Energy Res., 104 Wn.2d at 811.

Q. What specific methods and capital market data are used to evaluate the cost of equity?

A. Techniques for estimating the cost of equity normally fall into three groups: comparable earnings methods, risk premium methods, and DCF methods. The first set of estimation techniques, the comparable earnings methods, has evolved over time.

The original comparable earnings methods were based on book accounting returns. This approach developed ROE estimates by reviewing accounting returns for unregulated companies thought to have risks similar to those of the regulated company in question. These methods have generally been rejected because they assume that the unregulated group is earning its actual cost of capital, and that its equity book value is the same as its market value. In most situations these assumptions are not valid, and, therefore, accounting-based methods do not generally provide reliable cost of equity estimates.

More recent comparable earnings methods are based on historical stock market returns rather than book accounting returns. While this approach has some merit, it too has been criticized because there can be no assurance that historical returns actually reflect current or future market requirements. Also, in practical application, earned market returns tend to fluctuate widely from year to year. For these reasons, a current cost of equity estimate (based on the DCF model or a risk premium analysis) is usually required.

The second set of estimation techniques is grouped under the heading of risk premium methods. These methods begin with currently observable market returns, such as yields on government or corporate bonds, and add an increment to account for the additional equity risk. The capital asset pricing model (CAPM) and arbitrage pricing theory (APT) model are more sophisticated risk premium approaches. The CAPM and APT methods estimate the cost of equity directly by combining the "risk-free" government bond rate with explicit risk measures to determine the risk premium required by the market. Although these methods are widely used in academic cost of

capital research, their additional data requirements and their potentially questionable underlying assumptions have detracted from their use in most regulatory jurisdictions. The basic risk premium methods provide a useful parallel approach with the DCF model and assure consistency with other capital market data consistency in the cost of equity cost estimation process.

The third set of estimation techniques, based on the DCF model, is the most widely used regulatory cost of equity estimation method. Like the risk premium approach, the DCF model has a sound basis in theory, and many argue that it has the additional advantage of simplicity. I will describe the DCF model in detail below, but in essence its estimate of ROE is simply the sum of the expected dividend yield and the expected long-term dividend (or price) growth rate. While dividend yields are easy to obtain, estimating long-term growth is more difficult. Because the constant growth DCF model also requires very long-term growth estimates (technically to infinity), some argue that its application is too speculative to provide reliable results, resulting in the preference for the multistage growth DCF analysis.

Q. Of the three estimation methods, which do you believe provides the most reliable results?

A. From my experience, a combination of discounted cash flow and risk premium methods provides the most reliable approach. While the caveat about estimating long-term growth must be observed, the DCF model's other inputs are readily obtainable, and the model's results typically are consistent with capital market behavior. The risk premium methods provide a good parallel approach to the DCF model and further

ensure that current market conditions are accurately reflected in the cost of equity estimate.

Q. Please explain the DCF model.

A. The DCF model is predicated on the concept that stock prices represent the present value or discounted value of all future dividends that investors expect to receive. In the most general form, the DCF model is expressed in the following formula:

$$P_0 = D_1/(1+k) + D_2/(1+k)^2 + ... + D_\infty/(1+k)^\infty \qquad (1)$$

where P_0 is today's stock price; D_1, D_2, etc. are all future dividends and k is the discount rate, or the investor's required rate of return on equity. Equation (1) is a routine present value calculation based on the assumption that the stock's price is the present value of all dividends expected to be paid in the future.

Under the additional assumption that dividends are expected to grow at a constant rate "g" and that k is strictly greater than g, equation (1) can be solved for k and rearranged into the simple form:

$$k = D_1/P_0 + g \qquad (2)$$

Equation (2) is the familiar constant growth DCF model for cost of equity estimation, where D_1/P_0 is the expected dividend yield and g is the long-term expected dividend growth rate.

Under circumstances when growth rates are expected to fluctuate or when future growth rates are highly uncertain, the constant growth model may not give reliable results. Although the DCF model itself is still valid (equation (1) is

mathematically correct), under such circumstances the simplified form of the model must be modified to capture market expectations accurately.

Recent events and current market conditions in the electric utility industry, as discussed in Section V, appear to challenge the constant growth assumption of the traditional DCF model. Under these circumstances, long-term growth rate estimates may be highly uncertain, and estimating a reliable "constant" growth rate for many companies is often difficult.

Q. Can the DCF model be applied when the constant growth assumption is violated?

A. Yes. When growth expectations are uncertain, the more general version of the model represented in equation (1) should be solved explicitly over a finite "transition" period while uncertainty prevails. The constant growth version of the model can then be applied after the transition period, under the assumption that more stable conditions will prevail in the future. There are two alternatives for dealing with the nonconstant growth transition period.

Under the "terminal price" nonconstant growth approach, equation (1) is written in a slightly different form:

$$P_0 = D_1/(1+k) + D_2/(1+k)^2 + ... + P_T/(1+k)^T \qquad (3)$$

where the variables are the same as in equation (1) except that P_T is the estimated stock price at the end of the transition period T. Under the assumption that normal growth resumes after the transition period, the price P_T is then expected to be based on constant growth assumptions. With the terminal price approach, the estimated cost of equity, k, is just the rate of return that investors would expect to earn if they bought the

stock at today's market price, held it and received dividends through the transition period (until period T), and then sold it for price P_T. In this approach, the analyst's task is to estimate the rate of return that investors expect to receive given the current level of market prices they are willing to pay.

Under the "multistage" nonconstant growth approach, equation (1) is simply expanded to incorporate two or more growth rate periods, with the assumption that a permanent constant growth rate can be estimated for some point in the future:

$$P_0 = D_0(1+g_1)/(1+k) + ... + D_0(1+g_2)^n/(1+k)^n + ... + D_0(1+g_T)^{(T+1)}/(k-g_T) \quad (4)$$

where the variables are the same as in equation (1), but g_1 represents the growth rate for the first period, g_2 for a second period, and g_T for the period from year T (the end of the transition period) to infinity. The first two growth rates are simply estimates for fluctuating growth over "n" years (typically 5 or 10 years) and g_T is a constant growth rate assumed to prevail forever after year T. The difficult task for analysts in the multistage approach is determining the various growth rates for each period.

Although less convenient for exposition purposes, the nonconstant growth models are based on the same valid capital market assumptions as the constant growth version. The nonconstant growth approach simply requires more explicit data inputs and more work to solve for the discount rate, k. Fortunately, the required data are available from investment and economic forecasting services, and computer algorithms can easily produce the required solutions. Both constant and nonconstant growth DCF analyses are presented in the following section.

Q. Please explain the risk premium methodology.

A. Risk premium methods are based on the assumption that equity securities are riskier than debt and, therefore, that equity investors require a higher rate of return. This basic premise is well supported by legal and economic distinctions between debt and equity securities, and it is widely accepted as a fundamental capital market principle. For example, debt holders' claims to the earnings and assets of the borrower have priority over all claims of equity investors. The contractual interest on mortgage debt must be paid in full before any dividends can be paid to shareholders, and secured mortgage claims must be fully satisfied before any assets can be distributed to shareholders in bankruptcy. Also, the guaranteed, fixed-income nature of interest payments makes year-to-year returns from bonds typically more stable than capital gains and dividend payments on stocks. All these factors demonstrate the more risky position of stockholders and support the equity risk premium concept.

Q. Are risk premium estimates of the cost of equity consistent with other current capital market costs?

A. Yes. The risk premium approach is especially useful because it is founded on current market interest rates, which are directly observable. This feature assures that risk premium estimates of the cost of equity begin with a sound basis, which is tied directly to current capital market costs.

Q. Is there similar consensus about how risk premium data should be employed?

A. No. In regulatory practice, there is often considerable debate about how risk premium data should be interpreted and used. Since the analyst's basic task is to gauge investors' required returns on long-term investments, some argue that the estimated

equity spread should be based on the longest possible time period. Others argue that market relationships between debt and equity from several decades ago are irrelevant and that only recent debt-equity observations should be given any weight in estimating investor requirements. There is no consensus on this issue. Since analysts cannot observe or measure investors' expectations directly, it is not possible to know exactly how such expectations are formed or, therefore, to know exactly what time period is most appropriate in a risk premium analysis.

The important point is to answer the following question: "What rate of return should equity investors reasonably expect relative to returns that are currently available from long-term bonds?" The risk premium studies and analyses I discuss in Section VI address this question. My risk premium recommendation is based on an intermediate position that avoids some of the problems and concerns that have been expressed about both very long and very short periods of analysis with the risk premium model.

Q. Please summarize your discussion of cost of equity estimation techniques.

A. Estimating the cost of equity is one of the most controversial issues in utility ratemaking. Because actual investor requirements are not directly observable, several methods have been developed to assist in the estimation process. The comparable earnings method is the oldest but perhaps least reliable. Its use of accounting rates of return, or even historical market returns, may or may not reflect current investor requirements. Differences in accounting methods among companies and issues of comparability also detract from this approach.

The DCF and risk premium methods have become the most widely accepted in regulatory practice. A combination of the DCF model and a review of risk premium data provides the most reliable cost of equity estimate. While the DCF model does require judgment about future growth rates, the dividend yield is straightforward, and the model's results are generally consistent with actual capital market behavior. For these reasons, I will rely on a combination of the DCF model and a risk premium analysis in the cost of equity studies that follow in Section VI of this testimony.

V. FUNDAMENTAL FACTORS THAT AFFECT THE COST OF EQUITY

Q. What is the purpose of this section of your testimony?

A. The purpose of this section is to review recent capital market costs and conditions as well as industry- and Company-specific factors that should be reflected in the cost of equity capital in this case.

Q. What has been the recent experience in the U.S. capital markets?

A. Exhibit SCH-4 provides a review of annual interest rates and rates of inflation that have prevailed in the U.S. economy since 1992. During that period, inflation and capital market costs have been relatively low. Inflation, as measured by the Consumer Price Index, fell to below 2% in 1998, a level not seen consistently since the 1960s. More recently, rising energy prices and continuing rapid economic growth have increased the inflation rate again to over 3.0%. Long-term interest rates have followed a similar pattern, in 1998 dipping to their lowest levels in 30 years. The Treasury bond rate dropped to near 5% in October 1998. Until recently, that rate has fluctuated between 5.75% and 6.25%. Recent further declines in Treasury rates, however, have

not been followed by corporate borrowing rates, and interest rate spreads for corporate debt relative to government bonds have widened significantly. Particularly during the past several months, rates for most corporate issues have increased even as Treasury rates have declined.

In this environment, fluctuations in U.S. government interest rates cannot be extrapolated to the costs for other forms of capital. Increasing uncertainty and extreme volatility in world-wide capital markets have changed many traditional relationships. Beginning with the 1998 "flight to safety" following the Asian financial crisis, literally billions of dollars have moved from more risky investments into U.S. Treasury bonds. Over the past two years, consistent Treasury surpluses have created unusual supply and demand conditions for Treasury securities and have caused other market anomalies, with government rates declining much more rapidly than corporate rates. Since September 11, Federal Reserve and Treasury operations have focused on short-term bank liquidity and government securities, which has helped to balance attendant uncertainties and investor concerns.

Changes in credit market relationships vividly illustrate these effects. For example, prior to the events of 1998, for the 15 years ended in 1997, rates on single-A industrial bonds in the U.S. averaged 116 basis points (1.16%) above long-term Treasury bonds. By October 1998, in the midst of the Asian, Russian, and other international monetary difficulties, the U.S. single-A industrial spread widened to 172 basis points, and the single-A public utility spread was even wider at 195 basis points. Through September 2001, single-A utility yield spreads have remained large, with the August spread at 237 basis points. This relationship reflects on-going concerns about

increasing capital market risks and vividly illustrates the increasing corporate cost of capital relative to U.S. Treasury bond interest rates.

Exhibit SCH-5 provides a summary of utility interest rates for the most recent three months (August-October 2001). For these three months, the Average Utility rate was 7.65% and the Triple-B rate was 8.03%.

Q. How have utility stocks performed during the past two years?

A. Utility stock prices have fluctuated widely during the past two years. Prices rose during most of 2000, reaching record levels in December. Prices, however, dropped significantly in early 2001, with investors' attention focused closely on the Western energy concerns. Since then, utility prices have remained more volatile than normal, with the recent (November 2, 2001) Dow Jones Utility Average at 289.42, down almost 30% from the record high levels reached in December 2000.

Q. What is the current fundamental position of the electric utility industry?

A. In addition to concerns for a slowing economy and further uncertainties stemming from the events of September 11, utility investors must contend with the industry's continuing transition to competition. Since passage of the National Energy Policy Act (NEPA) in 1992 and the Federal Energy Regulatory Commission's (FERC) Order 888 in 1996, competition in the electric utility industry has advanced rapidly. NEPA's mandate for open access to the transmission grid and FERC's implementation through Order 888 effectively opened previously protected wholesale markets to competition. Protected utility service territories and lack of transmission access in some parts of the

country had previously limited the availability of competitive bulk power prices. NEPA and Order 888 significantly reduced such constraints.

In addition to wholesale issues, many states have provided retail access and are opening retail markets to competition. At the state level, prior to the Western energy crisis, investors' concerns had focused principally on appropriate transition mechanisms and the recovery of stranded costs. More recently, concerns have focused on power cost adjustments and the recovery of market driven costs. The Western energy crisis has refocused market concerns and contributed significantly to increased market risk perceptions for the entire industry. As would be expected, such concerns, along with other market uncertainties, have contributed significantly to the substantial decline in utility stock prices.

Q. How have regulatory commissions responded to changing market and industry conditions of recent years?

A. On balance, allowed rates of return have changed very little over the past five years. The following table summarizes electric utility ROEs allowed by state regulatory commissions since 1996.

Electric Authorized Equity Returns					
	1996	1997	1998	1999	2000
1st Quarter	11.28%	11.30%	11.31%	10.58%	11.06%
2nd Quarter	11.46%	11.62%	12.20%	10.94%	11.11%
3rd Quarter	10.76%	12.00%	11.80%	10.63%	11.68%
4th Quarter	11.58%	11.11%	11.83%	11.08%	12.08%
Full Year	11.39%	11.40%	11.66%	10.77%	11.43%
Average Utility Debt Cost	7.74%	7.63%	7.00%	7.55%	8.14%
Indicated Risk Premium	3.65%	3.77%	4.66%	3.22%	3.29%

Source: *Regulatory Focus*, Regulatory Research Associates, Inc., Major Rate Case Decisions, January 2001.

Although long-term interest rates in 1998 and early 1999 declined to their lowest levels since 1968, allowed returns declined by a smaller amount and remained near 11%. Utility interest rates generally rose through 1999 and the first half of 2000, with some increase in allowed ROEs. Since June 2000, utility interest rates have fluctuated lower, with the average rate for the three months ended October 2001 at 7.65%. At the low end of the risk premium range shown above, the indicated cost of equity based on recent utility debt costs is about 11% (7.65% + 3.22% = 10.87%). At the high end of the risk premium range, based on the 1998 period, the indicated ROE is over 12% (7.65% + 4.66% = 12.31%). These data confirm the reasonableness of my 11.5% ROE estimate for the comparable group analysis.

Q. Is PSE affected by additional market uncertainties that are not faced by many other electric utilities?

A. Yes. The Testimony of William A. Gaines addresses in detail the market and power cost risks faced by the Company. Absent protection from volatile wholesale power

costs as PSE has proposed with its tracked and hedged retail rate mechanisms, particularly given exposure to variable power costs, PSE is more vulnerable than most other utilities to increased Western energy price volatility.

This vulnerability, and the corresponding concerns of debt and equity investors, is also addressed in the Testimony of Howard. L. Hiller. Mr. Hiller observes:

> Bank lenders -- like stock and bond investors -- are concerned about the impact of power cost volatility on credit quality. The availability of credit to the electric utility sector has been constrained, in part, by the experience of the California utilities and by other less draconian situations around the country. Banks may withhold credit from a utility if they believe it is unable to recover its ongoing fuel or purchased power costs from customers on a timely basis. In addition, weakened utility earnings can lead to the violation of bank financial covenants, leading to technical default situations.
>
> ....
>
> Those western utilities that have significant exposure to power cost volatility and do not have a regulatory framework for recovering power costs (like Avista and PSE) will find that their access to capital is challenged, . . . often requiring a cost higher than their ratings would imply.

Testimony of Howard Hiller, at page 8.

Additionally, as noted in Mr. William A. Gaines' Testimony, PSE faces this exposure in the context of a heavy dependence upon hydroelectric generation, uncertain and volatile natural gas prices, and other supply and demand conditions that prevail in the West, collectively adding to PSE's uncertain future. These risks affect PSE's cost of capital directly and are reflected in its well above average dividend yield.

Q: How are these risks faced by PSE reflected in your cost of equity estimates?

A. My stand-alone cost of equity estimate for PSE is based on the assumption that the Company will not be granted interim rate relief. My "comparable company" DCF

estimates and my triple-B debt risk premium analysis assume that the Company's interim request and its requested retail rate mechanisms to recover power costs are granted. In the comparable group analysis, I have applied the DCF model to a conservative group of relatively low risk companies, the majority of which have full cost recovery mechanisms. If, however, PSE is not granted a cost tracking mechanism similar to that requested through its proposed retail rate provisions, it is my opinion that the comparable group analysis would significantly understate the Company's actual cost of equity. Based on the results of my stand-alone PSE analysis, an upward adjustment to the comparable group ROE of at least 200 basis points is required if PSE is not granted the retail rate proposals it is seeking in this proceeding.

VI. COST OF EQUITY CAPITAL FOR PSE

Q. What is the purpose of this section of your testimony?

A. The purpose of this section is to present my quantitative studies of the cost of equity capital for the Company and to discuss the details and results of my analyses.

Q. How are your studies organized?

A. In the first part of my cost of equity analysis, I apply the DCF model to PSE as a stand-alone company, based on its average closing stock price and analysts' growth rate estimates for the past month. The results of my PSE stand-alone DCF analysis are summarized in Exhibit SCH-7, page 1. The stand-alone DCF model results indicate an ROE range of 12.6% to 14.6%, with a midpoint estimate based on the traditional constant growth DCF model at 13.5.% In the second part of my analysis, I apply the DCF model to a group of investment grade (triple-B or higher) electric utility

companies. The group was selected to include all such electric utilities covered in *Value Line* for which complete and reliable data are available and for which at least 70% of revenues are derived from domestic electric and gas utility operations. The results of my comparable company DCF analyses are summarized in Exhibit SCH-9, page 1 of 5. For the comparable company group, the DCF models indicate an ROE range of 10.6%-11.7%. I also develop cost of equity estimates from the risk premium approach. I present my risk premium study in Exhibit SCH-10. That analysis, which is based on allowed regulatory ROEs relative to contemporaneous utility debt costs for the period 1980-June 30, 2001, indicates a cost of equity of 11.9%. Given current market and utility industry conditions, I believe the risk premium approach adds important perspective for judging current investor requirements. Based on the results of my PSE stand-alone DCF analysis and my comparable group DCF and risk premium studies, I estimate the reasonable range for PSE's cost of equity capital to be 11.5%-13.5%, depending on whether the company is granted interim relief during the pendency of the general rate proceeding. If interim relief is not granted, I estimate PSE's market cost of equity at 13.5%.

A. DISCOUNTED CASH FLOW ANALYSIS

Q. What stock prices are used in your DCF analyses?

A. In my PSE stand-alone DCF analysis, I use the Company's average closing price for the past month. These prices are presented in Exhibit SCH-6. For my comparable company analysis, I use average stock prices from the most recent three months for each company (August-October 2001). This is the stock price averaging approach I

have used to estimate the cost of capital in prior cases where normal conditions have applied. Although technically either average or spot stock prices can be used in a DCF analysis, a current price consistent with current market conditions and the other data employed in the analysis is most appropriate. Since the cost of equity is a current and forward-looking concept, the important issue is that the price should be representative of current market conditions and not unduly influenced by unusual or special circumstances.

To ensure that my comparable company DCF analyses are not skewed by unrepresentative initial stock prices, I calculate, in Exhibit SCH-8, the average of high and low prices for each of the three months ending October 2001 for each company in my comparable group. I then compare the three-month average price for each company to *Value Line's* single-month prices. As shown in column 6 of Exhibit SCH-8, the three-month average price used in my analysis is $.08 per company lower than *Value Line's* single-month prices. This small difference indicates that either the three-month average stock prices I used in my analysis or *Value Line's* single month prices are appropriate in the DCF analysis.

Q. Please summarize the results of your DCF analyses.

A. The results from my PSE stand-alone DCF analyses are summarized in Exhibit SCH-7, page 1. The constant growth DCF model indicates that an ROE of 13.5% is appropriate. The nonconstant growth Market Price DCF Model indicates a PSE stand-alone ROE of 14.6%. The Two-Stage Growth DCF model indicates an ROE of 12.6%. Overall, my PSE stand-alone DCF analyses indicate that a range of 12.6%-

14.6% is appropriate. The results from my comparable company DCF analyses are presented in Exhibit SCH-9, page 1. The constant growth DCF model indicates that an ROE range of 10.9%-11.3% is appropriate. The nonconstant growth Market Price DCF Model indicates that an ROE range of 11.6%-11.7% is appropriate. The Two-Stage Growth DCF model indicates that an ROE range of 10.6%-10.7% is appropriate. Overall, my comparable company DCF analyses indicate that a range of 10.6%-11.7% is appropriate.

B. RISK PREMIUM ANALYSIS

Q. What are the results of your risk premium study?

A. The results of my risk premium study are shown in Exhibit SCH-10. My analysis compares average ROEs allowed each year by the various state regulatory commissions to contemporaneous utility debt costs for the period 1980-June 2001. The study indicates a risk premium of 3.86%. When this risk premium is added to the recent average triple-B utility debt cost (8.03%), the indicated ROE is 11.9% (8.03% + 3.86% = 11.89%).

Q. How is your risk premium study structured?

A. My risk premium study is divided into two parts. First, I compare electric utility authorized ROEs for the period 1980-June 2001 to contemporaneous long-term utility debt rates. The difference between the average authorized ROE and the average cost of debt for each year is the indicated equity risk premium. I present this calculation for each year of the study in my Exhibit SCH-10, page 1. A brief review of the annual risk premium data shows that risk premiums are small when interest rates are high and

larger when interest rates are low. For example, in the early 1980s when utility interest rates exceeded 15%, allowed equity risk premiums were generally less than 2%. In more recent years, with much lower interest rates, regulatory allowed risk premiums generally have been in the 3%-4% range.

The inverse relationship between risk premiums and interest rate levels is well documented in numerous, well respected academic studies.[1] These studies typically use regression analysis or other statistical methods to predict or measure the risk premium relationship under varying interest rate conditions. In Exhibit SCH-10, page 2, I present a regression analysis of the allowed annual equity risk premiums relative interest rate levels. The regression coefficient of –42.32% confirms the inverse relationship between risk premiums interest rates and indicates that risk premiums expand and contract by about 58% of the change in interest rates. This means that when interest rates rise by 1 percentage point, the cost of equity increases by only 0.58%, because the risk premium declines by about 0.42%. Similarly, when interest rates decline by 1 percentage point, the cost of equity declines by only 0.58%. I use the –42.32% interest rate change coefficient in conjunction with current interest rates to establish the appropriate current equity risk premium. This calculation is shown in the lower portion of my Exhibit SCH-10, page 1.

Q. How do the results of your risk premium study compare to levels found in other published risk premium studies?

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[1] See, for example, Robert S. Harris and Felicia C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts," Financial Management, Summer 1992.

A. My risk premium estimate are conservative when compare with other published studies. The most widely followed risk premium studies are those published annually by Ibbotson Associates.[2] These data, for the period 1926-2000, indicate an arithmetic mean risk premium of 7.0% for common stocks versus long-term corporate bonds. Under the assumption of geometric compounding, Ibbotson's common stock risk premium is 5.3%. Ibbotson argues extensively for the arithmetic mean approach as the appropriate basis for estimating the cost of equity. Even with the more conservative geometric mean approach, Ibbotson's data indicate a triple-B cost of equity of over 13% (8.03% debt cost + 5.3% risk premium = 13.33%).

The Harris and Marston (H&M) study noted above also provides specific equity risk premium estimates. Using analysts' growth estimates to estimate equity returns, H&M found equity risk premiums of 6.47% relative to U.S. Government bonds and 5.13% relative to yields on corporate debt. H&M's equity risk premium relative to corporate debt also indicates a current triple-B cost of equity of over 13.0% (8.03% debt cost + 5.13% risk premium = 13.16%).

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[2] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation 2001 Yearbook.*

Q. Please summarize of your cost of equity results.

A. The following table summarizes my results:

Summary of Cost of Equity Estimates (No interim rate relief)

Puget Sound Energy DCF Analysis

	Indicated Cost
Constant Growth Model	13.5%
Multistage Growth Models	
Market Price Model	14.6%
Two-Stage Growth Model	12.6%
Comparable Company DCF Range	12.6%-14.6%
Midpoint Stand-Alone ROE Estimate	13.5%
Puget Sound Energy Cost of Equity	11.5%-13.5%

Summary of Cost of Equity Estimates (Interim rate relief granted)

	Indicated Cost
Constant Growth Model	10.9%-11.3%
Multistage Growth Models	
Market Price Model	11.6%-11.7%
Two-Stage Growth Model	10.6%-10.7%
Comparable Company DCF Range	10.6%-11.7%
Risk Premium Analysis	
Utility Debt + Risk Premium	
Risk Premium Analysis (8.03% + 3.86%)	11.9%
Ibbotson Risk Premium Analysis	
Risk Premium (8.03% + 5.7%)	13.7%
Harris-Marston Risk Premium	
Risk Premium (8.03% + 5.13%)	13.2%
Puget Sound Energy Cost of Equity Range	11.5%-13.5%

Q. How should these results be interpreted to determine the fair cost of equity for PSE?

A. PSE currently faces a unique situation. As discussed in the testimony of William A. Gaines, the Company is bearing an extraordinary level of power cost variability and is significantly underrecovering its ongoing power costs. To obtain a relevant analysis of the Company's current cost of equity using comparable company DCF analysis, a comparable group of utilities facing this same situation would have to be found. No such group exists.

The Puget Sound Energy stand-alone DCF analysis is the only proper choice to estimate the Company's current cost of equity. Over the past month, Puget Sound Energy's average stock price has been $19.78, reflecting the market's informed assessment of the power cost risk being borne by PSE at the present time. Until this risk and underrecovery are rectified, it is highly unlikely that the Company's stock price will rise by any significant amount. Therefore, I have used this stock price as the basis of the stand-alone DCF analysis. This analysis yields a return on equity of 12.6% to 14.6%. The midpoint of this range, 13.5%, represents the market's assessment of the fair cost of equity capital for PSE under the present circumstances.

Q. Is the company pursuing efforts to address power cost variability and underrecovery of ongoing power costs?

A. Yes. As discussed in Mr. William A. Gaines' testimony, the Company is seeking retail rate mechanisms in this case to address power cost volatility and interim rate relief to address the ongoing underrecovery of power costs.

Q. What is the relevance of the comparable company DCF analysis you have provided?

A. As I have discussed earlier in my testimony, the "comparable" group I have selected consists of utilities that have power cost adjusters or other mechanisms to ensure timely recovery of power costs. Only when the assumption is made that the Commission will provide the Company with interim rates and adopt the mechanisms to recover ongoing power costs proposed in this case, would I estimate PSE's fair cost of equity capital using the comparable company DCF analysis and the risk premium analysis. Incorporating those methodologies would yield a fair cost of equity capital of 11.5% based on my review of current market and electric utility industry conditions. However, because this case assumes no interim rate relief will be provided prior to its resolution, the revenue requirement has been calculated using the 13.5% return on equity discussed above.

Q. Does this conclude your testimony?

A. Yes, it does.

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