EXHIBIT NO. ___(RAM-20T)
DOCKET NO. UE-072300/UG-072301
2007 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-072300** **Docket No. UG-072301**

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

JULY 3, 2008

PUGET SOUND ENERGY, INC.

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I. INTRODUCTION

Q. Are you the same Dr. Roger A. Morin who provided prefiled direct testimony in this proceeding on December 3, 2007, on behalf of Puget Sound Energy, Inc. ("PSE" or "the Company")?

A. Yes. On December 3, 2007, I filed direct testimony, Exhibit No. ___(RAM-1T), and eighteen exhibits supporting such direct testimony, Exhibit No. ___(RAM-2) through Exhibit No. ___(RAM-19).

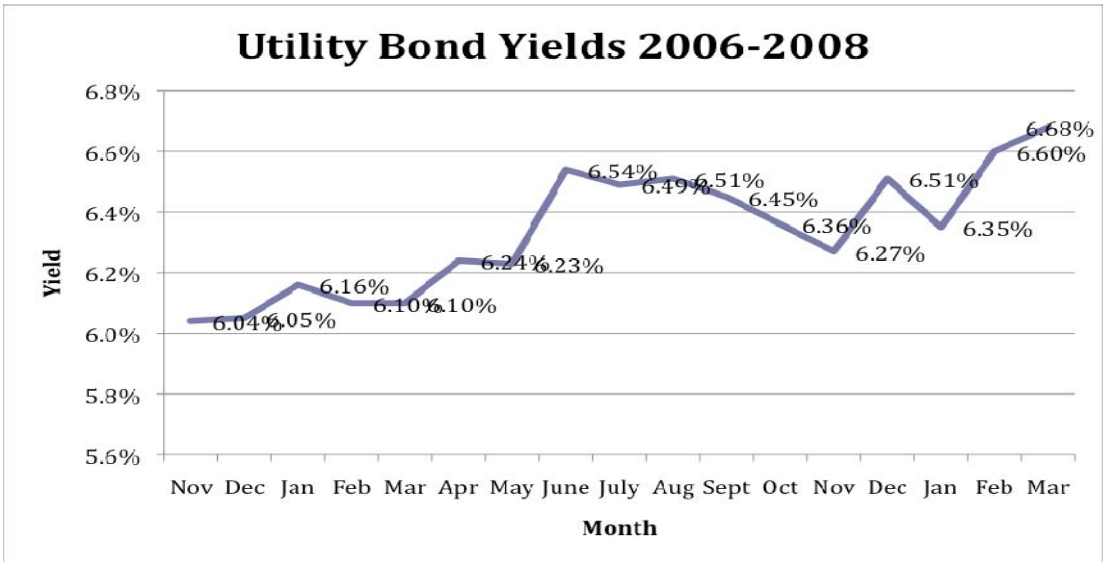
Q. Please summarize the purpose of your rebuttal testimony.

A. This rebuttal testimony responds to the direct testimony of Mr. Stephen G. Hill, Exhibit No. ___(SGH-1THC), on behalf of Public Counsel; Mr. Michael P. Gorman, Exhibit No. ___(MPG-1T), on behalf of Industrial Customers of Northwest Utilities ("ICNU"); and Mr. David C. Parcell, Exhibit No. ___T(DCP-1T), on behalf of the Staff for the Washington Utilities and Transportation Commission ("Commission Staff").

II. MARKET CHANGES SINCE THE COMMISSION'S FINAL ORDER IN PSE'S PREVIOUS GENERAL RATE CASE

Q. Do you agree with arguments that capital costs have changed since the Commission's final order in PSE's previous general rate case and that a decrease in PSE's authorized return on equity is therefore warranted?

A. No. Each of Commission Staff and Public Counsel erroneously assert that long-term interest rates are lower than was the case in mid-2006, thereby implying that a decrease in PSE's authorized return on equity may be warranted. *See* Exhibit No. ___T(DCP-1T) at page 10, line 15, through page 15, line 6; and Exhibit No. ___(SGH-1THC) at page 7, line 2, through page 11, line 6. Although it may be true that short-term interest rates have decreased since the Commission's final order in PSE's previous general rate proceeding, the same is not true for long-term interest rates or with regard to utility bond yields. The following chart shows the steady increase in utility bond yields from the end of 2006 until now.



Source: Moody's Bond Record

Indeed, Baa Utility bond yields and PSE's cost of new debt have reached their highest point since the end of 2006 and stand at an all-time high since 2006—the time of PSE's last rate case. Contrary to assertions of Commission Staff and Public Counsel, the implication is that an increase—rather than a decrease—in PSE's return on equity is warranted.

Moreover, as shown in the Prefiled Rebuttal Testimony of Mr. Donald E. Gaines, Exhibit No. ___(DEG-8T), the spreads between "BBB" rated 30-year utility bonds and the yield on the 30-year Treasury bond have widened considerably since August 2007, the time of the sub-prime crisis and credit crunch. The spreads have increased by some 40 basis points since 2005-2006, implying that PSE's cost of long-term debt has increased since PSE's last rate case. In short, Commission Staff's and Public Counsel's argument that interest costs have decreased since the last rate case ignores the significant increase that has occurred in risk premium.

III. THE RETURN ON EQUITY RECOMMENDED BY PUBLIC COUNSEL SIGNIFICANTLY UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

Q. Please summarize the recommended return on equity of Public Counsel.

A. Public Counsel recommends a return on equity for PSE of only 9.25%, which is the midpoint of Public Counsel's range of 9.00% – 9.50%. *See* Exhibit No. ___(SGH-1THC) at page 4, line 19, through page 5, line 3.

Public Counsel relies primarily on a DCF analysis of a group of fourteen electric

utilities. The DCF study produces an estimated return on equity of 9.37%. *See* Exhibit No. ___(SGH-1THC) at page 46, lines 20-22; Exhibit No. __(SGH-12). Public Counsel performs three checks on its DCF estimate, based on the Modified Earnings Price, Market-to-Book, and CAPM methodologies. Public Counsel summarizes the results of these checks in table form on page 49 of Exhibit No. ___(SGH-1THC). From these various analyses, Public Counsel also concludes that the return on equity for PSE is 9.25%. *See* Exhibit No. ___(SGH-1THC) at page 49, lines 11-14.

Q. Please summarize your specific criticisms of the return on equity recommended by Public Counsel.

A. The return on equity recommended by Public Counsel significantly understates an appropriate return on equity for PSE for the following reasons:

(i) Public Counsel's Recommended Return on Equity for PSE is Outside of the Mainstream for Major Vertically-Integrated Electric Utilities. The return on equity recommended by Public Counsel for PSE is outside the range of currently authorized returns on equity for major vertically-integrated electric utilities in the United States and the zone of currently authorized returns on equity for Public Counsel's own samples of comparable companies.

(ii) The Standard DCF Model Understates an Appropriate Return on Equity for PSE. Application of the standard DCF model to utility stocks understates the investor's expected return when the Market-to-Book ratio exceeds unity.

(iii) Public Counsel Uses an Ambiguous and Arbitrary Growth Rate for Each Utility in Its DCF Analysis. Public Counsel understates its DCF analysis by selecting a growth rate for each company in its comparable group that is ambiguous, arbitrary and impossible to replicate.

(iv) Public Counsel Erroneously Relies on Historical Growth Rates in Its DCF Analysis. Public Counsel understates its DCF analysis by erroneously using historical growth rates that have little relevance as proxies for future long-term growth forecasts in the DCF model.

(v) Public Counsel Erroneously Relies on Dividend Growth Forecasts in Its DCF Analysis. Public Counsel understates its DCF analysis by improperly using dividend growth forecasts during a period in which energy utilities are expected to continue to lower their dividend payout ratio over the next several years.

(vi) Public Counsel Improperly Uses Disguised Versions of the DCF as "Checks" on Its DCF Analysis. Public Counsel understates its recommend return on equity for PSE because the Modified Earnings Price Ratio and Market-to-Book Ratio are disguised versions of the DCF model and do not constitute independent stand-alone checks.

(vii) Public Counsel Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model. Public Counsel erroneously relies upon the plain vanilla version of the CAPM—a model known to understate return requirements for low beta firms, such as PSE.

(viii) Public Counsel Assumes Lower Interest Rates in its CAPM Analysis Than Current Interest Rates. Public Counsel understates its CAPM results because interest rates are currently higher than what Public Counsel assumes for its CAPM analysis.

(ix) Public Counsel Improperly Uses the Geometric Mean Market Risk Premium Rather Than the Arithmetic Mean Market Risk Premium in its CAPM Analysis. Public Counsel understates its CAPM analysis because it improperly uses the geometric mean market risk premium rather than the arithmetic mean market risk premium.

(x) Public Counsel's Recommended Return on Equity Fails to Reflect PSE's More Leveraged Capital Structure. Public Counsel understates its recommended return on equity because it fails to reflect the higher relative risk associated with PSE's more leveraged capital structure.

(xi) Public Counsel's Recommended Return on Equity Improperly Ignores Flotation Costs. Public Counsel understates its recommended return on equity by approximately 30 basis points because it does not allow for flotation costs and, as a result, leaves a legitimate expense unrecovered.

Correction of the above-described infirmities would likely increase the return on equity recommended by Public Counsel by at least 150 basis points, from a range of 9.0% – 9.5% to a range of 10.5% – 11.0%.

A. PUBLIC COUNSEL'S RECOMMENDED RETURN ON EQUITY FOR PSE IS OUTSIDE OF THE MAINSTREAM FOR MAJOR VERTICALLY-INTEGRATED ELECTRIC UTILITIES

Q. Is Public Counsel's recommended return on equity for PSE consistent with the average authorized return on equity of the electric utilities in Public Counsel's comparable group?

A. No. Authorized returns on equity, although not a precise indication of a utility's cost of equity capital, are nevertheless important determinants of investor growth perceptions and investor expected returns. They also serve to provide some perspective on the validity and reasonableness of Public Counsel's recommended return on equity.

The AUS Utility Reports survey for June 2008[1] reports that the average authorized return on equity is 10.7% for the combination gas and electric industry and 10.9% for the overall electric utility industry. Each of the averaged authorized return on equity reported by AUS Utility Reports exceeds the range of 9.0% – 9.5% recommended by Public Counsel.

[1] AUS Utility Reports, June 2008, Index.

In short, Public Counsel's recommended return on equity for PSE is below the authorized return on equity of each electric utility in Public Counsel's comparable group and far below the average authorized return on equity of 10.57% for the same group. *See* Exhibit No. ___(RAM-21). Although decisions of other regulatory bodies regarding authorized returns on equity do not bind this Commission, one cannot overlook the significant difference between Public Counsel's recommendation return on equity and the returns on equity currently authorized for the electric utility industry, notwithstanding the fact that PSE faces greater risks than the average electric utility.

B. PUBLIC COUNSEL'S DCF ANALYSIS UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

1. The Standard DCF Model Understates an Appropriate Return on Equity for PSE

Q. Do Public Counsel's DCF results understate an appropriate return on equity for PSE?

A. Yes, Public Counsel's DCF results understate the appropriate return on equity for PSE. Indeed, the DCF results presented in my direct testimony understate the appropriate return on equity for PSE because application of the standard DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar (*i.e.*, when the Market-to-Book ratio is close to unity). *See* Exhibit No. ___(RAM-1T) at page 40, line 13, through page 52, line 11.

Application of the standard DCF model to utility stocks understates investors' expected returns when the Market-to-Book ratio of a given stock exceeds unity. This is particularly relevant in the current capital market environment in which utility stocks are trading at Market-to-Book ratios well above unity for the past two decades. (The converse is also true—the DCF model overstates investors' expected return when the Market-to-Book ratio of a given stock is less than unity.) The reason for this distortion is that the DCF market return is applied to a book value rate base by the regulatory body. In other words, the utility's earnings are limited to earnings on a book value rate base.

Q. Can you illustrate the effect of the Market-to-Book ratio on the DCF model?

A. Yes. The following illustration demonstrates the result of applying a market value cost rate to book value rate base under three different Market-to-Book scenarios (the stock trades below, equal to, and above book value):

TABLE I
EFFECT OF MARKET-TO-BOOK RATIO ON MARKET RETURN

		Price Below Book	Price Equals Book	Price Above Book
1	Initial purchase price	$25.00	$50.00	$100.00
2	Initial book value	$50.00	$50.00	$50.00
3	**Initial Market-to-Book Ratio**	**0.50**	**1.00**	**2.00**
4	**DCF Return 10% = 5% + 5%**	**10.00%**	**10.00%**	**10.00%**
5	Dollar Return	$5.00	$5.00	$5.00
6	Dollar Dividends 5% Yield	$1.25	$2.50	$5.00
7	Dollar Growth 5% Growth	$3.75	$2.50	$0.00
8	**Market Return**	**20.00%**	**10.00%**	**5.00%**

The shaded portion of the above table represents current capital markets in which

utilities' Market-to-Book ratios are generally greater than 1.0. A DCF cost rate of 10%, which implies $10.00 of earnings, translates to only $5.00 of earnings on book value, a 5% return. The DCF cost rate of 10%, which consists of a 5% dividend yield and a 5% growth rate forecast, is applied to the book value rate base of $50 to produce $5.00 of earnings. Of the $5.00 of earnings, the full $5.00 are required for dividends to produce a dividend yield of 5% on a stock price of $100.00 and no earnings are available for growth. The return is therefore only 5% versus a required return of 10%.

The situation is reversed in the first column in which the stock trades below book value. The $5.00 of earnings is more than sufficient to satisfy investors' dividend requirement of $1.25, leaving $3.75 for growth, for a total return of 20%. This is because the DCF cost rate is applied to a book value rate base well above the market price.

As demonstrated above, the DCF cost rate understates the investor's required return when stock prices are well above book, as is the case presently. Therefore, Public Counsel's DCF results understate the appropriate return on equity for PSE.

Q. Have other regulatory bodies expressed reservations with regard to the reliability of the DCF model?

A. Yes. Although most regulatory bodies do not rely solely on the DCF model results in setting authorized returns on equity, some regulatory bodies have explicitly recognized the need to avoid exclusive reliance upon the DCF model

and have acknowledged the need to adjust the DCF result when Market-to-Book ratios exceed unity.[2] In a recent case involving Pacific Bell Telephone Company, the California Public Utilities Commission declined to place any reliance on the DCF method, finding that it was "too dependent on one forecasted input."[3]

In Southern Indiana Gas and Electric Company, the Indiana Utility Regulatory Commission recognized concerns that the DCF model understates the cost of equity and stated as follows:

> the DCF model, heavily relied upon by the Public, understates the cost of common equity. The Commission has recognized this fact before. In Indiana Mich. Power Co. (IURC 8/24/90), Cause No. 38728, 116 PUR4th 1, 17-18, we found:
>
> > [T]he unadjusted DCF result is almost always well below what any informed financial analyst would regard as defensible, and therefore requires an upward adjustment based largely on the expert witness's judgment.
>
> Accord, Indiana-American Water Co. (IURC 2/2/94), Cause No. 39595, p. 34, 150 PUR4th 141, 167.

S. Ind. Gas & Elec. Co., Cause No. 39871, Final Order at 24 (Ind. Util. Reg. Comm'n 1995). The Indiana Utility Regulatory Commission also expressed its concern with a witness relying solely on one methodology:

> the Commission has had concerns in our past orders with a witness relying solely on one methodology in reaching an opinion on a proper return on equity figure

[2] *See, e.g., Pa. Pub. Util. Comm'n v. Pa.-Am. Water Co.*, 97 Pa.P.U.C. 1, 33-34 (Pa. Pub. Util. Comm'n 2002); *U.S. West Commc'ns., Inc.*, 152 P.U.R.4th 459 (Iowa Utils. Bd. 1994); *In re Haw. Elec. Co., Inc.*, 134 P.U.R.4th 418 (Haw. Pub. Utils. Comm'n 1992); *In re Ind. Mich. Power Co.*, 116 P.U.R.4th 1, 17-19 (Ind. Util. Reg. Comm'n 1990).

[3] *In re AT&T Commc'ns of Ca. Inc.*, Application No. 01-02-024, Opinion Establishing Revised Unbundled Network Element Rates for Pacific Bell Telephone Company dba SBC California at VI.N (Ca. Pub. Utils. Comm'n 2004).

Id. at 25.

Even more convincing evidence that regulatory bodies have not relied on the DCF model exclusively is the fact that Market-to-Book ratios have exceeded unity for over two decades. Had regulatory bodies relied exclusively on the DCF model, utility stocks would have traded at or near book value. Regulatory bodies have "corrected" for this Market-to-Book problem by considering other methods for estimating capital cost.

Q. Is Public Counsel correct in its claims that there are inconsistencies in your published works regarding the DCF model and Market-to-Book ratios?

A. No. Public Counsel argues that the 1984 edition of my book did not criticize the ability of the DCF model to accurately estimate the cost of equity depending on the Market-to-Book ratio of utilities. *See* Exhibit No. ___(SGH-1THC) at page 83, line 7, through page 84, line 3. Similarly, Public Counsel asserts the following:

> Dr. Morin's first text on the cost of capital, Utilities' Cost of Capital, was published in 1984, and was conceived and written during a difficult time period for electric utilities in which interest rates were very high and market prices were generally below book value. There is nothing in that text that indicates that when market prices are below book value (as they were at that time), the DCF overstates the cost of equity (as is now Dr. Morin's claim).

Exhibit No. ___(SGH-1THC) at page 83, lines 8-13.

Public Counsel fails to recognize, however, that the ability of the DCF model to estimate the cost of equity accurately depending on the Market-to-Book ratio of

utilities was simply not an issue for utilities a quarter century ago because utilities were trading at market prices very close to book value. Similarly, it was not an important issue when Professor Gordon developed the DCF model in the mid-1960s. Perhaps Public Counsel should have consulted the 1994 and 2006 editions of my book,[4] each of which discusses at length the chronic inability of the DCF model to accurately estimate investor returns when Market-to-Book ratios deviate markedly from unity.

Q. Is Public Counsel's contention that your views on the applicability of the DCF have changed since 1984 correct?

A. No. Public Counsel has once more distorted my views and cited passages from my book out of context. Public Counsel falsely asserts that there is no reference to the DCF understating the cost of equity in my 1984 text when Market-to-Book ratios are below one when such ratios were below one. *See, e.g.,* Exhibit No. ___(SGH-1THC) at page 83, lines 8-15. ICNU's exhibit, Exhibit No. ___(MPG-13), plots Market-to-Book ratios over time. In late 1984 when the book was published, Market-to-Book ratios were at nearly 1.0—not below 1.0 as Public Counsel falsely claims. Indeed, Market-to-Book ratios have been well above 1.0 for over twenty years.

The reference to the understatement of the cost of equity when Market-to-Book ratios are slightly below one referred to the dilutive effects of issuing stock below

[4] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 10 (1st ed. 1994); Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, chapter 12 (1st ed. 2006).

book value and the necessity of allowing for flotation cost.

Q. How do you respond to Public Counsel's discussion of your numerical example regarding the reliability of DCF estimates?

A. Public Counsel reviews my numerical example and concludes that it does not show that the DCF understates the cost of equity when the Market-to-Book ratio exceeds 1.0. *See* Exhibit No. ___(SGH-1THC) at page 84, line 4, through page 88, line 5. Public Counsel appears to be confused on this subject. First, the allowed return of 10% is not assumed to be determined by the DCF, as claimed by Public Counsel on page 87, line 1. Such an assumption would be circular. The allowed return of 10% is assumed to be determined exogenously by the CAPM or the Risk Premium method, for example.

The numerical example is quite simple despite Public Counsel's attempts to confuse the issue. A stock is trading at $100 and the investor requires a 10% return, so that $10 of earnings are needed. But the regulatory body applies the 10% return to a $50 book value. So, there are only $5 of earnings available to the investor, and the realized return is only 5%. It is that simple.

To pursue the analogy from Public Counsel at pages 87-88, imagine a broker trying to sell to an investor with a return requirement of 10% a utility stock priced at $100 per share and whose Market-to-Book ratio is 2.0. "I've got a stock for you that's going to pay a 10% return on a $50 book value – in other words one

share will get you $5 but each share has to drop from $100 to $50 in order for the price to drop to book value. Are you interested?" No rationale investor would pay $100 for a stock that is going to drop to $50. Public Counsel's position on Market-to-Book ratios defies logic.

Q. What does Public Counsel's chart on page 91 of Exhibit No. ___(SGH-1THC) reveal?

A. The reference chart reveals that my recommended return is quite consistent with the Market-to-Book ratio. Public Counsel plots the 2008 return on equity against the Market-to-Book ratios for my comparable group of electric utilities. *See* Exhibit No. ___(SGH-1THC) at page 91. Referring to the chart, the implied return on equity is slightly above 11% because the average Market-to-Book ratio for my group is 1.80. A return on equity of slightly above 11% is clearly within the range of returns on equity recommended in my direct testimony.

Q. Is there a conflict of logic in you testimony about the application of the DCF method to the aggregate equity market?

A. No. Public Counsel claims that if the DCF is good enough to apply to the overall equity market, it is good enough to apply to utility stocks. *See* Exhibit No. ___(SGH-1THC) at page 63, lines 12-15. I do not disagree with that position. I did indeed apply the DCF model to utility stocks—seven out of ten results shown in my summary of results on page 55 of Exhibit No. ___(RAM-1T) are DCF-based.

Nevertheless, one would think that the application of the DCF model to the market index as a whole consisting of several hundred stocks would provide at least as precise an estimate of the expected market return as the application of the DCF model to a handful of utility stocks would. The core assumptions of the DCF model are much more likely to be satisfied when applying the DCF model to a broad market aggregate than to a specific industry.

2. Public Counsel Uses an Ambiguous and Arbitrary Growth Rate for Each Utility in Its DCF Analysis

Q. What specific DCF methodology does Public Counsel use to estimate a return on equity for PSE equity?

A. Public Counsel applies a DCF analysis to one sample of electric utilities. Public Counsel bases the expected dividend yield component on a 6-week average stock price. For the growth component, Public Counsel examines an array of growth rate estimates, including (i) sustainable growth rate forecasts, (ii) historical growth rates in book value, earnings, and dividends, (iii) Value Line growth forecasts, and (iv) the consensus growth forecasts reported in Reuters. *See* Exhibit No. ___(SGH-10) at page 2. Although Public Counsel examines eleven growth proxies, it proceeds to select an arbitrary growth rate for each company.

Adding the dividend yield component to the arbitrary growth component selected for each company, Public Counsel produces an estimated return on equity of 9.37% for the group of electric utilities.

Q. Did you attempt to replicate Public Counsel's DCF analysis for a specific company to illustrate Public Counsel's methodology?

A. Yes. Public Counsel selected Pinnacle West Capital Corporation ("Pinnacle West") as its "case study" to derive his DCF growth rate forecast and cites the following growth rate estimates for Pinnacle West:

	Growth
5-yr sustainable	2.38%
2006 sustainable	3.30%
projected sustainable	2.00%
projected Book Value	2.00%
5-yr historical Book Value	4.00%
5-yr historical Dividend	6.00%
Projected dividend	3.00%
Projected earnings	1.50%
5-yr historical earnings	-5.00%
analyst projection 1	5.50%
analyst projection 2	6.70%

Exhibit No. ___(SGH-1THC) at page 40-41. From this array of growth rate estimates, Public Counsel arbitrarily selects, with little formal substantiation, a DCF growth rate forecast of 3.5%. *Id.* at page 42, lines 2-3.

Q. Were you able to determine how Public Counsel arrives at a DCF growth rate forecast of 3.5% for Pinnacle West?

A. No. I was unable to replicate the 3.5% growth rate forecast for Pinnacle West from this vast list of growth rates presented by Public Counsel. The mean of the above range of growth forecasts for Pinnacle West is 2.85%; the median of the above range of growth forecasts for Pinnacle West is 3.00%, and the midpoint of the above range of growth forecasts for Pinnacle West is 0.9%. As shown below,

the most meaningful growth proxies for Pinnacle West are the analysts' growth projections in the range of 5.5% – 6.7%.

Q. Were you able to determine how Public Counsel arrives at a DCF growth rate forecast of 5.33% for Puget Energy?

A. No. Public Counsel asserts that the DCF estimate of return on equity for Puget Energy is 9.11% (the sum of a dividend yield of 3.78% plus a growth rate forecast of 5.33%). *See* Exhibit No. ___(SGH-12) at page 1.

Public Counsel derives the growth rate forecast of 5.33% directly from the last column of page 1 of Exhibit No. ___(SGH-10), which computes the sustainable growth rate forecast ($g = br + sv$) for Puget Energy as the sum of a sustainable internal growth rate (4.50%) and a sustainable external growth rate (0.83%).

Q. How does Public Counsel arrive at a sustainable internal growth rate of 4.50% and an external growth rate of 0.83% for Puget Energy?

A. It is unclear. The "internal growth" and "external growth" figures are presumably derived from page 5 of Exhibit No. ___(SGH-9), under the labels "internal growth" and "external growth." The internal growth rate of 4.50% cannot be found anywhere on page 5 of Exhibit No. ___(SGH-9). The sustainable internal growth rate of 4.50%, however, is contained within the qualitative discussion of Puget Energy's sustainable growth rate forecast in Exhibit No. ___(SGH-5) and is arbitrarily characterized as "reasonable".

From the following array of growth rate estimates, Public Counsel selects a growth rate forecast of 5.33% for Puget Energy without support or explanation:

	Growth
5-yr sustainable 2002-2006	1.83%
2007 sustainable	
Projected sustainable	3.60%
Projected Book Value	4.00%
5-yr historical Book Value	1.50%
5-yr historical Dividend	-11.50%
Projected dividend	3.00%
Projected earnings	6.00%
5-yr historical earnings	-4.50%
analyst projection 1	5.70%
analyst projection 2	5.50%

Again, I was unable to replicate the growth rate forecast of 5.33% for Puget Energy from this array of growth rate estimates. Each of the mean, median, and midpoint of the above range of growth forecasts for Puget Energy is approximately 3.8%, if one eliminates the two negative growth values from the table.

Q. Were you able to replicate Public Counsel's growth rate forecasts for any of the companies contained in Exhibit No. ___(SGH-4)?

A. No. I was unable to replicate the growth rate estimates of any utility in Public Counsel's sample of electric utilities from the array of growth rate estimates provided in Exhibit No. ___(SGH-10). The growth estimates simply appear out of thin air without scientific foundation, derivation or ability to replicate.

Q. What is the sustainable growth rate technique used by Public Counsel to implement the DCF model?

A. Public Counsel appears to rely heavily on the so-called sustainable growth method. *See* Exhibit No. ___(SGH-1HCT) at page 35, lines 18-21; Exhibit No. ___(SGH-9); Exhibit No. ___(SGH-10). In the sustainable growth method, the growth rate forecast is based on the equation g = b(ROE), where b is the percentage of earnings retained and ROE is the expected rate of return on book equity. Public Counsel also accounts for the impact of external stock financing on growth by adding an external growth term (g = sv).

Q. Is the sustainable growth methodology an appropriate technique to implement the DCF model in this proceeding?

A. No. The sustainable growth methodology used by Public Counsel in this proceeding contains a logical contradiction because the method requires an explicit assumption on the return on equity expected from the retained earnings that drive future growth. Public Counsel bases its return on equity estimate on (i) achieved returns on equity in the past five years 2002-2006 and (ii) Value Line forecast returns on equity for 2008, 2009, and the 2011-2013 period.

In short, Public Counsel's implementation of the sustainable growth method, to the extent relied upon, is logically circular because it assumes a return on equity in a regulatory process designed to estimate the fair and reasonable return on equity.

Q. Is the sustainable growth rate technique consistent with empirical evidence?

A. No. Empirical finance literature demonstrates that the sustainable growth rate technique is a very poor explanatory variable of market value and is not correlated significantly to measures of value, such as stock price and price/earnings ratios.

Q. Are the Value Line estimates of return on equity and retention ratio representative of the market consensus?

A. No. Public Counsel's exclusive reliance on Value Line forecasts of return on equity and retention ratio runs the risk that such forecasts are not representative of investors' consensus forecast. Moreover, the forecasts of the expected return on equity published by Value Line are based on end-of-period book equity rather than on average book equity. The following formula adjusts the reported end-of-year values so that they are based on average common equity, which is the common regulatory practice:

$$r_a = r_t \frac{2\,B_t}{B_t + B_{t-1}}$$

Where: r_a = return on average equity
r_t = return on year-end equity as reported
B_t = reported year-end book equity of the current year
B_{t-1} = reported year-end book equity of the previous year

See, e.g., Roger A. Morin, *The New Regulatory Finance*, chapter 9 (1st ed. 2006).

This error understates Public Counsel's DCF estimates by approximately 10-20 basis points, depending on the magnitude of the book value growth rate forecast.

3. Public Counsel Erroneously Relies on Historical Growth Rates in Its DCF Analysis

Q. Please discuss the use of historical growth rates in applying the DCF model to energy utilities.

A. Although it is not clear as to what weight Public Counsel accords historical growth rates given the arbitrary nature of its final choice of growth estimates, Public Counsel considers historical growth rates in arriving at proxies for the DCF growth forecast component. It may be reasonable to assume that historical growth rates in dividends/earnings influence investors' assessment of the long-run growth rate forecast of future dividends/earnings if the company and industry is stable. Because of sea changes in the energy industry, however, historical growth rates have little relevance as proxies for long-term growth forecasts. Moreover,

historical growth rates are largely redundant because such historical growth patterns are already incorporated in analysts' growth forecasts that should be used in the DCF model.

Q. Is reliance on analysts' earnings growth forecasts in the DCF model problematic?

A. No. Public Counsel erroneously asserts as follows with respect to my exclusive use of analysts' earnings growth forecasts in the DCF:

> exclusive reliance on earnings growth, absent any examination of the underlying fundamentals of long-run growth, can lead to inaccurate equity cost estimates. For example, reliance on projected earnings growth in a situation in which projected earnings were expected to recover from reduced levels would include (in any DCF estimate) the assumption that equity returns will increase at the same exaggerated rate every five years into the indefinite future.

Exhibit No. ___(SGH-1THC) at page 75, line 20 to page 76 lines 1-5. In other words, the intermediate growth rate in dividends cannot equal the long-term growth rate when the dividend payout ratio is expected to change because projected dividend growth and earnings growth must adjust to the changing payout ratio. This "problem" is not unique to analysts' earnings growth forecasts and is also inherent in the use of historical growth rates to forecast growth rates.

As discussed elsewhere in this rebuttal testimony, reliance on "near-term" dividend growth is improper because it is expected that energy utilities will continue to lower their dividend payout ratio over the next several years in

response to increased business risk. Therefore, earnings and dividends are not expected to grow at the same rate in the future. Public Counsel's own growth rate data demonstrate this phenomenon because both historical and projected utility dividend growth rates are less than the earnings growth rate forecast. *See* Exhibit No. ___(SGH-10) at pages 1 and 2. As discussed in my direct testimony, I used consensus analysts' earnings growth forecasts in the DCF model to mitigate potential bias—an approach supported by empirical literature. *See* Exhibit No. ___(RAM-1T) at page 42, line 12, through page 47, line 13.

Q. Is your growth rate analysis "mechanistic in that it simply plugs selected projected data into a formula to produce a growth rate with no underlying analysis of either the historical or projected growth rate fundamentals"? Exhibit No. ___(SGH-1THC) at page 102, lines 11-13.

A. No. My direct testimony devotes several pages to an analysis of historical growth rates and analysts' growth forecasts. *See* Exhibit No. ___(RAM-1T) at page 42, line 12, through page 47, line 13. Given this analysis, Public Counsel's statement that I undertook "no underlying analysis of either the historical or projected growth rate fundamentals" is patently false.

Public Counsel continues, "Dr. Morin, in his own published work, warns against this type of analysis." Exhibit No. ___(SGH-1THC) at page 102, lines 13-14. This is another example of Public Counsel selectively citing materials out of context. The passage cited by Public Counsel immediately precedes the

following section of my book:

> A note of caution is also necessary when dealing with historical growth rates and their use in the DCF model. Historical growth rates can be downward-biased by the impact of diversification and restructuring activities and by the impact of abnormal weather patterns in the case of energy utilities. Acquisitions, start-up expenses, and front-end capital investments associated with diversification and restructuring efforts, and unfavorable weather patterns can retard and dilute historical earnings growth, and such growth is not representative of a company's long-term growth potential. Therefore, caution must be exercised when applying any of the growth estimating techniques directly to recent historical utility company data.
>
> *Given a dramatic change in a utility's operating environment, the need to be forward-looking is apparent. Historically-based measures of risk and growth can be downward-biased in assessing present circumstances* . . . . The fundamental risks and growth prospects of electric utilities are also changing rapidly following the passage of the Energy Bill in 1993. These shifts in growth prospects take some time before they are fully reflected in the historical growth rates. Hence, *backward-looking growth and statistical analysis may fail to fully reflect the fact that the risks and growth prospects of utilities have escalated*, and may only provide limited evidence that the risk and the cost of capital to these utilities have increased. Of course, the converse may also be true under certain circumstances.

Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital* at pages 237-38 (1st ed. 1994) (emphasis added). Indeed, the same chapter contains an entire section that comprehensively discusses the hazards of relying on historical growth rates.

Q. What does the published academic literature say on the subject of analysts' growth rate forecasts in the DCF model?

A. Published studies in the academic literature demonstrate that (i) analysts' growth

rate forecasts are reasonable indicators of investor expectations and (ii) investors rely on such forecasts. Cragg and Malkiel present detailed empirical evidence that (i) the average analysts' growth rate forecast is a better predictor of investor expectations than are historical growth rates; (ii) the average analysts' growth rate forecast represents the best possible source of DCF growth rate forecasts; and (iii) historical growth rates do not contain any information not already included in analysts' growth rate forecasts.[5] Other studies confirm the superiority of analysts' growth rate forecasts over historical growth extrapolations.[6]

Q. Public Counsel criticizes your DCF analysis because it relies on earnings growth projections and that such forecasts are overly optimistic. How do you respond?

A. Public Counsel denounces the use of financial analysts' earnings forecasts on the grounds that such forecasts are overly-optimistic. See Exhibit No. ___(SGH-1THC) at page 76, lines 11-15. I disagree, at least for utility stocks. Using virtually all publicly available analyst earnings forecasts for a large sample of companies (over 23,000 individual forecasts by 100 analyst firms), Lys and Sohn show that stock returns respond to individual analyst earnings forecasts, even when they are closely preceded by earnings forecasts made by other analysts or

[5] Malkiel Burton & John Cragg, *Expectations and the Structure of Share Prices* (1982).

[6] James Vander Weide & Willard Carleton, "Investor Growth Expectations: Analysts vs. History," *The Journal of Portfolio Management* (Spring 1988); Stephen Timme & Peter Eisemann, "On the Use of Consensus Forecasts of Growth in the Constant Growth Model: The Case of Electric Utilities," *Financial Management* (Winter 1989).

by corporate accounting disclosures.[7] Using actual and IBES data from 1982-1995, Easterwood and Nutt regress the analysts' forecast errors against either historical earnings changes or analysts' forecasting errors in the prior years.[8] Results show that analysts tend to under-react to negative earnings information, but overreact to positive earnings information.

The more recent studies provide evidence that analysts make biased forecasts and misinterpret the impact of new information.[9] For example, several studies in the early 1990s suggest that analysts either systematically underreact or overreact to new information. Easterwood and Nutt discriminate between these different reactions and reported that analysts underreact to negative information, but overreact to positive information. The recent studies do not necessarily contradict the earlier literature. The earlier research focused on whether analysts' earnings forecasts are better at forecasting future earnings than historical averages, whereas the recent literature investigates whether the analysts' earnings forecasts are unbiased estimates of future earnings. It is possible that even if the analysts' forecasts are biased, they are still closer to future earnings than the historical averages, although this hypothesis has not been tested in the recent studies. One

[7] Thomas Lys & Sungkyu Sohn, "The Association Between Revisions of Financial Analysts' Earnings Forecasts and Security Price Changes," *Journal of Accounting and Economics* 13, 341-363 (1990).

[8] John Easterwood & Stacey Nutt, "Inefficiency in Analysts' Earnings Forecasts: Systematic Misreaction or Systematic Optimism?" *The Journal of Finance* 54: 1777-1797 (1999).

[9] Other relevant papers corroborating the superiority of analysts forecasts as predictors of future returns versus historical growth rates include: Dan Fried & Dov Givoly, "Financial Analysts Forecasts of Earnings: A Better Surrogate for Earning Expectations," *Journal of Accounting and Econometrics* 85-107 (1982); R. Charles Moyer, *et al.*, "The Accuracy of Long-Term Earnings Forecasts in the Electric Utility Industry" *International Journal of Forecasting*, 1, 241-252 (1985); and David Gordon, "Choice Among Methods of Estimating Share Yield," *Journal of Portfolio Management* 15, 50-55 (1989).

way to assess the concern that analysts' forecasts may be biased upward is to incorporate into the analysis the growth forecasts of independent research firms, such as Value Line, in addition to the analyst consensus forecast. Unlike investment banking firms and stock brokerage firms, independent research firms such as Value Line have no incentive to distort earnings growth estimates in order to bolster interest in common stocks.

Public Counsel argues that analysts tend to forecast earnings growth rates that exceed those actually achieved and that this optimism biases the DCF results upward. The magnitude of the optimism bias for large rate-regulated companies in stable segments of an industry is likely to be very small. Empirically, the severity of the optimism problem is unclear for regulated utilities, if a problem exists at all. It is interesting to note that Value Line forecasts for utility companies made by independent analysts with no incentive for over- or understating growth forecasts are not materially different from those published by analysts in security firms with incentives not based on forecast accuracy, and may in fact be more robust.

4. Public Counsel Erroneously Relies on Dividend Growth Forecasts in Its DCF Analysis

Q. Should the Value Line dividend growth forecasts be considered in applying the DCF model to electric utilities?

A. No. There are two serious problems with the use of Value Line dividend growth forecasts. First, heavy reliance on Value Line growth forecasts runs the risk that

such forecasts are not representative of investors' consensus forecast. Second, it is inappropriate to use dividend growth forecasts of energy utilities at this time in the DCF model. The Value Line dividend growth forecasts are largely dominated by the anticipated dividend performance over the next few years, a period of transition to competition and higher business risk.

Q. What do you conclude from Public Counsel's DCF growth rate analysis?

A. Although Public Counsel reports and discusses historical growth rates and dividend growth rate forecasts, it is difficult to discern from the discussion of each company's growth rate to what extent, if any, Public Counsel relies on historical growth rates and dividend growth rate forecasts reported by Value Line. To the extent Pubic Counsel relies on either of historical growth rates and Value Line's dividend growth forecasts, it does so in error.

One would expect that averages of analysts' earnings growth forecasts, such as those contained in First Call, Reuters, or Zacks, are more reliable estimates of the investors' consensus expectations than either historical growth rates or one particular firm's dividend growth forecast. As discussed in my direct testimony, the empirical finance literature has demonstrated that consensus analysts' growth forecasts, such as those contained in First Call, Reuters, or Zacks, (i) are reflected in stock prices, (ii) possess a high explanatory power of equity values, and (iii) are used by investors. *See* Exhibit No. ___(RAM-1T) at pages 41-42.

Moreover, it is necessary to use earnings forecasts rather than dividend forecasts

because of the extreme scarcity of dividend forecasts compared to the availability of earnings forecast. Given the paucity and variability of dividend forecasts, use of dividend forecasts produces unreliable DCF results.

Use of the analyst growth forecasts would have generated an average growth rate forecast of 6.12% for Public Counsel's sample group of electric utilities, not the 5.0% average used. *See* Exhibit No. ___(SGH-10) at page 2. The growth rate forecast of 6.12% would raise Public Counsel's DCF estimates from 9.37% to 10.5% (exclusive of flotation costs) and 10.8% (inclusive of flotation costs) for its group of electric utilities.

Q. Is Public Counsel's criticism that you multiplied the spot dividend yield by one plus the expected growth rate (1 + g) warranted?

A. No. The plain vanilla annual DCF model ignores the time value of quarterly dividend payments and assumes dividends are paid once a year at the end of the year. Because the appropriate dividend to use in a DCF model is the prospective dividend for all companies that have positive growth rate forecasts, the dividend for all companies should be increased by the (1 + g) factor. Multiplying the spot dividend yield by (1 + g) is actually a conservative attempt to capture the reality of quarterly dividend payments and understates the expected return on equity. Use of this method is "conservative" in the sense that the annual DCF model ignores the more frequent compounding of quarterly dividends.

Q. Does Public Counsel multiply the spot dividend yield by one plus the expected growth rate (1 + g)?

A. Yes. Public Counsel multiplies the spot dividend yield by one plus the expected growth rate (1 + g) for those companies expected to raise their quarterly dividends in the second quarter of calendar year 2008. Indeed, Public Counsel uses this methodology for two companies (Pinnacle West and UniSource) in its sample group of electric utilities. *See* Exhibit No. ___(SGH-11).

Q. Did you double-count the expected dividend yield for growth?

A. No. Contrary to assertions of Public Counsel, I did not overstate the dividend yield by double-counting the dividend increase. See Exhibit No. ___(SGH-1THC) at page 67, lines 18-21. This is because I used the "current dividend yield" as defined by Value Line in the Value Line Investment Analyzer software and then grossed up the current dividend yield to produce the expected dividend yield required by the DCF model.

C. PUBLIC COUNSEL IMPROPERLY USES DISGUISED VERSIONS OF THE DCF AS "CHECKS" ON ITS DCF ANALYSIS

Q. Does Public Counsel employ a check on Mr. Hill's DCF results?

A. Yes. As a check on his DCF results, Public Counsel employs the Modified Earnings-Price Ratio method. *See* Exhibit No. ___(SGH-1THC) at page 47, line 21, through page 48, line 5; Exhibit No. ___(SGH-14); Exhibit No. ___(SGH-15). According to this method, the return of earnings to

shareholders is the cost to the company of equity funds, and the same rate of return must be earned on equity-financed assets to equal the cost rate.

Q. Is the Modified Earnings-Price Ratio method an appropriate check of DCF results?

A. No. The corporate finance literature in the 1960s extensively discussed the Earnings-Price Ratio methodology that lies at the root of Public Counsel's Modified Earnings-Price Ratio method. Indeed, the Earnings-Price Ratio method enjoyed some brief notoriety in regulatory hearings during that period.

Today, however, the Earnings-Price Ratio method has vanished from use because it produces unreliable results. In fact, the Earnings-Price Ratio method constitutes an accurate measure of the cost of equity (and collapses into the standard constant-growth DCF model) only under two very limited circumstances:

(1) the firm must pay all earnings out in dividends, and

(2) the firm must be an "ordinary" firm, (*i.e.*, a company without profitable opportunities earning a return on new investments equal to the cost of equity).

Neither of these circumstances is present here, and the Commission should reject Public Counsel's Modified Earnings-Price Ratio. Furthermore, the Modified Earnings-Price Ratio, like the retention growth method discussed above, is logically circular because it requires an assumed return on equity, which is the very quantity the model is trying to estimate.

I am unaware of any financial witness or regulatory body that relies on this antiquated methodology.

Q. Is there a logical contradiction in Public Counsel's use of the Modified Earnings-Price Ratio as a check on its DCF results?

A. Yes. Public Counsel admits that the Modified Earnings-Price Ratio model only works when the Market-to-Book ratio is 1.0. *See* Exhibit No. ___(SGH-6) at page 14. When stocks are trading above book, as they have been and continue to do, the Modified Earnings-Price Ratio model understates investor return. As discussed above, the Modified Earnings-Price Ratio model reduces into the DCF model when the Market-to-Book ratio is 1.0. Therefore, it follows that if the Modified Earnings-Price Ratio model understates investor return, the same must be true for the DCF model. Although Public Counsel has admitted that the market return for a Modified Earnings-Price ratio model must be increased in order to properly estimate investor return when the Market-to-Book ratio exceeds 1.0, Public Counsel does not similarly so state for the DCF model.

Q. Does Public Counsel use a check other than the Modified Earnings-Price Ratio of its DCF results?

A. Yes. Public Counsel also uses the Market-to-Book Ratio to check its DCF results. *See* Exhibit No. ___(SGH-1THC) at page 48, lines 6-11; Exhibit No. ___(SGH-16).

Q. Is the Market-to-Book Ratio an appropriate check of DCF results?

A. No. Public Counsel admits that the Market-to-Book Ratio "is derived algebraically from the DCF model and, therefore, cannot be considered a strictly independent check of that method." Exhibit No. ___(SGH-6) at page 17. Furthermore, the Market-to-Book Ratio, like both the retention growth method and the Modified Earnings-Price Ratio discussed above, is logically circular because it requires an assumed return on equity, which is the very quantity the model is trying to estimate.

D. PUBLIC COUNSEL'S CAPM ANALYSIS UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

1. Public Counsel Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model

Q. Does Public Counsel employ a CAPM estimate to check its DCF results?

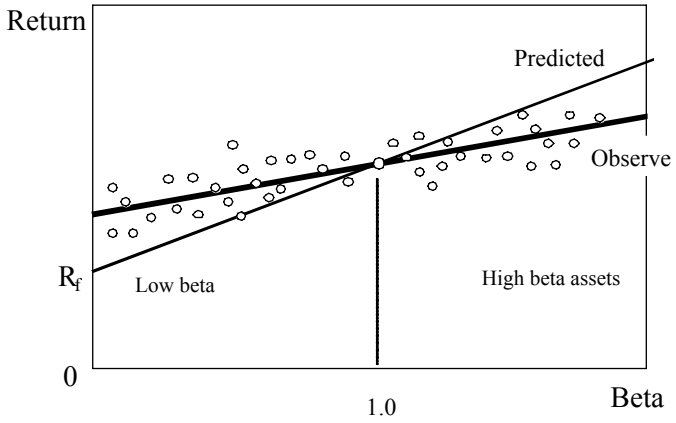
A. Yes. As a check on his DCF estimate, Public Counsel performs a CAPM analysis of return on equity, but such analysis has three major flaws. *See* Exhibit No. ___(SGH-1THC) at page 47, lines 14-20; Exhibit No. ___(SGH-13). First, Public Counsel uses the plain vanilla version of CAPM, which, as discussed below, understates the cost of capital. Second, Public Counsel uses a stale risk-free proxy. Third, Public Counsel erroneously relies upon a geometric average of realized returns for his market risk premium.

Q. Do you agree with the use of the plain vanilla version of the CAPM used by Public Counsel to estimate the cost of capital?

A. No. Public Counsel erroneously uses the plain vanilla CAPM, which understates the cost of capital, as discussed in my pre-filed direct testimony and supporting exhibits. *See* Exhibit No. ___(RAM-1T) at page 34, line 1, through page 36, line 5.

As stated in Exhibit No. ___(RAM-4), a myriad empirical tests of the CAPM have shown that the risk-return tradeoff is not as steeply sloped as that predicted by the CAPM, however. That is, low-beta securities, such as utilities, earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to beta: low-beta stocks tend to have higher returns and high-beta stocks tend to have lower risk returns than predicted by the CAPM. The difference between the CAPM and the type of relationship observed in the empirical studies is depicted in the figure below.

CAPM: vs Observed



This is one of the most widely known empirical findings of the finance literature. *See also* Roger A. Morin, *The New Regulatory Finance*, chapter 6 (1st ed. 2006).

Public Counsel's use of the plain vanilla CAPM understates the return on equity for PSE by approximately 50 basis points.

2. Public Counsel's Criticisms of the CAPM are Overstated

Q. Is Public Counsel correct that the assumptions underlying the CAPM are far more restrictive than those that support the DCF?

A. No. Public Counsel's testimony contains a lengthy discussion of the CAPM paradigm of modern finance and describes the assumptions that enable the existence of the CAPM analysis are far more restrictive than those that support the DCF. *See* Exhibit No. ___(SGH-1THC) at page 91, line 27, through page 96, line 4. Contrary to such assertions, the DCF model is at least as fragile as—if not

more than—the CAPM in view of the clear lack of realism of the assumptions underlying the DCF model relative to those underlying the CAPM.

As discussed above, the crucial assumptions of the general DCF model are:

1. Investors evaluate common stocks in the classical valuation framework and trade securities rationally at prices reflecting their perceptions of value.

2. Investors discount the expected cash flows at the same rate of return ("K") in every future period (assume a flat yield curve).

3. The discount rate, K, obtained from the fundamental DCF equation corresponds to that specific stream of future cash flows alone, and no other.

The crucial assumptions of the standard constant growth variation of the DCF model are:

Assumption #1. The three assumptions discussed in conjunction with the general DCF model still remain in force.

Assumption #2. The discount rate, K, must exceed the growth rate forecast, g.

Assumption #3. The growth rate forecast, g, is constant in every year to infinity and applies to dividend, earnings and book value.

Some, if not all, of these assumptions can be unrealistic in a given capital market environment. For example, the standard constant growth DCF model assumes a constant market valuation multiple (*i.e.*, a constant Price-Earnings ratio). In other words, standard constant growth DCF model assumes that investors expect the ratio of market price to dividends (or earnings) in any given year to be the same as the current Price-Dividend (or earnings) ratio.

The inability of the standard constant growth DCF model to account for changes in relative market valuation and the questionable applicability of the model when Market-to-Book ratios deviate substantially from 1.00 are additional examples of the potential shortcomings of the DCF model. The DCF model is simply not equipped to deal with sudden surges in Market-to-Book and Price-Earnings ratios, as was experienced by several utility stocks in recent years.[10]

Many of the assumptions necessary for the DCF model are simply unrealistic. The constant growth form of the DCF requires future earnings per share, dividends per share, book value per share, and price per share to grow at the same constant rate. There is no evidence that these conditions actually prevail in the equity market. Indeed, page 2 of Exhibit No. ___(SGH-10) demonstrates that these steady-state growth conditions represent unrealistic assumptions. As a matter of fact, the growth rates shown on that exhibit vary from -11.5% to 26.3%, attesting to their lack of reliability.

As Public Counsel itself admits, "the DCF theory does not exactly 'track' reality. . . . payout ratios and expected equity returns do change over time." Exhibit No. ___(SGH-1THC) at page 35, lines 4-7. Despite this admission, Public Counsel relies almost exclusively on the sustainable growth version of the DCF methodology, which is not only circular but also rests on the assumption of constant growth.

[10] *See* Roger A. Morin, *The New Regulatory Finance*, chapter 8 (1st ed. 2006) for a discussion of the realism of the DCF assumptions; *see also* Roger A. Morin, *The New Regulatory Finance*, chapter 5

Q. Are the CAPM assumptions restrictive relative to those that underlie the DCF model?

A. No. The CAPM model assumptions are not nearly as restrictive relative to the DCF model assumptions. The CAPM can be considered a special case of the broader Arbitrage Pricing Model, which has far less restrictive assumptions than the CAPM. The Arbitrage Pricing Model requires only two major assumptions:

(i) that security returns are linear functions of several economic factors and

(ii) that no profitable arbitrage opportunities exist since investors are able to eliminate such opportunities through riskless arbitrage transactions.

The more minor assumptions required by the Arbitrage Pricing Model are (i) that investors are self-interested; (ii) that investors are risk averse; (iii) that investors can diversify company-specific risks by holding large portfolios; and (iv) that enough investors possess similar expectations to trigger the arbitrage process.

The Arbitrage Pricing Model relationship asserts that the return on any risky security is equal to the risk-free rate plus a linear combination of risk premiums. Each risk premium is the expected return in excess of the risk-free rate associated with an asset that has a systematic risk with respect to that factor only. The CAPM is a special case of the Arbitrage Pricing Model in which the market portfolio is the sole factor influencing security prices. Under this circumstance, the Arbitrage Pricing Model collapses into the CAPM, with the beta coefficient

(1st ed. 2006) for a discussion of the assumptions underlying the CAPM.

transformed into the traditional security beta.

In sum, Public Counsel's discussion of the list of assumptions that underlie the CAPM is vastly overstated and should be ignored.

Q. Is Public Counsel's assertion that the CAPM is not a special case of the Arbitrage Pricing Model correct?

A. No. Contrary to the assertion of Public Counsel in Exhibit No. ___(SGH-1THC) at page 92, footnote 67, the CAPM can be considered a special case of the broader Arbitrage Pricing Model, which has far less restrictive assumptions than the CAPM.

The person who developed the Arbitrage Pricing Model, Professor Steve Ross, refers to the one-factor Arbitrage Pricing Model equation as follows: "the equation is identical to that of the CAPM."[11] Another advanced graduate corporate finance textbook states in a chapter on the CAPM and Arbitrage Pricing Model that "the CAPM may be viewed as special case of the APM [Arbitrage Pricing Model] when the market rate of return is assumed to be the single relevant factor."[12] In conclusion, Public Counsel's views with respect to the Arbitrage Pricing Model are incorrect—the CAPM is indeed a sub-species of the Arbitrage Pricing Model.

[11] Stephen Ross, *et al.*, *Corporate Finance* (6th ed. 2003).
[12] Thomas Copeland, *et al.*, *Financial Theory and Corporate Policy*, 219 (3d ed. 1992).

Q. Is the CAPM widely used in practice?

A. Yes. Since its introduction in 1964, the CAPM has gained immense popularity as the practitioner's method of choice when estimating cost of capital under conditions of risk. The intuitive simplicity of its basic concept (that investors must be compensated for the risk they assume) and the relative ease of application of the CAPM are the main reasons behind its popularity.

The CAPM continues to be widely used by analysts, investors, and corporations. A comprehensive survey of current practices for estimating the cost of capital found that 81% of companies used the CAPM to estimate the cost of equity, 4% used a modified CAPM, and 15% were uncertain.[13] In another comprehensive survey conducted by Graham and Harvey, the managers surveyed reported using more than one methodology to estimate the cost of equity, and 73% used the CAPM.[14] It seems from those results that Public Counsel's approach to cost of capital estimation is outside the mainstream of corporate practices.

Q. Is Public Counsel correct that you did not alert the Commission to the dangers of relying on the CAPM?

A. No. Contrary to Public Counsel's assertions (*see* Exhibit No. ___(SGH-1THC) at page 90, line 4, through page 91, line 25), the following question and answer from

[13] Robert F. Bruner, *et al.*, "Best Practices in Estimating the Cost of Capital: Survey and Synthesis," *Financial Practice and Education*, Vol. 8, No. 1 (Spring/Summer 1998).

[14] John R. Graham & Campbell R. Harvey, "The Theory and Practice of Corporate Finance: Evidence from the Field," *Journal of Financial Economics*, Vol. 61, 187-243 (2001).

my direct testimony discusses the dangers of solely relying on the CAPM:

> **Q. Do the assumptions underlying the CAPM require that the model be treated with caution?**
>
> A. Yes, as was the case with the DCF model, the assumptions underlying the CAPM are stringent. Moreover, the empirical validity of the CAPM has been the subject of intense research in recent years. Although the CAPM provides useful evidence, it must be complemented by other methodologies.

Exhibit No. ___(RAM-1T) at page 20, lines 9-15.

3. Public Counsel's Criticisms of the Empirical CAPM are Overstated

Q. Please comment on Public Counsel's assessment of the empirical CAPM used in your testimony.

A. Public Counsel erroneously asserts that use of "adjusted" betas with an Empirical CAPM analysis "double-counts the effect of changing the slope of the capital market line." Exhibit No. ___(SGH-1THC) at page 67, lines 18-19. Contrary to such suggestion, the Empirical CAPM is not an adjustment (increase or decrease) in beta. Instead, the Empirical CAPM is a formal recognition empirical evidence demonstrates that the observed risk-return tradeoff is flatter than predicted by the CAPM.

The Empirical CAPM and the use of adjusted betas comprise two separate features of asset pricing. Assuming *arguendo* a company's beta is estimated accurately, the CAPM will still understate the return for low-beta stocks.

Furthermore, if a company's beta is understated, the Empirical CAPM will also understate the return for low-beta stocks. Both adjustments are necessary.

The graph on page 31 of my pre-filed direct testimony, Exhibit No. ___(RAM-1), demonstrates that the Empirical CAPM is a return (vertical axis) adjustment and not a beta (horizontal axis) adjustment. Moreover, the use of adjusted betas compensates for interest rate sensitivity of utility stocks not captured by unadjusted betas.

With respect to the empirical validity of the plain vanilla CAPM, empirical studies of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM have supported the conclusion that (i) beta is related to security returns, (ii) the risk-return tradeoff is positive, and (iii) the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as predicted by CAPM. In other words, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn returns somewhat less the CAPM would predict.

In sum, a plain vanilla CAPM will understate the return required for low-beta securities and overstate the return required for high-beta securities. The Empirical CAPM refines the plain vanilla CAPM to account for this phenomenon.

4. Public Counsel Ignores Substantial Research Supporting the Importance of Beta in Explaining Observed Returns

Q. Do you agree with Public Counsel's criticism of your CAPM analysis?

A. No. Public Counsel selectively chooses a 1992 study by Fama and French that questions the importance of beta in explaining observed returns. *See* Exhibit No. ___(SGH-1THC) at page 92, line 13, through page 94, line 20; *see also* Exhibit No. ___(SGH-6) at pages 2-3. Generally, financial theory has shown that beta is a sufficient risk measure for diversified investors, and most of the empirical literature has confirmed its importance in determining expected return. There is a notable exception—the one selectively chosen by Public Counsel. In the cited article, the authors found little explanatory power in the relationship between *realized* returns and beta, but the CAPM specifies a relationship between *expected* returns and beta.

Moreover, Public Counsel neglects the fertile academic literature published in journals on this subject since the publication of the Fama and French results in 1992. Since the publication of the Fama and French paper in 1992, the CAPM and its primary risk measure (beta) have received renewed support. In a 1993 paper, Chan and Lakonishok[15] found a strong relationship between beta and return for the years of their study. In a prominent paper in the same journal, Fischer Black[16] also refuted the conclusions of Fama and French and stated that

[15] Louis K.C. Chan & Josef Lakonishok, "Are Reports of Beta's Death Premature?" *Journal of Portfolio Management*, 51-62 (Summer 1993).

[16] Fischer Black, "Beta and Return," *Journal of Portfolio Management*, 8-18 (Summer 1993).

"beta is alive and well." In March 1995, Kothari, Shanken, and Sloan[17] demonstrated that beta receives statistically significant return compensation when betas are estimated from time-series regressions of annual portfolio returns on the annual return on an equally weighted market index. In a December 1995 paper, Kim[18] found that, once corrected for the errors in variables problem, there was more support for the role of beta. In yet another 1996 paper, Jagannathan & Wang[19] showed that when betas are allowed to vary over the business cycle, the empirical support of the CAPM is very strong. Fama and French themselves revisited the issue in 1994 and proposed a three-factor model for security returns that included beta as a factor. In their annual survey of capital market returns, Morningstar (formerly Ibbotson Associates) compare Fama-French results with CAPM results and determines that the results, for large-capitalization companies, are virtually indistinguishable.[20] Finally, Nobel Price winning economist William Sharpe refuted the Fama-French criticism in "Revisiting the CAPM," *Dow Jones Asset Manager* (May-June 1998).

[17] S.P. Kothari, *et al*., "Another Look at the Cross-Section of Expected Stock Returns," *Journal of Finance* Vol. 50, No. 1 (1995).

[18] Dongcheol Kim, "The Errors in the Variables Problem in the Cross-Section of Expected Stock Returns," *Journal of Finance* Vol. 50, No. 5 (1995).

[19] Ravi Jagannathan & Zhenyu Wang, "The Conditional CAPM and the Cross-Section of Expected Returns," *Journal of Finance* Vol. 51, No. 1 (1996).

[20] Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation 2005 Yearbook: Valuation Edition*, 146- 147 (2005).

5. Public Counsel Assumes Lower Interest Rates in its CAPM Analysis Than Current Interest Rates

Q. Why do you refer to the risk-free rate used by Public Counsel in its CAPM analysis as stale?

A. Public Counsel employs 4.48% based on the average 30-year U.S. Treasury bond yield average over the past six weeks as a proxy for the risk-free rate. This estimate is stale. The current yield on these bonds is 4.7%, and the Blue Chip forecast is 4.9%. Use of the correct risk-free rate increases Public Counsel's CAPM estimates by 20 basis points using current yields and 40 basis points using forecast yields.

6. Public Counsel Improperly Uses the Geometric Mean Market Risk Premium Rather Than the Arithmetic Mean Market Risk Premium in its CAPM Analysis

Q. How does Public Counsel estimate the market risk premium component of the CAPM?

A. Public Counsel uses a market risk premium range of 5.0% - 6.5%, with a midpoint of 5.8%, based on the following three estimates of the market risk premium:

Historical Market Risk Premium 1926-2007 Arithmetic Mean: 6.5%

Historical Market Risk Premium 1926-2007 Geometric Mean: 5.0%

Brealey-Myers-Allen text midpoint estimate: 5.3%

The first estimate is the realized market risk premium over the period 1926-2007

based on arithmetic averages as reported by Morningstar (formerly Ibbotson Associates), whereas the second estimate is the realized market risk premium over the same period based on a geometric average. The third estimate is based on the Brealey-Myers-Allen textbook, which advocates a range of 3.8% – 6.8% (midpoint 5.3%).

Q. Did you detect any logical inconsistency in ICNU's CAPM market risk premium?

A. Yes. Public Counsel criticizes the historical market risk premiums published by Morningstar at length in Exhibit No. ___(SGH-6). It is unclear as to why Public Counsel would criticize those market risk premiums as too high in portions of its testimony yet use those very same estimates in other portions of its testimony.

Q. Do you agree with Public Counsel's first estimate of 6.5% for the market risk premium in its CAPM analysis?

A. No. For his first market risk premium proxy, Public Counsel used a historical risk premium of 6.5%. This estimate was estimated by Morningstar in the Stock, Bonds, Bills and Inflation 2008 Yearbook. Over the period 1926 through 2007, Morningstar estimated that the arithmetic average of the achieved total return on the S&P 500 was 12.3%, and the total return on long-term Treasury bonds was 5.8%. The indicated equity risk premium is 6.5% (12.3% - 5.8% = 6.5%).

As discussed in my direct testimony, the more accurate way to estimate the market risk premium from historic data is to use the *income* return, not *total*

returns, on government bonds. The long-term (1926-2007) market risk premium (based on income returns, as required) is 7.1%, rather than 6.5%. *See* Exhibit No. ___(RAM-1T) at page 26, line 17, through page 31, line 19.

Morningstar recommends use of the *income* return on government bonds as a more reliable estimate of the historical market risk premium because the income component of total bond return (*i.e.* the coupon rate) is a better estimate of expected return than the total return (*i.e.* the coupon rate + capital gain).[21] In other words, bond investors focus on income rather than realized capital gains/losses.

This correction alone increases Public Counsel's CAPM estimate by approximately 50 basis points (the product of (i) the difference between 7.1% and 6.5% and (ii) Public Counsel's beta of 0.82).

Q. Do you agree with Public Counsel's second market risk premium estimate based on geometric averages in measuring expected return?

A. No. Arithmetic means are appropriate for forecasting and estimating the cost of capital, and geometric means are not.[22] Indeed, the Morningstar publication from which Public Counsel derives its market risk premium estimate contains a detailed and rigorous discussion of the impropriety of using geometric averages in

[21] *See* Morningstar, *Stocks, Bonds, Bills, and Inflation 2008 Yearbook: Valuation Edition*, at page 66 (2008).

[22] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 11 (1994); Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, chapter 4 (2006); Richard A Brealey, *et al.*, *Principles of Corporate Finance* (8th ed. 2006).

estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of returns when estimating the cost of capital. Please see Exhibit No. ___(RAM-18) for a discussion regarding the theoretical underpinnings, empirical validation, and the consensus of academics on why geometric means are inappropriate for forecasting and estimating the cost of capital.

Q. What is the effect of Public Counsel's use of the geometric mean market risk premium?

A. Public Counsel's use of the geometric mean market risk premium of 5.0% rather than the arithmetic mean of 6.5% significantly understates the market risk premium, which suggests an understatement of the return on equity of PSE by approximately 123 basis points (using Public Counsel's beta of 0.82):

$$\beta_{PSE} \text{ x (Arithmetic Mean – Geometric Mean)}$$
$$0.82 \text{ x } (6.5\% - 5.0\%)$$
$$0.82 \text{ x } (1.5\%)$$
$$1.23\%$$

Using Public Counsel's long-term Treasury yield of 4.48% as a proxy for the risk-free rate, the average beta of 0.82 and the arithmetic mean market risk premium of 6.5%, the CAPM estimate is 9.8% (without flotation costs) and 10.1% (with flotation cost). Using the current yield of 4.7% as the risk-free rate, the CAPM estimate is 10.0% (without flotation costs) and 10.3% (with flotation costs).

7. Public Counsel's Assessment of Research on the Market Risk Premium Is Neither Complete Nor Accurate

Q. Is Public Counsel's assessment of the new research on the market risk premium complete and accurate?

A. No. Public Counsel has selectively chosen published studies that purport to show that the historical market risk premium published by Morningstar is high. This assessment of the state of research regarding market risk premium is inaccurate and misleading.

Q. Are you familiar with the published work by Dimson, Marsh, and Staunton cited by Public Counsel?

A. Yes. Public Counsel cites a published work by Dimson, Marsh, and Staunton,[23] which reports on returns over the period 1900 to 2000 for twelve countries, representing 90% of today's world market capitalization. *See* Exhibit No. ___(SGH-6) at page 7. Dimson, Marsh, and Staunton report an average market risk premium over long bond returns over all countries of 5.0%.

Q. Did Dimson, Marsh, and Staunton find that the international market risk premium of 5.0% is the same market risk premium for U.S. markets?

A. No. Public Counsel omits to mention that Dimson, Marsh, and Staunton report a market risk premium of 7.0% for U.S. markets. Moreover, Dimson, Marsh, and

[23] Elroy Dimson *et al*., "Risk and Return in the 20th and 21st Centuries," *Business Strategy Review* 11(2): 1-18 (2000).

Staunton report that the market risk premium was generally higher for the second half of the 20th century than for the first half of the 20th century. For example, the market risk premium in the U.S. was 5.00% in the first half of the 20th century and 7.50% in the second half of the 20th century.

Additionally, Brealey, Myers, and Allen have updated the Dimson, Marsh, and Staunton results to 2003.[24] According to that research, Treasury bills have provided an average return of 4.1% since 1900, and common stocks have provided an average return of 11.7% over the same period. This data suggest a market risk premium of 7.6% (11.7% – 4.1%).

Q. Are you familiar with the published work of Siegel cited by Public Counsel?

A. Public Counsel quotes Jeremy Siegel,[25] who has examined historical data over an even longer time series, including some data dating back to 1802. *See* Exhibit No. ___(SGH-6) at page 9.

Q. How do you respond to Professor Siegel's work?

A. First, it is unclear whether data on capital market behavior from the 19th century are relevant for estimating cost of capital requirements in the 21st century. Second, the reliability of the Siegel data, the older data in particular, is of some question. The stock market of the early 1800s was very limited, embryonic in

[24] Richard A Brealey, *et al.*, *Principles of Corporate Finance* 155 (8th ed. 2005).

[25] Jeremy Siegel, "The Shrinking Equity Premium," *Journal of Portfolio Management* 26(1): 10-17.

scope, with very few issues trading, and few industries represented. Dividend data were unavailable over most of this early period, and stock prices were based on wide bid-ask spreads rather than on actual transaction prices.[26]

Q. Are you familiar with the surveys of Graham and Harvey cited by Public Counsel?

A. Public Counsel cites Graham and Harvey surveys of corporate finance professionals conducted in early 2007. *See* Exhibit No. ___(SGH-6) at page 10. Although the survey technique is forward-looking, it suffers many shortcomings inherent in survey techniques. First, return definitions and risk premium definitions differ widely. Second, survey responses are subject to bias. Third, subjective assessments about long-term market behavior may well place undue weight on recent events and immediate prospects. It is not clear how respondents to this survey would respond under current conditions of market volatility, such as the sub-prime market debacle and record-high energy and commodity prices.

Q. Are you familiar with the study by Mehra and Prescott cited by Public Counsel?

A. Yes. Public Counsel cites to a 1985 study by Mehra and Prescott that concluded that historical market risk premiums overstate the magnitude of the market risk premium. *See* Exhibit No. ___(SGH-6) at page 6.

[26] *See, e.g.,* G. W. Schwert, "Indexes of U.S. Stock Prices from 1802 to 1987," *Journal of Business* Vol. 63, No. 3 (1990) (addressing the difficulties inherent in stock market data prior to the Great Depression.)

Q. How do you respond to the Mehra and Prescott study?

A. Public Counsel does not reveal the fact that Mehra and Prescott reviewed the market risk premium literature in 2003 and concluded differently. There are two revealing passages from Mehra and Prescott's more recent review:

> Even if the conditional equity premium given current market conditions is small, and there appears to be general consensus that it is, this in itself does not imply that it was obvious either that the historical premium was too high or that the equity premium has diminished.
>
> In the absence of this [knowledge of the future], and based on what we currently know, we can make the following claim: over the long horizon the equity premium is likely to be similar to what it has been in the past and the returns to investment in equity will continue to substantially dominate that in T-bills for investors with a long planning horizon.

In other words, Mehra and Prescott conclude that historical and forward-looking market risk premiums are very similar.

Q. How do you respond to Public Counsel's reference to a PowerPoint slide presented by Professor Marston in buttressing its claim that the prospective market risk premium has declined relative to historical measures?

A. Public Counsel argues that the reference to the Harris-Marston research in my direct testimony on the magnitude of the prospective market risk premium, namely 7.2%, has been superseded by a PowerPoint slide in a presentation made by Professor Marston in 2007. *See* Exhibit No. ___(SGH-1THC) at page 64, line 14, through page 66, line 13. Public Counsel reproduces the slide on page 66

of Exhibit No. ___(SGH-1THC).

Reliance on a PowerPoint slide to support Public Counsel's contention that the market risk premium has shrunk in recent years does not provide the kind of analysis that would allow this Commission to make a reasonable determination of the appropriate market risk premium. A PowerPoint slide is a highly questionable source of information in assessing an appropriate risk premium for a regulated utility and in gauging the academic state of the art in the field of finance. Moreover, I am not aware that the Harris-Marston updated findings have been published in any peer-reviewed academic journal.

Q. Is your market risk premium estimate supported by the finance literature?

A. Yes. The market risk premium estimate provided in my direct testimony is the result of both historical and prospective studies and is consistent with the finance literature on the subject. *See* Exhibit No. ___(RAM-1T) at page 26, line 17, through page 35, line 4.

Q. Are historical returns autocorrelated?

A. No. Public Counsel erroneously argues—and without support—that consideration of the arithmetic mean is improper when there is negative autocorrelation in the historical return data. *See* Exhibit No. ___(SGH-1THC) at page 64, lines 3-7.

An examination of historical market risk premiums reveals that the market risk

premium is random with no observable pattern. 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. Therefore, the best estimate of the future risk premium is the historical mean.

Moreover, Morningstar—a resource on which Public Counsel relies—finds no evidence that the market price of risk or the amount of risk in common stocks has changed over time:

> Our own empirical evidence suggests that the yearly difference between the stock market total return and the U.S. Treasury bond income return in any particular year is random. . . .

Morningstar, *Stocks Bonds Bills and Inflation, Valuation Edition 2008 Yearbook* at page 80. In statistical parlance, there is no significant serial correlation in successive annual market risk premiums, that is, no trend. In short, Public Counsel's claim of negative autocorrelation is unsupported.

E. PUBLIC COUNSEL'S CRITICISM OF MY RISK PREMIUM ANALYSIS IS UNWARRANTED

Q. How do you respond to Public Counsel's criticism of your risk premium method?

A. Public Counsel criticizes my risk premium method by arguing that (i) because risk premium analyses look backward in time, they assume "past is prologue," and (ii) implicit in the use of an average historical return premium of equities over debt is the assumption that the risk premium is constant over time. See Exhibit

No. ___(SGH-1THC) at page 69, line 6, through page 74, line 18.

Public Counsel's first criticism is unwarranted. My direct testimony employs returns realized over long time periods rather than returns realized over more recent time periods, such as those sub-periods selectively chosen by Public Counsel at page 72 of Exhibit No. ___(SGH-1THC). Realized returns can vary substantially from prospective returns anticipated by investors, especially when measured over shorter periods. 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 periods will investor return expectations and realizations converge. 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.

Public Counsel's second concern is also unwarranted. To the extent that historical risk premium estimates follow what is known in statistics as a "random walk," one should expect the equity risk premium to remain at its historical mean. In other words, the best estimate of the future risk premium is the mean historical risk premium. As explained in my direct testimony, I found no evidence that the market price of risk or the amount of risk in common stocks has changed over time. *See* Exhibit No. ___(RAM-1T) at page 26, line 17, through page 29, line 5. Because no significant serial correlation exists in successive market risk

premiums from year to year, it is reasonable to assume that the mean historical risk premium will remain stable in the future.

Q. Is Public Counsel's criticisms of your risk premium method supported by recent financial literature?

A. No. Public Counsel attempts to support its critique by quoting an article published by Eugene Brigham in 1985 and an article published by Charles Phillips in 1993. *See* Exhibit No. ___(SGH-1THC) at pages 71, line 13, through page 72, line 18. Public Counsel, however, neglects to mention more recent publications with respect to risk premium studies. Indeed, the most recent edition of Eugene Brigham's textbook *Financial Management: Theory and Practice*[27] strongly recommends the use of risk premium studies similar to those used in my direct testimony. Furthermore, the most recent edition of Mr. Brigham's textbook describe the risk premium approach in much the same way as that applied in my direct testimony.

Q. Are risk premium methods widely used?

A. Yes. Risk premium analyses are widely used by analysts and investors, as well as cost of capital witnesses in regulatory proceedings. Most college-level corporate finance and/or investment management texts contain detailed conceptual and empirical discussion of the risk premium approach. Indeed, the risk premium method is typically recommended as one of the three leading methods of

[27] *See* Eugene Brigham & Michael Ehrhardt, *Financial Management: Theory and Practice*, (11th

estimating the cost of capital.[28] Risk premium analysis techniques are also widespread in investment community reports. Professional certified financial analysts are well versed in the use of this method, and Public Counsel's criticism is unwarranted.

F. PUBLIC COUNSEL'S RECOMMENDED RETURN ON EQUITY FAILS TO REFLECT PSE'S MORE LEVERAGED CAPITAL STRUCTURE

Q. What capital structure does Public Counsel recommend?

A. Unlike Commission Staff and ICNU, Public Counsel does not accept PSE's actual capital structure, consisting of 45% common equity capital. Instead, Public Counsel recommends a capital structure consisting of 43% common equity capital. *See* Exhibit No. ___(SCH-1THC) at page 32, lines 9-17.

Q. Do you agree with Public Counsel's capital structure recommendation?

A. No. Although Mr. Gaines directly addresses Public Counsel's capital structure recommendation in his rebuttal testimony, Exhibit No. ___(DEG-8T), I find that Public Counsel's capital structure analysis improper for two reasons. First, PSE has a more leveraged capital structure than Public Counsel's sample group of electric utilities. Second, Public Counsel should have adjusted its recommended return on equity upward to recognize PSE's more leveraged capital structure.

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ed. 2005).

[28] *See, e.g.*, Eugene Brigham & Michael Ehrhardt, *Financial Management: Theory and Practice*, (11th ed. 2005).

1. PSE Has a More Leveraged Capital Structure than Public Counsel's Sample Group of Electric Utilities

Q. How does PSE's capital structure compare with the capital structures of Public Counsel's sample group of electric utilities?

A. The following table reports the common equity ratios of the fourteen companies in Public Counsel's sample group of electric utilities. The first column excludes short-term debt, whereas the second column includes short-term debt:

	% Com Equity w/o s/t debt	% Com Equity with s/t debt
Central Vermont P. S.	60.6	60.0
FirstEnergy Corp.	51.4	42.0
Northeast Utilities	48.8	43.0
Ameren	53.4	47.0
American Electric Power	41.4	39.0
Cleco Corporation	56.7	54.0
Empire District Electric	49.9	48.0
Entergy	43.9	41.0
Hawaiian Electric	51.0	27.0
PNM Resources	57.6	47.0
Pinnacle West Capital	53.0	49.0
Puget Energy, Inc.	48.5	47.0
Unisource Energy	31.2	29.0
Xcel Energy, Inc.	49.4	44.0
Average	**49.8**	**44.1**
Average w/o HE and UNS	**51.2**	**46.8**

Sources: AUS Utility Reports June 2008 and
Value Line Investment Analyzer, May 2008.

The average common equity ratio of Public Counsel's sample group of electric utilities is nearly 50% (without short-term debt) and nearly 47% (with short-term debt), assuming the exclusion of the outlying estimates of Hawaiian Electric and Unisource Energy from the latter computation. PSE's requested capital structure (with an equity component of 45%) contains more leverage than the capital

structures of the utilities in Public Counsels' sample group of electric utilities.

Q. How does PSE's capital structure compare with the capital structures authorized by regulators?

A. Public Counsel's recommended capital structure consisting of 43% common equity does not compare favorably with the capital structures used by regulators for ratemaking purposes. According to SNL's (formerly Regulatory Research Associates) latest quarterly review of rate decisions dated January 8, 2008, the average common equity ratio of electric utilities used by regulators in 2006 and 2007 was 49% and 48.0%, respectively. For the first quarter of 2008, the average common equity ratio was 49%, versus Public Counsel's recommended 43%.

2. Public Counsel Fails to Adjust Its Recommended Return on Equity to Account for Recommended Capital Structure

Q. Does Public Counsel adjust its recommended return on equity to account for greater leverage in PSE's capital structure than is present in Public Counsel's sample groups of electric utilities?

A. No. Public Counsel should have increased its recommended return on equity to reflect the higher relative risk associated with PSE's more leveraged capital structure. 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.

Q. What is the magnitude of the required adjustment to account for PSE's more leveraged capital structure?

A. As discussed above, PSE's capital structure consists of 45% common equity, as compared to the industry average of 47% common equity and the authorized industry average of 49%. Therefore, the differential between the common equity component of PSE's capital structure for PSE and the common equity component of the average capital structure for the industry is approximately 2% - 4%.

Several researchers have studied the empirical relationship between the cost of capital, capital-structure changes, and the value of the firm's securities.[29] The results of these studies suggest that when the debt ratio increases from 40% to 50%, required equity returns increase between 34 to 237 basis points. The empirical studies suggest an average increase of 76 basis points, or 7.6 basis points per one percentage point increase in the debt ratio. The theoretical studies suggest an average increase of 138 basis points, or 13.8 basis points per one percentage point increase in the debt ratio. In other words, equity return requirements increase between 7.6 and 13.8 basis points (midpoint 11 basis points) for each increase in the debt ratio by one percentage point, and more recent studies indicate that the upper end of that range is more indicative of the repercussions on required equity returns.

[29] See Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, 409-33 (1st ed.1994) for a

As discussed above, empirical studies suggest an average increase of between 76 basis points (or 7.6 basis points per one percentage point increase in the debt ratio) and 138 basis points (or 13.8 basis points per one percentage point increase in the debt ratio). The average equity ratio for Public Counsel's sample groups of electric utilities is 47% inclusive of short-term debt, versus Public Counsel's recommended equity ratio of 43% for PSE, a difference of 4%. The above-described research suggests that Public Counsel should adjust its recommended return on equity upward by approximately 30 basis points (7.6 x 4) to 60 basis points (13.8 x 4) to reflect PSE's more leveraged capital structure.

G. PUBLIC COUNSEL'S RECOMMENDED RETURN ON EQUITY IMPROPERLY IGNORES FLOTATION COSTS

Q. What allowance for flotation costs does Public Counsel make with respect to its recommended return on equity for PSE?

A. Public Counsel fails to include any allowance whatsoever for flotation costs in its recommended return on equity for PSE. Public Counsel's DCF estimates are therefore downward-biased by approximately 30 basis points as a result of that omission. Moreover, Public Counsel's testimony is inconsistent with regard to flotation costs. In a discussion of sustainable growth in the DCF model, Public Counsel recognizes that "investor expectations regarding growth from external source (sales of stock) must be considered and examined." Exhibit No. ___(SGH-1THC) at page 42, lines 6-8. Indeed, Public Counsel quantifies the

summary of the comprehensive and rigorous empirical studies of the relationship between cost of capital

effect of such issues on company growth in Exhibit No. ___(SGH-9), under the heading "external growth."

Finally, Public Counsel's disregard of flotation costs is inconsistent with (i) Value Line forecasts that show that electric utilities will be issuing new common stock in the future and (ii) Public Counsel's own exhibit, which demonstrates that Public Counsel's "comparable" groups are scheduled to issue considerable amounts of new equity. *See* Exhibit No. ___(SGH-9) at pages 1-9, under the heading "external growth" for 2007 and 2009-2011.

Q. Why should the authorized return on equity be adjusted to include an allowance for flotation costs?

A. Flotation costs represent the discounts that must be provided to place new securities in the issues of new equity. Flotation costs have a direct and an indirect component. The direct component represents monetary compensation to the security underwriter for (i) marketing/consulting services, (ii) the risks involved in distributing the issue, and (iii) any operating expenses associated with the issue (printing, legal, prospectus, etc.). The indirect component represents the downward pressure on the stock price as a result of the increased supply of stock from the new issue (frequently referred to as "market pressure").

Flotation costs for common stock is analogous to the flotation costs associated with past bond issues, which, as a matter of routine regulatory policy, continue to

and leverage for public utilities.

be amortized over the life of the bond, even though no new bond issues are contemplated. Flotation costs for common stock are not amortized because such securities have no finite life. Therefore, the recovery of flotation cost requires an upward adjustment to the authorized return on equity by dividing the expected dividend yield component of the DCF model by (1 - f), where "f" is the flotation cost factor.

Q. Has this Commission recently suggested a policy regarding adjustments for flotation costs?

A. Yes. This Commission has recently suggested that adjustments for flotation costs are appropriate where the utility issued equity in the test year or plans to do so in the future:

> While, in some circumstances, we have permitted adjustments to a Company's cost of equity to reflect issuance expenses or flotation costs, we cannot do so in this case because PacifiCorp did not incur such expenses in the test year, nor does the Company expect to incur such expenses in the future.

WUTC v. PacifiCorp dba Pacific Power & Light Co., Docket Nos. UE-050684 and Docket UE-050412, Order Nos. 03 and 04 at ¶112 (Apr. 17, 2006). Here, Puget Energy issued common stock recently and expects to incur such expenses in the future to finance PSE's considerable construction program. Therefore, an upward adjustment for flotation costs is appropriate.

Q. Does Public Counsel explain why it does not provide an allowance for flotation costs in its recommended return on equity for PSE?

A. Public Counsel offers five spurious reasons as to why it fails to include an allowance for flotation costs.

First, Public Counsel erroneously asserts that flotation costs on common stocks are analogous to bonds sold at a premium to par value (*i.e.*, the company's cost of debt is less than the coupon rate). *See* Exhibit No. ___(SGH-1THC) at page 50, lines 3-20. In practice, the calculation of the embedded cost of debt accounts for issuance costs, premium or discounts at the time of issue, and recognizes sinking fund and call provisions. This is because premiums or discounts and flotation costs influence the effective yield to the investor and cost to the utility and are typically allowed to be recovered by regulators.

Unlike bonds, however, a utility's book equity account is credited by the net proceeds of a common stock issue after issuance costs and not by the gross proceeds. In other words, the common stock investment recorded on the balance sheet, unlike bond issues, is less than the amount of money actually put up by the investor by the amount of issuance costs, regardless of whether the net issue price is less than, equal to or greater than book value. If the investor is to earn the required return on a reduced book equity base, the allowed return needs to exceed the required return by an amount sufficient to cover the discrepancy between gross and net proceeds from a common stock issue. Moreover, unlike bonds, the allowed return on equity is the market, or current, return and not the embedded

cost of debt.

Q. What is the second rationale provided by Public Counsel regarding its omission of flotation costs?

A. Public Counsel argues that "the reduction of the book value of stockholder investment due to issuance expenses can occur only when the utility's stock is selling at a market price at to or below its book value." Exhibit No. ___(SGH-1THC) at page 51, lines 2-4. This argument, however, fails to address the simple fact that, in issuing common stock, a company's common equity account is credited by an amount less than the market value of the issue. Therefore, the company must earn slightly more on its reduced rate base to produce a return equal to that required by shareholders. The stock's Market-to-Book ratio is irrelevant because flotation costs are present, irrespective of whether the stock trades above, below, or at book value.

Q. What is the third rationale provided by Public Counsel regarding its omission of flotation costs?

A. Public Counsel then argues that the majority of the flotation costs are not out-of-pocket expenses incurred by the issuing utility and, as such, should not be recovered. *See* Exhibit No. ___(SGH-1THC) at page 51, lines 16, through page 52, line 2. This argument, if taken to a logical conclusion, would suggest that depreciation expenses associated with the construction of plant should not be recovered because depreciation expenses are not out-of-pocket expenses.

In theory, flotation costs could be expensed and recovered through rates as they are incurred. This procedure is not considered appropriate, however, because the equity capital raised in a given stock issue remains on the utility's common equity account and continues to provide benefits to ratepayers indefinitely. The expense and recovery of flotation costs would burden current ratepayers with the full costs of raising capital when the benefits of that capital extend indefinitely. Moreover, as discussed in my pre-filed direct testimony, common stocks, unlike bonds, have no finite life over which flotation costs could be amortized. *See* Exhibit No. ___(RAM-1T) at page 54, lines 5-15. Therefore, the most appropriate method to recover flotation costs is via an upward adjustment to the authorized return on equity.

Public Counsel then makes the circular argument that the flotation cost allowance is unwarranted because investors factor these costs in the stock price. Such circular reasoning could be used to justify any regulatory policy, regardless of the propriety of the policy. For example, under Public Counsel's reasoning, it would be appropriate to authorize a clearly confiscatory return on equity, such as of 1%, because investors would reflect this fact in the stock price.

Q. What are the fourth and fifth rationales provided by Public Counsel regarding the omission of flotation costs?

A. Public Counsel fourth argument is that its

> DCF growth rate analysis includes an upward adjustment to equity capital costs which accounts for investor expectations regarding stock sales at

> market prices in excess of book value, and any further explicit adjustment for issuance expenses related to increases in stock outstanding is unnecessary.

Exhibit No. ___(SGH-1THC) at page 52, lines 3-6. This argument is simply a variation of Public Counsel's first argument, which I address above.

Public Counsel's fifth argument is that "research has shown that a specific adjustment for issuance expenses is unnecessary." Exhibit No. ___(SGH-1THC) at page 52, lines 7-8. In support of this assertion, Public Counsel cites a sole source—an "unpublished note" in a relatively obscure bulletin. Indeed, Public Counsel's statement stands in sharp contrast to (i) most finance textbooks and (ii) the myriad articles published in academic journals documenting and quantifying the flotation cost allowance. Please see Exhibit No. ___(RAM-16) for a review of such literature.

H. ACTUARIAL DATA UTILIZED FOR PENSION FUND ACCOUNTING ARE IRRELEVANT IN ESTIMATING A UTILITY'S COST OF CAPITAL

Q. Did you detect any logical inconsistency in Public Counsel's recommended return on equity for PSE?

A. Yes, I detected several logical contradictions. Public Counsel tests the reasonableness of its recommended return on equity of 9.25% by comparing it to expected stock market returns of 8.0% - 9.0%. *See* Exhibit No. ___(SGH-1THC) at page 11, line 7, through page 18, line 11. Public Counsel concludes that its recommended return on equity of 9.25% is consistent with such data. This

assertion, however, is incorrect for several reasons.

First, the return figures cited by Public Counsel are for the total equity market. PSE and utilities generally are less risky than the overall market. Public Counsel asserts a beta of 0.82 for PSE (*i.e.*, PSE is 82% as risky as the overall stock market) and, therefore, should have a lower expected return than the overall market. Yet, Public Counsel's recommended return on equity for PSE exceeds the aforementioned range of expected return for the market as a whole. This is patently illogical. To be consistent with its view of stock market returns of 8.0% – 9.0% and PSE's beta of 0.82, Public Counsel should have recommended a return on equity in the range of 6.6% – 7.4% (*i.e.*, the product of 0.82 and the range of 8.0% – 9.0%). Such a recommended return on equity would clearly be confiscatory.

Q. Is actuarial data relevant in estimating the cost of equity capital?

A. No. Public Counsel tests the reasonableness of its recommended return on equity of 9.25% by comparing this recommendation to expected stock market returns of 8.0% - 9.0% that it claims are implied in PSE's pension fund actuarial data. This comparison, in the context of a rate proceeding, is highly unusual. I am unaware of any regulatory commission that has relied on such data. Indeed, the California Public Utilities Commission recently considered similar arguments and concluded as follows:

> The objectives of a pension fund are fundamentally different from that of an equity investor in a single utility and the risk profiles are

> not comparable. The Employee Retirement Income Security Act dictates that pension funds must be diversified whereas a utility's ROE is based on risks specific to that utility's operations.
>
> More importantly, pension fund returns are related to market value of assets held in the pension fund while a utility's ROE is applied to a book value rate base. This difference can best be illustrated by dividing an average pension fund return by PG&E's market-to-book ratio. Based on ATU's 9.62% calculated average pension fund return and DRA's market-to-book ratio of 1.9 for PG&E, PG&E would only need to earn a 5.06% ROE on its rate base to equal the 9.62% average pension fund return. However, a 5.06% ROE is 116 basis points below its long-term debt cost, effectively eliminating PG&E's ability to support its credit and to raise the equity necessary to fulfill its public utility responsibilities as required by *Bluefield* and *Hope*. Pension return assumptions are not comparable to the ROE used in utility ratemaking. Having resolved this issue, PG&E should not be required to continue comparing its pension return assumptions to its ratemaking ROE in future ROE proceedings**.**

In re S. Cal. Edison Co., 262 P.U.R.4th 53, 72 (Ca. Pub. Utils. Comm'n. 2007).

Q. Do you find the reasoning of the California Public Utilities Commission convincing?

A. Yes. Actuarial data utilized for pension fund accounting are by nature very conservative, consistent with Generally Accepted Accounting Principles (GAAP) guidelines, and are not well suited for assessing the cost of equity capital in a rate proceeding. By virtue of the very long-term nature of pension fund assets, projected returns on pension fund assets are not indicative of the cost of equity in the context of a regulatory proceeding. Moreover, the actuarial data on which Public Counsel relies—namely one particular corporate actuary's assumptions—are highly selective.

Q. Are actuarial pension fund projected returns based on arithmetic or geometric averages?

A. The actuarial pension data arbitrarily selected by Public Counsel are based on geometric mean returns rather than on arithmetic mean returns because of the very long-term nature of pension fund assets. As discussed earlier in this rebuttal testimony and in Exhibit No. ___(RAM-18), only arithmetic means are appropriate for forecasting and estimating the cost of capital.

Q. Are there other problems with relying on pension fund actuarial data and financial advisors' estimates in the context of estimating a return on equity in a regulatory proceeding?

A. Yes. The return figures cited by Public Counsel are market returns and not book returns. The manner in which regulatory bodies apply market-based returns to book equity understates the cost of equity under current capital market conditions. As stated above, application of market-based returns produces estimates of common equity costs that are consistent with investors' expected returns only when stock price and book value are reasonably similar (*i.e.*, when the Market-to-Book ratio is close to unity). As demonstrated in Section III.B.1. above, application of market-based returns to equity book values does not account for investors' expected returns when the Market-to-Book ratio of a given stock deviates from unity. The reason for the distortion is that the market-based return is applied to a book value rate base by the regulator body (*i.e.*, a utility's earnings

are limited to earnings on a book value rate base). The return given to equity investors is lower than what they actually require when Market-to-Book ratios exceed unity. This is neither equitable for the existing stockholders nor efficient from the point of view of attracting capital to cover the significant capital expenditures that need to be undertaken.

In short, this Commission, like the California Public Utilities Commission, should dismiss Public Counsel's views on the applicability of actuarial pension returns and individual financial advisory returns to determining a utility's return on equity.

IV. THE RETURN ON EQUITY RECOMMENDED BY ICNU UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

Q. Please summarize the recommended return on equity of ICNU.

A. ICNU recommends a return on equity for PSE of 10.12%, which is the midpoint of ICNU's range of 9.89% – 10.35%. *See* Exhibit No. ___(MPG-1T) at page 26, lines 15-16.

ICNU applies a standard DCF analysis to a group of fifteen investment-grade electric utilities. *See* Exhibit No. ___(MPG-1T) at page 9, line 3, through page 11, line 20; Exhibit No. ___(MPG-5). The standard DCF analysis for the proxy companies produces a return of equity estimate of 11.39%. *See* Exhibit No. ___(MPG-1T) at page 11, lines 18-20; Exhibit No. ___(MPG-7). ICNU then rejects its own standard DCF analysis as "not reasonable and inflated" and

proceeds to implement a two-stage DCF analysis that produces a return on equity estimate of 9.86%. *See* Exhibit No. ___(MPG-1T) at page 17, lines 20, through page 18, line 15; Exhibit No. ___(MPG-12).

ICNU also applies a risk premium analysis based on the difference between the returns on equity authorized for utilities by regulatory bodies and the contemporaneous level of interest rates. *See* Exhibit No. ___(MPG-1T) at page 18, line 16, through page 21, line 11. This analysis produces an authorized risk premium in the range of 4.40% to 5.89% over the yield on long-term Treasury bonds. *See* Exhibit No. ___(MPG-1T) at page 19, line 20, through page 20, line 2; Exhibit No. ___(MPG-14). Adding the forecast long-term bond yield of 4.9% to the risk premium range produces a common equity return in the range of 9.30% – 10.79%, with a midpoint estimate of 10.05%. *See* Exhibit No. ___(MPG-1T) at page 21, lines 1-4. Repeating the same process using the yield on "A" rated utility bonds, ICNU obtains a common equity return in the range of 10.05% to 10.40%, with a midpoint of 10.23%. *See* Exhibit No. ___(MPG-1T) at page 21, lines 10-11.

Finally, ICNU applies a CAPM analysis to the same proxy group of fifteen investment-grade electric utilities and obtains a return on equity in the range of 10.43% to 10.52%, with a midpoint of 10.47%. *See* Exhibit No. ___(MPG-1T) at page 21, line 12, through page 29, line 9; Exhibit No. ___(MPG-11).

Q. Please summarize your specific criticisms of the return on equity recommended by ICNU.

A. Although I agree with several of the procedures and methodologies employed by ICNU witness Mr. Gorman, he has departed significantly from his past testimonies and previous practices in arriving at his recommended ROE. These departures result in a recommended ROE that understates an appropriate ROE for PSE for the following reasons:

(i) ICNU Improperly Ignores Its Standard DCF Analysis In Favor Of Its Two-Stage DCF Analysis. ICNU improperly ignores its standard DCF analysis in favor of its two-stage DCF analysis because ICNU arbitrarily concludes that its own standard DCF analysis as "not reasonable and inflated".

(ii) ICNU Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model. ICNU erroneously relies upon the plain vanilla version of the CAPM—a model known to understate return requirements for low beta firms, such as PSE.

(iii) ICNU Improperly Relies Upon Total Returns on Government Bonds for Its Market Risk Premium. ICNU understates its CAPM analysis by approximately 60 basis points by improperly relying upon *total* returns on government bonds for the market risk premium in its CAPM analysis.

(iv) ICNU's Risk Premium Analysis Fails to Account for the Inverse Behavior Between Authorized Risk Premiums and Interest Rates. ICNU's risk premium analysis fails to account for the inverse behavior between authorized risk premiums and interest rates.

(v) ICNU's Recommended Return on Equity Fails to Reflect PSE's More Leveraged Capital Structure. ICNU understates its recommended return on equity because it fails to reflect the higher relative risk associated with PSE's more leveraged capital structure.

(vi) ICNU's Recommended Return on Equity Improperly Ignores Flotation Costs. ICNU understates its recommended return on equity by approximately 30 basis points because it does not allow

for flotation costs and, as a result, leaves a legitimate expense unrecovered.

Correction of the above-described infirmities would likely increase the return on equity recommended by ICNU by at least 100 basis points, from a range of 9.89% – 10.35% to a range of 10.89% – 11.35%

A. ICNU'S RECOMMENDED RETURN ON EQUITY FOR PSE IS OUTSIDE OF THE MAINSTREAM FOR MAJOR VERTICALLY-INTEGRATED ELECTRIC UTILITIES

Q. Is ICNU's recommended return on equity for PSE consistent with the average authorized return on equity of the electric utilities in ICNU's comparable group?

A. No. As discussed in Section III.A. above, authorized returns on equity, although not a precise indication of a utility's cost of equity capital, are nevertheless important determinants of investor growth perceptions and investor expected returns. They also serve to provide some perspective on the validity and reasonableness of ICNU's recommended return on equity for PSE. ICNU's recommended return on equity for PSE is below the average authorized return on equity of 10.60% for ICNU's comparable group. *See* Exhibit No. ___(RAM-22).

B. ICNU IMPROPERLY IGNORES ITS STANDARD DCF ANALYSIS IN FAVOR OF ITS TWO-STAGE DCF ANALYSIS

Q. Do you agree with ICNU's standard DCF analysis?

A. Broadly speaking, I agree with ICNU's first and traditional DCF analysis. ICNU

applies a *standard* DCF analysis to a group of fifteen electric utilities using a 13-week average stock price, a forward-looking dividend yield, and a growth proxy based on analysts' growth forecasts. As shown on Exhibit No. ___(MPG-7), the traditional DCF analysis for the proxy group produces a DCF return of 11.39%.

Q. Is ICNU's *standard* DCF analysis consistent with its witness's past practices?

A. Yes. ICNU's witness, Mr. Gorman, performed an identical DCF analysis in PSE's last general rate case in 2006 and in most, if not all, his recent testimonies.

Q. What did Mr. Gorman have to say on the reasonableness of his *standard* DCF analysis in PSE's last 2006 rate case?

A. Mr. Gorman had this to say about his *standard* DCF analysis in PSE's last rate case:

> Q. **DO YOU HAVE ANY COMMENTS CONCERNING THE RESULTS OF YOUR DCF ANALYSIS?**
>
> A. Yes. I believe the results of my constant growth DCF analysis, and a DCF analysis in general in today's marketplace, reflect rational investment financial metrics and reflect today's very low cost capital market. Therefore, the DCF results are reasonable.

Q. What does Mr. Gorman have to say about his *standard* DCF analysis in this case?

A. In this case, Mr. Gorman rejects the same DCF analysis he has performed in numerous previous rate cases. *See* Exhibit No. ___(MPG-1T) at page 12, lines 3-4.

Q. Why does Mr. Gorman now reject the results of his *standard* DCF analysis?

A. Mr. Gorman asserts that the results produced by his *standard* DCF analysis are not reasonable and represent an inflated return. *See* Exhibit No. ___(MPG-1T) at page 12, lines 3-4. However, Mr. Gorman's past practices have consistently relied on the *standard* DCF model—and not on the two-stage DCF used in this proceeding.[30]

Mr. Gorman argues that the growth rates relied upon in his standard DCF analysis exceed the growth rate of the overall U.S. economy. *See* Exhibit No. ___(MPG-1T) at page 12, lines 4-9. Mr. Gorman argues that his constant growth DCF analysis result is too high because the growth rate used in this study, 6.66%, is higher than the maximum sustainable growth rate of 4.8% to 5.0% of the U.S. economy. *See* Exhibit No. ___(MPG-1T) at page 12, lines 10-19. Subsequently, Mr. Gorman argues that DCF growth rates should track those of the U.S. economy. *See* Exhibit No. ___(MPG-1T) at page 24, line 18, through page 35, line 2.

Q. In PSE's last general rate case, did Mr. Gorman offer the same argument?

A. No. Mr. Gorman did not argue that the growth rates relied upon in his traditional DCF analysis in PSE's last rate case, namely, 4.77%, were less than the growth

[30] See, for example, Mr. Gorman's testimony in (i) Docket No. UE-050684 regarding PacifiCorp before this Commission; (ii) Docket No. 05-304 regarding Delmarva Power & Light before the Delaware Public Service Commission; and (iii) Docket No. 9036 regarding Baltimore Gas & Electric before the Maryland Public Service Commission.

rate of the overall U.S. economy.

In short, ICNU's DCF analysis results-oriented, self-serving, and inconsistent with Mr. Gorman's prior testimonies.

Q. Do you agree with ICNU's two-stage DCF analysis?

A. Although I certainly agree with the validity of the two-stage DCF methodology and agree with ICNU's input data for the first growth stage, I disagree with the key input data ICNU uses in the second growth stage—the long-term growth estimate. ICNU bases the latter on the Blue Chip Economic Indicators consensus economic projections of the nominal 5-year and 10-year GDP growth rate estimate of 5.0% and 4.8%, respectively.

Q. Do you agree with those estimates?

A. No. ICNU should have compared the utility growth rate forecasts with the historical long-term growth of the economy as a whole and/or the long-range growth forecasts in GDP projected for the very long-term. ICNU's comparison to a short-term growth rate forecast (the next five/ten years) is inappropriate because the growth term of the DCF model is perpetual in nature.

As discussed in Section V.B.4. below, a long-term forecast of nominal growth in GDP can be formulated by combining a long-term inflation estimate with a long-term real growth rate forecast, and the long-term expected GDP nominal growth is approximately 6.0% (3.4% + 2.6% = 6.0%). In other words, ICNU's growth

forecast of 6.7% for its comparable group of electric utilities slightly overstates the long-term expected GDP nominal growth by approximately 70 basis points—not 170-190 basis points as ICNU claims.

It should be noted that Morningstar's *Stocks, Bond, Bills and Inflation 2008 Yearbook Valuation Edition*—the same source used by ICNU to justify its claim that a company's earnings/dividends growth cannot exceed that of the U.S. GDP—uses 6.0% as its estimate of the U.S. economy long-term growth rate and not the 4.8% – 5.0% range used by ICNU.

Q. How would ICNU's DCF results change if the appropriate long-term GDP growth forecast is used in the two-stage DCF analysis?

A. Use of the GDP long-term growth forecast of 6.0% in ICNU's second-stage DCF analysis instead of the medium-term forecast of 4.8% – 5.0% would raise ICNU's DCF estimates by approximately 100-120 basis points, from 9.86% to approximately 10.86% – 11.06%.

Q. Does ICNU use any sustainable growth rate calculations?

A. Yes. ICNU tests the rationality of analysts' growth forecasts by examining the sustainable growth rates of its sample companies. *See* Exhibit No. ___(MPG-1T) at page 16, line 5, through page 17, line 5. As discussed above in Section III.B.2., the sustainable growth technique is fraught with serious conceptual and empirical difficulties, and the Commission should disregard any results from such method.

Q. How do you respond to ICNU's criticisms of your DCF analysis?

A. ICNU expresses three concerns with my DCF analysis. *See* Exhibit No. ___(MPG-1T) at page 40, line 8, through page 42, line 24.

First, ICNU criticizes the fact that I have used Value Line growth projections that are provided by a single analyst. *See* Exhibit No. ___(MPG-1T) at page 40, lines 14-23. Although this is correct, I have also relied on analysts' growth projections. Moreover, Value Line projections are relevant; Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors.

Second, ICNU expresses concern with my DCF analysis on a single company—Puget Energy. *See* Exhibit No. ___(MPG-1T) at page 41, lines 1-12. The reason for performing a DCF analysis on Puget Energy is that it is PSE's parent company and therefore most relevant to this proceeding. In any event, I also performed DCF analyses on two large groups of comparable utilities and did not confine my analyses to Puget Energy data.

Third, ICNU argues that my growth estimates are not sustainable because they exceed GDP growth rates. As discussed above, I disagree with this argument. My growth rates fall in the range of 5.5% to 6.0%, which compare favorably to long-term GDP growth rates of 6.0%, as discussed above.

C. ICNU'S CAPM ANALYSIS UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

1. ICNU Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model

Q. Does ICNU's CAPM analysis a return on equity for PSE?

A. Yes. As discussed in Section III.D.1. above and in my direct testimony and supporting exhibits, empirical evidence demonstrates that the plain vanilla CAPM understates the cost of capital for low-beta securities, such as electric and natural gas utilities, and overstates the return from high-beta securities. *See* Exhibit No. ___(RAM-1T) at page 34, line 1, through page 36, line 5; Exhibit No. ___(RAM-4).

ICNU's use of the plain vanilla CAPM understates the return on equity for PSE by approximately 50 basis points.

2. ICNU's Criticisms of the Empirical CAPM are Overstated

Q. Please comment on ICNU's assessment of the empirical CAPM used in your testimony.

A. ICNU asserts, without support, that the Empirical CAPM "analysis significantly overstates a utility company-specific risk premium for use in a risk premium analysis." Exhibit No. ___(MPG-1T) at page 37, lines 1-2. ICNU offers no argument, foundation, or literature references to buttress this claim. As discussed above in Section III.D.3., the Empirical CAPM is not an adjustment (increase or

decrease) in beta. Instead, the Empirical CAPM is a formal recognition empirical evidence demonstrates that the observed risk-return tradeoff is flatter than predicted by the CAPM.

Empirical studies of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM have supported the conclusion that (i) beta is related to security returns, (ii) the risk-return tradeoff is positive, and (iii) the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as predicted by CAPM. In other words, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn returns somewhat less the CAPM would predict.

In sum, a plain vanilla CAPM will understate the return required for low-beta securities and overstate the return required for high-beta securities. The Empirical CAPM refines the plain vanilla CAPM to account for this phenomenon.

3. ICNU Improperly Relies Upon Total Returns on Government Bonds for Its Market Risk Premium

Q. Do you agree with ICNU's historical market risk premium of 6.5% for the CAPM?

A. No, not quite. ICNU uses a historical market risk premium of 6.5% for the CAPM:

> The historical estimate of the market risk premium was also

> estimated by Morningstar in Stock, Bonds, Bills and Inflation 2008 Year Book. Over the period 1926 through 2007, Morningstar's study estimated that the arithmetic average of the achieved total return on the S&P 500 was 12.3%, and the total return on long-term Treasury bonds was 5.8%. The indicated equity risk premium is 6.5% (12.3% - 5.8% = 6.5%).

Exhibit No. ___(MPG-1T) at page 22, lines 3-8.

As discussed above in Section III.D.6., the more accurate way to estimate market risk premium from historic data is to use the *income* return, not *total* returns, on government bonds. The long-term (1926-2007) market risk premium (based on *income* returns) is 7.1%, rather than 6.5%. Correction of this error alone increases ICNU's CAPM estimate by approximately 50 basis points (the product of (i) the difference between 7.1% and 6.5% and (ii) ICNU's beta of 0.85).

Q. Do you agree with ICNU's projected market risk premium of 6.61% for the CAPM?

A. No. ICNU calculates a prospective risk market risk premium of 6.61%, which combines the historical real return on stocks (9.0%) with the medium-term consumer price index forecast (2.3%) to project market returns of 11.51%. Exhibit No. ___(MPG-1T) at page 21, line 17, through page 22, line 2. The market risk premium then is the difference between 11.51% market return and the 4.9% risk-free estimate, or 6.61%.

ICNU's use of a medium-term inflation rate forecast fails to recognize that equity has an infinite life. ICNU should have used the long-term inflation forecast of

2.6% discussed earlier rather than 2.3%. This 30 basis point differential (2.6% – 2.3%) raises ICNU's prospective market risk premium from 6.61% to about 6.9%. The impact on ICNU's CAPM estimate is approximately 25 basis points (the product of (i) the difference between 6.90% and 6.61% and (ii) ICNU's beta of 0.85).

4. ICNU is Correct that Risk-Free Rates and Utility Betas Have Decreased, But ICNU's Criticisms of the Market Risk Premium Use in My CAPM Analysis Are Unfounded

Q. Does ICNU object to your CAPM analysis?

A. Yes. ICNU argues that an updated risk-free rate and utility beta would reduce my CAPM return estimates. *See* Exhibit No. ___(MPG-1T) at page 32, lines 8-12.

Q. How does ICNU criticize your CAPM analysis?

A. Yes. I agree that (i) the current risk-free rate is 4.8%, rather than the 5.0% used in my direct testimony, and (ii) utility betas have declined from 0.92 to about 0.85 since the filing of my direct testimony.

Q. Does ICNU have any other objections to your CAPM analysis?

A. Yes. ICNU further argues that my market risk premium estimate lies at the high end of a 6.2% – 7.1% range that it deems adequate. ICNU bases this argument on its use of the New York Stock Exchange ("NYSE") index as the market index rather than the S&P 500 Index. According to ICNU, the market risk premium would be 6.8% and not 7.1% if one were to use the NYSE index as the market

index and 6.35% if one were to use only the largest companies included in the NYSE. *See* Exhibit No. ___(MPG-1T) at page 32, line 17, through page 33, line 21.

There are two problems with ICNU's argument. First, the argument of using more restrictive market indices defeats the purpose of defining an index that is broadly representative of the equity market. An appropriate market index should capture as broad a cross-section of the equity market as possible. which the S&P 500 Index does.

Second, the more weight you give to large capitalization companies, the smaller the risk premium. Investment risk increases as company size diminishes, all else remaining constant. The size phenomenon is well documented in the finance literature. Small-cap and medium-cap companies, such as PSE, have very different returns than large ones and, on average, those returns have been higher.

D. ICNU'S RISK PREMIUM ANALYSIS FAILS TO ACCOUNT FOR THE INVERSE BEHAVIOR BETWEEN AUTHORIZED RISK PREMIUMS AND INTEREST RATES

Q. Please describe ICNU's authorized risk premium analysis.

A. ICNU examines the historical risk premiums implied in the returns on equity authorized by regulatory commissions over the period 1986-2007, relative to the contemporaneous level of long-term Treasury and "A" rated utility bond yields. ICNU then derives an authorized risk premium in the range of 4.4% – 5.89% over long-term Treasury yields and 3.03% – 4.39% over Moody's utility bond yield.

Exhibit No. ___(MPG-1T) at page 15, line 20, through page 16, line 19.

Use of the projected bond yield of 4.9% and a Treasury bond risk premium of 4.40% to 5.89% produces an estimated common equity return in the range of 9.30% to 10.79%, with a midpoint estimate of 10.05%. The addition of the Baa rated bond yield of 6.69% to the utility equity risk premium of 3.03% – 4.39% produces an estimated range of return on equity of 9.72% – 11.08%, with a midpoint estimate of 10.40%. *See* Exhibit No. ___(MPG-1T) at page 21, lines 5-9.

In summary, ICNU's risk premium analysis produce a return estimate in the range of 10.05% – 10.40%, with a midpoint estimate of 10.23%. *See* Exhibit No. ___(MPG-1T) at page 21, lines 10-11.

Q. Do you agree with ICNU's authorized risk premium analysis.

A. No. A careful review of return on equity decisions relative to interest rates reported in Exhibit No. ___(MPG-10) reveals an inverse relationship between authorized risk premiums and interest rates for which ICNU fails to account. In other words, the authorized risk premium decreases when interest rates are high and increases when interest rates are low:

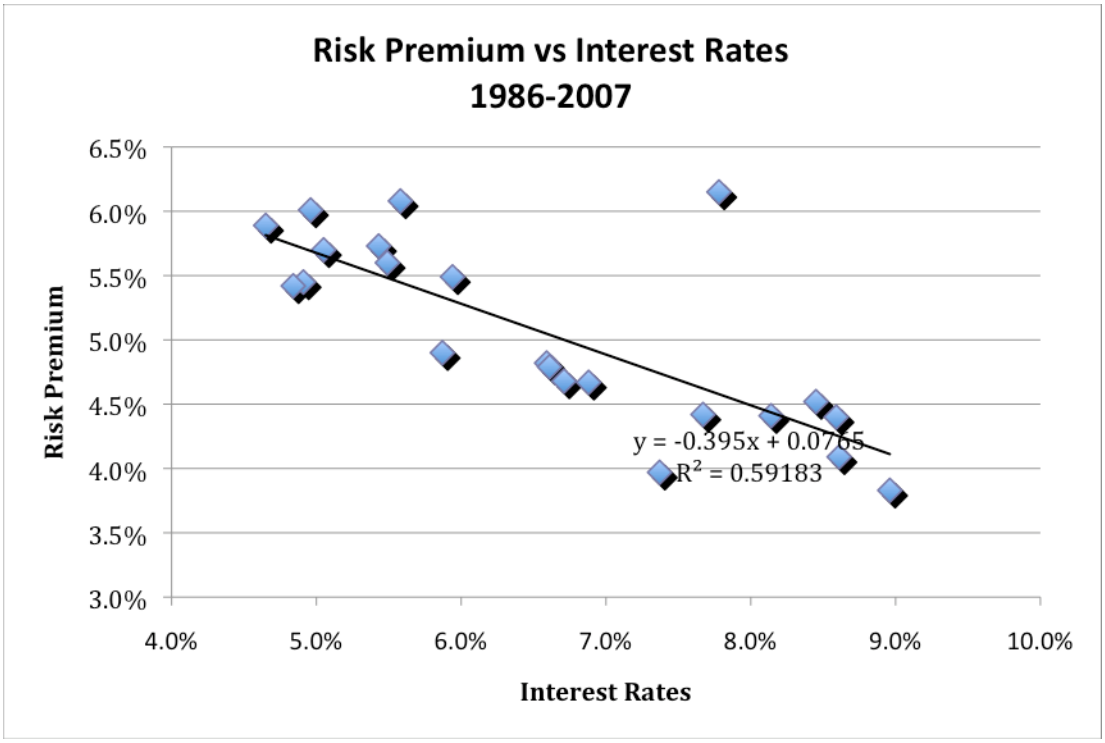

Exhibit No. ___(MPG-10). The following statistical relationship between the risk premium and Treasury bond yields emerges over the 1986-2007 period:

$$RP = 7.85 - 0.3950\ YIELD \qquad R^2 = 0.59$$

The relationship is statistically significant as indicated by the high R^2.

Inserting ICNU's long-term Treasury bond yield of 4.9% in the above equation suggests an authorized risk premium estimate of 5.9%, which would result in an authorized return on equity of 10.80% (4.9% + 5.9%) for PSE. In other words, ICNU's risk premium estimate of 10.23% is understated by approximately 60 basis points.

Q. Why does your historical risk premium analysis exclude data from 2006 and 2007?

A. ICNU is correct that my historical risk premium analysis of the electric utility industry excludes 2006-2007 data. *See* Exhibit No. ___(MPG-1T) at page 37, line 16, though page 38, line 2. My historical risk premium analysis for the electric utility industry stops in 2005 because the annual Moody's Public Utility Manual from which the data were drawn was discontinued following the acquisition of Moody's by Mergent. In any event, adding two years of data to a 75-year study is unlikely to have a significant impact, if any, on the average result for the overall period. As a matter of fact, given the rising authorized risk premium shown in Exhibit No. ___(MPG-14) and Exhibit No. ___(MPG-15), and given the fact that the current utility risk premium exceeds the historical average, the addition of data for 2007 would raise the historical risk premium. Thus, ICNU's argument regarding the exclusion of 2006-2007 data is without merit.

Q. Do you agree with ICNU's criticism that the historical achieved risk premium is the result of declining interest rates over the last 20 years?

A. No. ICNU's assertion that the risk premium is overstated because it is the result of declining interest rates is erroneous. *See* Exhibit No. ___(MPG-1T) at page 38, lines 3-8. Declining interest rates are associated with rising bond prices and high achieved bond returns, which, in turn, reduce the risk premium between utility stocks and bonds. Moreover, the lengthy historical period used in my risk

premium study, 1931-2005, is long enough to smooth out short-term aberrations and encompass several business and interest rate cycles. In short, the facts deflate ICNU's criticism.

Q. Did ICNU substantiate its claim that the use of average annual return data instead of year-end data would produce different results in your historical risk premium analysis?

A. No. ICNU criticizes my historical risk premium analysis because I have used December to December as an annual time period and asserts that I should have used different months, say March to March or August to August. *See* Exhibit No. ___(MPG-1T) at page 38, lines 9-18. ICNU, however, provides no empirical evidence to substantiate this assertion. Indeed, it is standard practice when performing historical risk premium studies to employ consistent calendar year stock price data because the investor is assumed to purchase the stock at the same time every calendar year, usually year-end. This procedure maintains consistency with the bond return calculation and maintains the investor-holding period at a consistent one-year interval.

E. ICNU'S RECOMMENDED RETURN ON EQUITY FAILS TO REFLECT PSE'S MORE LEVERAGED CAPITAL STRUCTURE

Q. Does ICNU adjust its recommended return on equity to account for greater leverage in PSE's capital structure?

A. No. ICNU should have increased its recommended return on equity to reflect the

higher relative risk associated with PSE's more leveraged capital structure. As discussed above in Section III.F., 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. The above-described research suggests that ICNU should adjust its recommended return on equity upward by approximately 30 basis points (7.6 x 4) to 60 basis points (13.8 x 4) to reflect PSE's more leveraged capital structure.

F. ICNU's RECOMMENDED RETURN ON EQUITY IMPROPERLY IGNORES FLOTATION COSTS

Q. What allowance for flotation costs does ICNU make with respect to its recommended return on equity for PSE?

A. ICNU Counsel fails to include any allowance whatsoever for flotation costs in its recommended return on equity for PSE. As discussed above in Section III.G., ICNU's DCF estimates are therefore downward-biased by approximately 30 basis points.

Q. Why does ICNU fail to include any allowance for flotation costs in its recommended return on equity for PSE?

A. ICNU recognizes the legitimacy of common stock issuance costs but objects to a flotation cost adjustment on the grounds that that it should be based only on

known and measurable common stock expenses. *See* Exhibit No. ___(MPG-1T) at page 42, lines 1-22.

To base a flotation cost allowance on a one-company sample, although company-specific, would not provide a sufficiently reliable statistical and economic basis to infer a utility's appropriate flotation cost allowance. Although it may be conceptually correct to rely on the particular company circumstances in quantifying the flotation cost allowance, it is not a practical alternative. The flotation cost allowance is a weighted average cost factor designed to capture the average cost of various equity vintages and types of equity capital raised by the company.

As an additional practical matter, the market pressure effect is difficult to measure accurately for a specific issue. This is because one must disentangle the downward effect on stock price resulting from the increased supply of stock from the effect of general movement in the stock market. One must also measure the actual stock price following a common stock issue in relation to a hypothetical benchmark price without the issue over some arbitrary period. This can be performed more reliably and more rigorously using a sample of utility stock offerings.

ICNU also argues that PSE is not a publicly-traded company and infers that PSE's flotation costs are born by the parent, Puget Energy, and not PSE itself. As discussed above in Section III.G., 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. Fair treatment must consider that if the utility subsidiary had gone to the capital marketplace directly, flotation costs would have been incurred.

V. THE RETURN ON EQUITY RECOMMENDED BY COMMISSION STAFF UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

Q. Please summarize the recommended return on equity of Commission Staff.

A. Commission Staff recommends a return on equity for PSE of 10.00%, which is the midpoint of Commission Staff's range of 9.50% – 10.50%. *See* Exhibit No. ___T(DCP-1T) at page 3, line 9, through page 4, line 10.

In determining a recommended return on equity for PSE, Commission Staff applies a discounted cash flow ("DCF") analysis to three groups of electric utilities. For the growth component of its DCF analysis, Commission Staff uses a blend of analysts' growth forecasts, historical growth rates, and the earnings retention method. From these DCF estimates, Commission Staff concludes that the DCF estimate of a return on equity for PSE lies in a range of 9.5% - 10.5%. *See* Exhibit No. ___T(DCP-1T) at page 33, lines 1-8.

Commission Staff also applies a capital asset pricing model ("CAPM") analysis to the same three groups of companies, using long-term Treasury bond yields as proxies for the risk-free rate and Value Line beta estimates. Finally, Commission Staff performs a comparable earnings analysis on a sample of utilities and a sample of unregulated industrial companies. From these various analyses, Commission Staff also concludes that the return on equity for PSE lies in the range of 9.5% - 10.5%. *See* Exhibit No. ___T(DCP-1T) at page 43, lines 3-16.

Q. Please summarize your specific criticisms of the return on equity recommended by Commission Staff.

A. The return on equity recommended by Commission Staff understates an appropriate return on equity for PSE for the following reasons:

(i) Commission Staff's Recommended Return on Equity for PSE is Outside of the Mainstream for Major Vertically-Integrated Electric Utilities. The return on equity recommended by Commission Staff for PSE is outside the range of currently authorized returns on equity for major vertically-integrated electric utilities in the United States and the zone of currently authorized returns on equity for Commission Staff's three samples of comparable companies.

(ii) The Standard DCF Model Understates an Appropriate Return on Equity for PSE. Application of the standard DCF model to utility stocks understates the investor's expected return when the Market-to-Book ratio exceeds unity.

(iii) Commission Staff Improperly Uses a Spot Dividend Yield Inflated by One-Half of the Expected Dividend Growth in Its DCF Analysis. Commission Staff understates its DCF analysis by approximately 20 basis points because it improperly uses a spot dividend yield inflated by one-half of the expected dividend growth rather than the correct expected dividend yield inflated by one full year of growth in its annual DCF model.

(iv) Commission Staff's DCF Analysis Relies Too Heavily on the Retention Growth Estimate and Historical Growth Rates. Commission Staff understates its DCF analysis by approximately 120 basis points because it relies too heavily on the retention growth estimate and historical growth rates and insufficiently on consensus analyst forecast growth rates.

(v) Commission Staff Inappropriately Uses Short-Term Growth Rate Forecasts Instead of the Long-Term Gross Domestic Product Growth Rate in the DCF Model. Commission Staff understates its DCF analysis by approximately 70-210 basis points because it inappropriately uses short-term growth rate forecasts (the next five/ten years) instead of the long-term Gross Domestic Product ("GDP") growth rate in the DCF model, which is perpetual in nature.

(vi) The High Variability in the Results of Commission Staff's DCF Analysis Reflects the Small Sample of Comparable Companies Used. The huge variability in Commission Staff's DCF results demonstrates the lack of reliability of the DCF approach and the importance of selecting relatively large sample sizes as opposed to small sample sizes consisting of a handful of companies when using the DCF model.

(vii) Commission Staff Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model. Commission Staff erroneously relies upon the plain vanilla version of the CAPM—a model known to understate return requirements for low beta firms, such as PSE.

(viii) Commission Staff Assumes Lower Interest Rates in its CAPM Analysis Than Current Interest Rates. Commission Staff understates its CAPM results by approximately 30 basis points because interest rates are currently higher than what Commission Staff assumes for its CAPM analysis.

(ix) Commission Staff Improperly Uses the Geometric Mean Market Risk Premium Rather Than the Arithmetic Mean Market Risk Premium in its CAPM Analysis. Commission Staff understates its CAPM analysis by approximately 50-140 basis points because it improperly uses the geometric mean market risk premium of 4.9% rather than the arithmetic mean market risk premium of 6.5%.

(x) Commission Staff's Recommended Return on Equity Fails to Reflect PSE's More Leveraged Capital Structure. Commission Staff understates its recommended return on equity by approximately 30 basis points because it fails to reflect the higher relative risk associated with PSE's more leveraged capital structure.

(xi) Commission Staff's Recommended Return on Equity Improperly Ignores Flotation Costs. Commission Staff understates its recommended return on equity by approximately 30 basis points because it does not allow for flotation costs and, as a result, leaves a legitimate expense unrecovered.

(xii) Commission Staff's Reference to Recently Authorized Returns on Equity is Misleading. Commission Staff misleadingly argues that a range of returns on equity of 10.3% –10.4% recently authorized by state regulatory agencies supports its comparable earnings analysis, but the average authorized return on equity for vertically-integrated electric utilities was 10.6%, not 10.3%.

Correction of the above-described infirmities would likely increase the return on equity recommended by Commission Staff by at least 100 basis points, from a range of 9.5% – 10.5% to a range of 10.5% – 11.5%.

A. COMMISSION STAFF'S RECOMMENDED RETURN ON EQUITY FOR PSE IS OUTSIDE OF THE MAINSTREAM FOR MAJOR VERTICALLY-INTEGRATED ELECTRIC UTILITIES

Q. Is the return on equity recommended by Commission Staff for PSE consistent with the average authorized returns on equity of major vertically-integrated electric utilities?

A. No. As discussed in Section III.A. above, authorized returns on equity, although not a precise indication of a utility's cost of equity capital, are nevertheless important determinants of investor growth perceptions and investor expected returns. They also serve to provide some perspective on the validity and reasonableness of Commission Staff's recommended return on equity for PSE.

Commission Staff's recommended return on equity of 10.0% for PSE is far below the average authorized return on equity of 10.46% for the Commission Staff's first proxy group. *See* Exhibit No. ___(RAM-23) at page 1. Similarly, Commission Staff's recommended return on equity of 10.0% for PSE is far below the average authorized return on equity of 10.89% for the proxy group of investment-grade dividend-paying integrated electric utilities presented in my direct testimony and adopted by Commission Staff as a proxy group. *See* Exhibit No. ___(RAM-23) at page 2. Finally, Commission Staff's recommended return

on equity of 10.0% for PSE is far below the average authorized return on equity of 10.65% for the proxy group of companies that make up Moody's Electric Utility Index presented in my direct testimony and adopted by Commission Staff as a proxy group. *See* Exhibit No. ___(RAM-23) at page 3.

In short, Commission Staff's recommended return on equity in this proceeding is outside the mainstream of authorized returns in the industry and well below the average authorized return on equity of the major vertically-integrated electric utilities used by Commission Staff in each of its three proxy groups.

B. COMMISSION STAFF'S DCF ANALYSIS UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

1. The Standard DCF Model Understates an Appropriate Return on Equity for PSE

Q. Do Commission Staff's DCF results understate the appropriate return on equity for PSE?

A. Yes. As discussed in Section III.B.1. above, the standard DCF model understates investors' expected returns when the Market-to-Book ratio of a given stock exceeds unity and overstates investors' expected returns when the Market-to-Book ratio of a given stock is less than unity. Commission Staff's standard DCF analysis—much like my standard DCF analysis and Public Counsel's standard DCF analysis—understates investors' required return for PSE because the Market-to-Book ratio exceeds unity. Therefore, Commission Staff's results understate an appropriate return on equity for PSE.

2. Commission Staff Improperly Uses a Spot Dividend Yield Inflated by One-Half of the Expected Dividend Growth in Its DCF Analysis

Q. Please discuss Commission Staff's dividend yield component in the DCF model.

A. The annual DCF model states very clearly that the expected rate of return on a stock is equal to the expected dividend at the end of the year divided by the current price of the stock, plus the expected growth rate. Thus, the appropriate dividend to use in a DCF model is the full prospective dividend to be received at the end of the year.

Commission Staff, however, understates the dividend yield by halving it. Commission Staff uses a spot dividend yield inflated by one-half of the expected dividend growth $D_o(1 + ½g)$ rather than the correct expected dividend yield which is inflated by one full year of growth, $D_o(1 + g)$. *See* Exhibit No. ___T(DCP-1T) at page 30, lines 2-9.

This mathematical adjustment fails to measure the full dividend flow expected by the investor and underestimates the cost of equity by approximately 20 basis points. For example, for a spot dividend yield of 5% and a growth rate of 5%, Commission Staff's estimated dividend yield is 5%(1 + .05/2) = 5.1%. The correct dividend yield to employ, however, is 5%(1 + .05) = 5.3%, which is about 20 basis points higher.

3. Commission Staff's DCF Analysis Relies Too Heavily on the Retention Growth Estimate and Historical Growth Rates

Q. Please describe Commission Staff's methodology for specifying the growth component of the DCF model.

A. Commission Staff employs five proxies as a proxy for the expected growth component of the DCF model: (i) historical earnings retention ratio, (ii) projected earnings retention ratio, (iii) five-year historical growth rates in dividends, earnings, and book value, (iv) projected growth rates in dividends, earnings, and book value, and (v) analysts' forecasts of earnings per share growth. *See* Exhibit No. ___T(DCP-1T) at page 31, lines 1-21.

Q. How do the historical earnings retention ratio and the projected earnings retention ratio serve as a proxy for the expected growth component of the DCF model?

A. The historical earnings retention ratio and the projected earnings retention ratio, similar to the sustainable growth methodology used by Public Counsel, contain a logical contradiction because the method requires an explicit assumption on the return on equity expected from the retained earnings that drive future growth. In short, the retention growth method is logically circular because it requires an assumed return on equity, which is the very quantity the model is trying to estimate. Moreover, the empirical finance literature demonstrates that the sustainable growth rate technique is a very poor explanatory variable of market value and is not as significantly correlated to measures of value, such as stock

price and price/earnings ratios. Given the conceptual and empirical difficulties associated with these methodologies, the Commission should discard their results.

Q. Are the historical growth rates of electric utilities reliable proxies for expected future growth?

A. No. Commission Staff uses historical growth rates in dividends, earnings, and book value as proxies for expected growth, as shown in the first three columns of Exhibit No. ___(DCP-2) at Schedule 8, page 3. Although it may be reasonable to assume that historical growth rates in dividends/earnings influence investors' assessment of the long-run growth rate forecast of future dividends/earnings if the company and industry is stable, such growth rates are circumspect given the recent fundamental changes in the energy industry and have little relevance as proxies for long-term growth forecasts. Historical growth rates are currently 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. For example, approximately one-third of all of the historical growth rates shown in the first three columns of Exhibit No. ___(DCP-2), at Schedule 8, page 3, are negative. Such negative growth rates are quite contrary to the constant perpetual positive growth assumption that underlies the DCF model. 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. Moreover, historical growth

rates are largely redundant because such historical growth patterns are already incorporated in analysts' growth forecasts that should be used in the DCF model.

Q. What does the published academic literature say on the subject of growth rates in the DCF model?

A. As discussed in my pre-filed direct testimony, the empirical finance literature has demonstrated that consensus analysts' growth forecasts, such as those contained in First Call, Reuters, or Zacks, (i) are reflected in stock prices, (ii) possess a high explanatory power of equity values, and (iii) are used by investors. *See* Exhibit No. ___(RAM-1T) at pages 42, line 12, through page 47, line 13.

Q. Are investors expecting growth rates equal to Commission Staff's range?

A. No. The best evidence shows that investors are expecting growth rates higher than those advocated by Commission Staff. For the first proxy group of electric utilities, Commission Staff projects growth rates ranging from 1.4% to 7.0%, with a mean of 3.9%. *See* Exhibit No. ___(DCP-2), at Schedule 8, page 4. The consensus analyst forecast mean growth rate is 6.6%, which is 270 basis points (2.7%) above Commission Staff's mean growth rate of 3.9%. Similarly, the consensus analyst forecast median growth rate is 5.5%, which is 120 basis points (1.2%) above Commission Staff's average growth rate of 4.3%. This understatement alone causes Commission Staff's DCF return on equity estimates for this first group of companies to be downward-biased by 270 basis points using mean growth rates and 120 basis points using median growth rates.

To different degrees, the same is true for Commission Staff's DCF estimates for the second and third group of companies, which are downward-biased by 200 and 170 basis points, respectively, using median growth rates.

Q. Please comment on Commission Staff's criticism of your DCF analysis.

A. Commission Staff takes issue with the fact that I used only one indicator of growth in the DCF analysis, namely, analyst growth projections and that I have ignored historical and projected growth rates in dividends and book value. *See* Exhibit No. ___T(DCP-1T) at page 52, lines 1-14.

My direct testimony discusses the impropriety of relying on "near-term" dividend growth because: (i) earnings growth drives dividend growth, (ii) the scarcity of dividend forecasts, and (iii) it is widely expected that energy utilities will continue to lower their dividend payout ratio over the next several years in response to increased business risk, and that earnings and dividends are not expected to grow at the same rate in the future. My direct testimony (and elsewhere in this rebuttal testimony) also discusses the merits of using consensus analysts' earnings growth forecasts in the DCF model and the supportive empirical literature. *See, e.g.,* Exhibit No. ___(RAM-1T) at page 45, line 22, through page 47, line 13.

4. Commission Staff Inappropriately Uses Short-Term Growth Rate Forecasts Instead of the Long-Term Gross Domestic Product Growth Rate in the DCF Model

Q. Is Commission Staff's choice of DCF growth rates consistent with the long-term growth of the U.S. economy?

A. No. Commission Staff's mean growth rates of 3.9%, 4.7%, and 5.3% for each of its three proxy groups of companies are inconsistent with the very long-term growth of the economy. Because the growth term of the DCF model is perpetual in nature, it is quite reasonable to assume that a utility's long-term growth profile will match the overall growth of the economy. A long-term forecast of nominal growth in GDP can be formulated by combining a long-term inflation estimate with a long-term real growth rate forecast as follows:

GDP Nominal growth = GDP Real Growth + Expected Inflation

The growth rate in U.S. real GDP has been reasonably stable over time. Therefore, its historical performance is a reasonable estimate of expected long-term future performance. The growth in real GDP for the 1929-2007 period was approximately 3.4%.

The long-term expected inflation rate can be obtained by comparing the yield on long-term U.S. Treasury bonds with the yield on inflation-adjusted bonds of the same maturity. The current yield on 20-year Treasury bonds as of June 2008 is 4.7%, and the yield on inflation-adjusted bonds ("Treasury Inflation Protected Securities," or "TIPS") for the same maturity is 2.1%. The difference between

the two securities yields an approximate inflation rate of 2.6% (4.7% – 2.1% = 2.6%).

Using the above formula, the long-term expected GDP nominal growth is approximately 6.0% (3.4% + 2.6% = 6.0%). Commission Staff's growth rates of 3.9%, 4.7%, and 5.3% for the three comparable groups of electric utilities understates the long-term expected GDP nominal growth by approximately 210, 130, and 70 basis points, respectively.

Q. How would Commission Staff's DCF results change if a more reasonable GDP growth forecast were used in its DCF analyses?

A. If Commission Staff has used a more reasonable GDP growth forecast in its DCF analyses, the DCF results for each of Commission Staff's three comparable groups would increase by an amount varying from 70-210 basis points:

	Original Results	**Revised Results**
Comparable Group 1	9.1%	11.2%
Comparable Group 2	9.0%	10.3%
Comparable Group 3	9.5%	10.2%

5. **The High Variability in the Results of Commission Staff's DCF Analysis Reflects the Small Sample of Comparable Companies Used**

Q. Is there any evidence that Commission Staff's DCF results are unreliable?

A. Yes. The following table reproduces Commission Staff's DCF growth rates from the various proxies for its first (and I assume preferred) sample of electric utilities:

Commission Staff's First Group of Electric Utilities
DCF Growth Rates

Company	Historic Retention Growth	Projected Retention Growth	Historic Per Share Growth	Projected Per Share Growth	Analysts Forecast Growth
Avista Corp	2.6%	3.5%	2.2%	8.5%	4.5%
Empire District Elec	0.2%	2.0%	1.0%	4.7%	6.0%
Hawaiian Elec Indust	1.4%	0.8%	0.3%	0.3%	4.2%
PEPCO Holdings	2.3%	4.5%		10.3%	11.0%
Pinnacle West	2.4%	1.5%	1.7%	2.2%	3.6%
PNM Resources	3.4%	3.0%	3.2%	4.3%	11.4%
Westar Energy	4.4%	2.5%	7.5%	3.3%	5.5%
Avista Corp	2.6%	3.5%	2.2%	8.5%	4.5%

See Exhibit No. ___(DCP-2) at Schedule 8, page 4. As can be seen in the table above, Commission Staff's DCF growth rates for the first comparable group are widely scattered, ranging from a low of 0.2% to a high of 11.4%. (Commission Staff's DCF growth rates for the second and third comparable groups are similarly scattered.) Several estimates are barely above, and even below, the cost of debt for these companies. The huge variability in the results demonstrates the lack of reliability of the DCF approach, especially when employing very small

groups of comparable companies. Commission Staff's first comparable group, consisting of seven companies, is quite small.

This variability also reflects the fact that the electric utility industry capital market data are highly unstable and fluid at this time. In the current unstable industry environment, the composition of small groups of companies is very fluid, with companies exiting the sample due to dividend suspensions or reductions, insufficient or unrepresentative historical data due to recent mergers, impending merger or acquisition, and changing corporate identities due to restructuring activities.

This variability is precisely why it is important to select relatively large sample sizes as opposed to small sample sizes consisting of a handful of companies when using the DCF model. Confidence in the reliability of the DCF model result is considerably enhanced when applying the DCF model to a large group of companies. Utilizing a large portfolio of companies reduces the chance of either overestimating or underestimating the cost of equity for an individual company.

A superior approach to defining small narrowly-defined company samples is to apply cost of capital estimation techniques to a large group of electric utilities representative of the electric utility industry average and then make adjustments to account for any difference in investment risk between the utility in question and the industry average.

C. COMMISSION STAFF'S CAPM ANALYSIS UNDERSTATES AN APPROPRIATE RETURN ON EQUITY FOR PSE

1. Commission Staff Erroneously Relies Upon the Plain Vanilla Version of the Capital Asset Pricing Model

Q. Does Commission Staff employ a CAPM estimate?

A. Yes. Commission Staff uses the plain vanilla CAPM, which understates the cost of capital, as discussed in my pre-filed direct testimony and supporting exhibits. *See* Exhibit No. ___(RAM-1T) at page 34, line 1, through page 36, line 5.

As discussed in Section III.D.1. above and in my direct testimony and supporting exhibits, empirical evidence demonstrates that the plain vanilla CAPM understates the cost of capital for low-beta securities, such as electric and natural gas utilities, and overstates the return from high-beta securities. *See* Exhibit No. ___(RAM-1T) at page 34, line 1, through page 36, line 5; Exhibit No. ___(RAM-4).

Commission Staff's use of the plain vanilla CAPM understates the return on equity for PSE by approximately 50 basis points.

2. Commission Staff's Criticisms of the Empirical CAPM are Overstated

Q. Please comment on Commission Staff's assessment of the empirical CAPM used in your testimony.

A. Commission Staff erroneously asserts that the following with respect to my use of

the empirical CAPM:

> The use of an empirical CAPM overstates the cost of equity for companies with betas below that of the market. What the empirical CAPM actually does is inflate the CAPM cost for the selected company or industry on one-fourth of its equity and assumes that one-fourth of the company has the risk of the overall market. This essentially creates a hypothetical beta and CAPM result that is not appropriate for PSE or for other utilities.

Exhibit No. ___T(DCP-1T) at page 48, lines 11-16. As discussed above in Section III.D.3., the Empirical CAPM is not an adjustment (increase or decrease) in beta. Instead, the Empirical CAPM is a formal recognition empirical evidence demonstrates that the observed risk-return tradeoff is flatter than predicted by the CAPM.

Empirical studies of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM have supported the conclusion that (i) beta is related to security returns, (ii) the risk-return tradeoff is positive, and (iii) the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as predicted by CAPM. In other words, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn returns somewhat less the CAPM would predict.

In sum, a plain vanilla CAPM will understate the return required for low-beta securities and overstate the return required for high-beta securities. The Empirical CAPM refines the plain vanilla CAPM to account for this phenomenon.

Q. Is Commission Staff's assertion that the empirical CAPM inflates the CAPM result for the selected company or industry correct?

A. No. As discussed above, the CAPM understates the expected return for companies with betas less than one and overstates the expected return for companies with betas greater than one. Please see Exhibit No. ___(RAM-6) for the conceptual and empirical foundations of the empirical CAPM.

3. Commission Staff Assumes Lower Interest Rates in its CAPM Analysis Than Current Interest Rates

Q. Do you agree with Commission Staff's risk-free rate proxy in its CAPM analysis?

A. Although I agree with Commission Staff's beta estimates in it its CAPM analysis, I disagree with the risk-free rate proxy it uses in such analysis. Commission Staff uses a risk-free rate of 4.4%, based on a three-month average of 20-year Treasury bond yields. See Exhibit No. ___T(DCP-1T), at page 34, line 20, through page 35, line 6. The latest yield on 20-year Treasury bonds, however, is 4.7% according to the June 13, 2008 edition of the Value Line Investment Survey. I believe that 4.7% more properly reflects the risk-free rate than 4.4%.

Use of the current risk-free rate of 4.7% (instead of 4.4%) would increase Commission Staff's CAPM estimates by 30 basis points (*i.e.*, the difference between 4.7% and 4.4%).

4. Commission Staff Improperly Uses the Geometric Mean Market Risk Premium Rather Than the Arithmetic Mean Market Risk Premium in its CAPM Analysis

Q. Do you agree with Commission Staff's market risk premium estimates in its CAPM analysis?

A. No. To determine the market risk premium component of its CAPM analysis, Commission Staff relies on three estimates. First, Commission Staff examines the accounting returns on book equity on the S&P 500 Index companies group over the 1978-2006 period and derives a market risk premium of 6.4%. In other words, an average accounting return on book equity of 14.2% for the overall equity market less the average risk-free rate of 7.8% over that same period. Second, Commission Staff relies on the arithmetic average long-term 6.5% historical market risk premium reported in the Ibbotson Associates Valuation 2008 Yearbook for the 1926-2007 period. Third, Commission Staff relies on the geometric average long-term 4.9% historical market risk premium reported in the same publication for the same period. Commission Staff averages these three estimates to project a market risk premium of 5.9%. *See* Exhibit No. ___T(DCP-1T) at page 35, line 15, through page 36, line 17.

Q. Do you agree with Commission Staff's first market risk premium estimate of 6.4% in its CAPM analysis?

A. No. Commission Staff has combined *accounting book returns on equity* for the S&P 500 companies with *market returns* on long-term U.S. Treasury bonds to

arrive at this first estimate of the market risk premium. In a classic "apples and oranges" comparison, Commission Staff mismatches accounting (book) returns with market (economic) returns.

Q. Do you agree with Commission Staff's second market risk premium estimate of 6.5% in its CAPM analysis?

A. No, not quite. As discussed above in Section III.D.6. and in my direct testimony (*see* Exhibit No. ___(RAM-1T) at page 26, line 19, through page 27, line 14), the more accurate way to estimate the market risk premium from historic data is to use the *income* return, not *total* returns, on government bonds. *See* Exhibit No. ___(RAM-1T) at page 26, line 17, through page 31, line 19.

The long-term (1926-2007) market risk premium (based on income returns, as required) is 7.1%, rather than 6.5%. Morningstar recommends use of the *income* return on government bonds as a more reliable estimate of the historical market risk premium because the income component of total bond return (*i.e.* the coupon rate) is a better estimate of expected return than the total return (*i.e.* the coupon rate + capital gain).[31] In other words, bond investors focus on income rather than realized capital gains/losses.

This correction alone increases Commission Staff's CAPM estimate by approximately 50 basis points (the product of (i) the difference between 7.1% and 6.5% and (ii) Commission Staff's beta of 0.86).

Q. Do you agree with Commission Staff's third market risk premium estimate of 4.9% in its CAPM analysis?

A. No. For the third market risk premium proxy, Commission Staff uses a historical risk premium of 4.9% based on the aforementioned Ibbotson historical market risk premium study, only this time relying on the geometric average of historical returns instead of the arithmetic average of historical returns.

Arithmetic means are appropriate for forecasting and estimating the cost of capital, and geometric means are not.[32] Indeed, a recent Morningstar publication contains a detailed and rigorous discussion of the impropriety of using geometric averages in estimating the cost of capital.[33] There is no theoretical or empirical justification for the use of geometric mean rates of returns when estimating the cost of capital. Please see Exhibit No. ___(RAM-18) for a discussion regarding the theoretical underpinnings, empirical validation, and the consensus of academics on why geometric means are inappropriate for forecasting and estimating the cost of capital.

Q. What is the effect of Commission Staff's use of the geometric mean market risk premium?

A. Commission Staff's use of the geometric mean market risk premium of 4.9%

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[31] *See* Morningstar, *Stocks, Bonds, Bills, and Inflation 2008 Yearbook: Valuation Edition*, 66 (2008).

[32] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 11 (1st ed. 1994); Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, chapter 4 (1st ed. 2006); Richard A Brealey, *et al*., *Principles of Corporate Finance* (8th ed. 2006).

rather than the arithmetic mean of 6.5% significantly understates the market risk premium, which suggests an understatement of the cost of equity by approximately 138 basis points (using Commission Staff's beta of 0.86):

$$\beta_{PSE} \text{ x (Arithmetic Mean – Geometric Mean)}$$
$$0.86 \text{ x } (6.5\% - 4.9\%)$$
$$0.86 \text{ x } (1.6\%)$$
$$1.38\%$$

D. COMMISSION STAFF'S CRITICISM OF MY RISK PREMIUM ANALYSIS ARE UNWARRANTED

Q. How do you respond to Commission Staff's assertion that the risk premium methodology is improper because economic conditions today are different and risk premiums are unstable from year to year?

A. Commission Staff criticizes my risk premium method by arguing that (i) because risk premium analyses look backward in time, they assume "past is prologue" and (ii) the method assumes that the risk premium is constant over time whereas in fact the risk premium results are dominated by the influence of capital gains in many years. *See* Exhibit No. ___T(DCP-1T) at page 48, line 18, through page 51, line 16.

Commission Staff's first criticism is unwarranted. I employed returns realized over long time periods rather than returns realized over more recent time periods. Realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. A

[33] *See* Morningstar, *Stocks, Bonds, Bills, and Inflation 2008 Yearbook: Valuation Edition*, at

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, or else, investors would never commit any funds.

I have ignored realized risk premiums measured over short time periods because they are heavily dependent on short-term market movements. Instead, I have relied on results over periods of enough length to smooth out short-term aberrations, and to encompass several business and interest rate cycles. By using the entire study period to estimate the appropriate market risk premium, subjective judgment is minimized and many diverse regimes of inflation, interest rate cycles, and economic cycles spanned.

Commission Staff's second concern is unwarranted as well. The influence of unexpected capital gains is offset by the influence of unexpected capital losses. 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. Thus the best estimate of the future risk premium is the historical mean. As I explained in my direct testimony, because I found no evidence that the market price of risk or the amount of risk in common stocks has changed over time, that is, no significant serial correlation in the successive

page 66 (2008).

market risk premiums from year to year, it is reasonable to assume that these quantities will remain stable in the future. *See* Exhibit No. ___(RAM-1T) at page 28, line 13, through page 29, line 5.

E. COMMISSION STAFF'S RECOMMENDED RETURN ON EQUITY FAILS TO REFLECT PSE'S MORE LEVERAGED CAPITAL STRUCTURE

Q. How does PSE's capital structure compare to that of the industry average?

A. According to the table on page 25 of Exhibit No. __T(DCP-1T), the average common equity ratio of the electric utility industry is 47% inclusive of short-term debt versus 45% for PSE. Thus, PSE's capital structure is more leveraged than that of the industry in general. PSE's capital structure is also more leveraged than the capital structures used by regulators for ratemaking purposes. According to SNL's (formerly Regulatory Research Associates) latest quarterly review of rate decisions dated January 8, 2008, the average common equity ratio of electric utilities used by regulators in 2006 and 2007 was 49% and 48.0%, respectively. For the first quarter of 2008, the average common equity ratio was 49%, versus PSE's 45%.

Q. Does Commission Staff adjust its recommended return on equity to account for PSE's greater leverage?

A. No. Commission Staff should have increased its recommended range of returns of equity of 9.5% - 10.5% to reflect the higher relative risk associated with PSE's more leveraged capital structure. As discussed above in Section III.F., 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.

Q. What is the magnitude of the required adjustment to account for PSE's more leveraged capital structure?

A. As discussed above, PSE's capital structure consists of 45% common equity, as compared to the industry average of 47% common equity and the authorized industry average of 49%. Therefore, the differential between the common equity component of PSE's capital structure for PSE and the common equity component of the average capital structure for the industry is approximately 2% - 4%.

As discussed above in Section III.F., empirical studies suggest an average increase of between 76 basis points (or 7.6 basis points per one percentage point increase in the debt ratio) and 138 basis points (or 13.8 basis points per one percentage point increase in the debt ratio). Using the midpoint estimate of 11 basis points, Commission Staff should adjust its recommended return on equity upward by approximately 22 basis points (11 x 2) to 44 basis points (11 x 4) to reflect PSE's more leveraged capital structure, with a midpoint slightly in excess of 30 basis points. Had Commission Staff adjusted its recommended return on equity upward by 30 basis points (0.3%) to account for PSE's more leveraged capital structure, the range of recommended returns on equity would have

increased from 9.5% – 10.5% to 9.8% – 10.8% from this adjustment alone.

F. COMMISSION STAFF'S RECOMMENDED RETURN ON EQUITY IMPROPERLY IGNORES FLOTATION COSTS

Q. Does Commission Staff adjust its recommended return on equity to reflect flotation costs.

A. No. Commission Staff does not include any allowance whatsoever for flotation costs, and its range of recommended returns on equity is therefore understated by approximately 30 basis points. As discussed above in Section III.G., flotation costs represent the discounts that must be provided to place new securities in the issues of new equity. As a result, Commission Staff's proposal leaves a legitimate expense unrecovered.

Q. Does Commission Staff explain why it does not provide an allowance for flotation costs in its recommended return on equity for PSE?

A. Commission Staff attempts to justify this omission by asserting that (i) the stock price of Puget Energy, Inc., the parent company of PSE, already reflects any accretion or dilution resulting from new issuances of securities, and (ii) common equity is provided by Puget Energy, and PSE itself incurs no such costs. *See* Exhibit No. ___T(DCP-1T) at page 54, lines 1-10.

Q. Do you agree with Commission Staff's first objection?

A. No. Commission Staff's objection that investors factor flotation costs in the stock price implies that it is appropriate to use a deficient model because investors should be aware that the model is deficient. Such circular reasoning could be used to justify any regulatory policy.

Put somewhat differently, Commission Staff's approach suggests that, because the cost (or risk) of a particular event—in this case flotation costs—is merely reflected in the stock price, investors do not require compensation for that risk in the authorized return on equity. This is illogical and erroneous. An irrational regulatory policy could always be justified using this argument.

The simple fact of the matter is that in issuing common stock, a utility's common equity account is credited by an amount less than the market value of the issue, so the utility must earn slightly more on its reduced rate base to produce a return equal to that required by shareholders.

Q. Do you agree with Commission Staff's second argument?

A. No. Disallowing flotation costs because of the existence of a parent-subsidiary relationship does not eliminate the costs of a new issue. Instead, the costs of a new issue are transferred from the subsidiary 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.

G. COMMISSION STAFF'S REFERENCE TO RECENTLY AUTHORIZED RETURNS ON EQUITY IS MISLEADING

Q. Is the Commission Staff argument that a range of returns on equity of 10.0% –10.5% based on comparable earnings is supported by returns on equity recently authorized by state regulatory agencies correct?

A. No. Commission Staff argues that a range of returns on equity of 10.0% –10.5% based on comparable earnings is supported by returns on equity of 10.3% – 10.4% recently authorized by state regulatory agencies. *See* Exhibit No. ___T(DCP-1T) at page 41, lines 16-26.

Most of the utility companies in Commission Staff's first comparable group are, like PSE, vertically integrated electric utilities (*i.e.*, companies that own electric generation, transmission and distribution facilities). These vertically integrated utilities are much more comparable to PSE than "wires only" companies (*i.e.*, companies that do not own generation facilities and the risks associated with such generation facilities). As a consequence, Commission Staff should have referenced an average of returns on equity authorized for vertically-integrated utilities and excluded "wires only" utilities.

VI. CONCLUSION

Q. What do you conclude from Public Counsel's recommended return on equity?

A. Public Counsel vastly understates the appropriate return on equity for PSE. The following table summarizes the many reasons why Public Counsel's recommended return on equity vastly understates an appropriate return on equity for PSE. The first two pertain to Public Counsel's overall recommended return on equity, the next three pertain to the DCF estimates produced by Public Counsel, and the last three pertain to Public Counsel's CAPM estimates:

Source	Basis Points
Flotation Cost Allowance	30
Sustainable Growth Calculation	20
Analysts Growth Rate Forecasts	143
CAPM Risk-free Rate	20
Arithmetic vs Geometric mean	123
Market Risk Premium Income Component of Bond Return	50
Empirical vs Raw CAPM	50
Capital Structure Adjustment	30-60

Correction of these understatements would increase Public Counsel's recommended return on equity for PSE to a level comparable to my own recommendation.

Q. Has Public Counsel presented any arguments that would cause you to alter any of your recommendations and methodologies?

A. No.

Q. What do you conclude from Mr. Gorman's cost of equity analyses?

A. The following table summarizes the various understatements of PSE's cost of common equity (the first two pertain to his overall recommendation, the next three to his DCF estimates, and the last three to his CAPM estimates).

Source	Basis Points
Flotation Cost Allowance	30
GDP growth forecasts	100-120
CAPM Historical Market Risk Premium	50
CAPM Market Risk Premium GDP Gth	35
Allowed Risk Premium	60
Empirical vs Raw CAPM	50
TOTAL	**400**

The amendments to the DCF alone would raise Mr. Gorman's recommendation by 130-150 basis points while the amendments to the CAPM results would raise his recommendation by 135 basis points.

Q. Has ICNU presented any arguments that would cause you to alter any of your recommendations and methodologies?

A. No.

Q. Do you agree with Public Counsel and ICNU that adoption of their recommended returns on equity would not endanger PSE's credit quality?

A. No. Both Public Counsel and ICNU are incorrect in their assertions that adoption of their recommended returns on equity would not endanger PSE's current credit rating. Extreme decreases in PSE's authorized return on equity, such as the decreases suggested by each of ICNU and Public Counsel, could alarm the

investment community, lower stock price, and threaten PSE's credit ratings. A weakening of PSE's credit ratings, stock price, and earnings power at a time when the PSE needs to attract significant external capital on reasonable terms is ill-advised.

As discussed in my direct testimony, PSE's risks will only increase with PSE's significant capital investments necessary to provide service to its customers. *See* Exhibit No. ___(RAM-1T) at page 59, line 6, through page 61, line 13. Neither Public Counsel nor ICNU addresses PSE's increased risks arising from its inability to fully fund its sizeable construction program with internal funds. A reduction in authorized return on equity of the magnitude recommended by Public Counsel and ICNU can only aggravate the situation.

Q. What do you conclude from Commission Staff's recommended return on equity?

A. Commission Staff understates the appropriate return on equity for PSE. Recognition of the proper functional form of the DCF model (20 basis points), a far greater emphasis on analysts' growth forecasts in the DCF analysis (130-260 basis points), the appropriate historical market risk premium in the CAPM analysis (50 - 140 basis points), recognition of the higher financial risk (30 basis points), and inclusion of an allowance for flotation costs (30 basis point) would suggest much higher returns that are quite close to my own recommended return on equity.

I consider my critique of Commission Staff's recommended return on equity to be conservative because for it reflects neither the consistent tendency of the DCF to understate return on equity nor does nor the understatement of the cost of equity that results from the plain vanilla form of CAPM analysis used Commission Staff.

Q. Has Commission Staff presented any arguments that would cause you to alter any of your recommendations and methodologies?

A. No.

Q. Do you agree with arguments of Commission Staff and Public Counsel that capital costs have changed since the Commission's final order in PSE's previous general rate case and that a decrease in PSE's authorized return on equity is therefore warranted?

A. No. Contrary to the assertions of Commission Staff and Public Counsel, Baa Utility bond yields and PSE's cost of new debt have reached their highest point since the end of 2006 and stand at an all-time high since 2006—the time of PSE's last rate case. Commission Staff's and Public Counsel's argument that interest costs have increased since the last rate case ignores the significant increase that has occurred in risk premium.

Q. Does that conclude your prefiled rebuttal testimony?

A. Yes.