BEFORE THE WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,
Complainant,

v.

PUGET SOUND ENERGY, INC.,
Respondent.

DOCKET NOS. UE-090704 AND UG-090705

STEPHEN G. HILL (SGH-1T)

ON BEHALF OF

PUBLIC COUNSEL

NOVEMBER 17, 2009

REDACTED

DIRECT TESTIMONY OF STEPHEN G. HILL (SGH-1T)
PUGET SOUND ENERGY GRC 2009
DOCKET NOS. UE-090704 AND UG-09070

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EXHIBIT LIST

I. INTRODUCTION / SUMMARY

Q: Please state your name and business address.

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

Q: Briefly, what is your educational background?

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

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

A: Yes, I have appeared previously before this Commission. In addition, over the past twenty-five years I have testified on cost of capital, corporate finance and capital market issues in more than 250 regulatory proceedings before the following regulatory bodies: the West Virginia Public Service Commission, the

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

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

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

Q: What is the purpose of your testimony?

A: In this testimony, I present studies I have performed related to the appropriate return on equity and capital structure to be applied to the integrated electric and gas distribution utility operations of Puget Sound Energy, Inc. (PSE, Puget, or the Company), a subsidiary of Puget Energy, Inc. (PE, the Parent). Puget Energy was recently purchased by a consortium of private investors and is no longer a publicly traded electric utility. Puget Energy's immediate parent is Equico, whose immediate parent is Puget Intermediate Holdings (PIH), whose immediate parent is Puget Holdings (PH). Puget Holdings is owned by a consortium of investors, consisting of several subsidiaries of the Macquarie Group (an international investment banking operation headquartered in Australia) and three Canadian pension funds.

In addition to my testimony regarding the Company's current cost of capital for its electric and gas utility operations, I review the cost of capital testimony provided by Company witness Dr. Roger Morin and discuss the shortcomings contained in Dr. Morin's testimony.

Q: Have you prepared an exhibit in support of your testimony?

A: Yes, my narrative testimony is presented as Exhibit No. SGH-1HCT. Exhibit No. SGH-2 through Exhibit No. SGH-4 contain additional narrative detail regarding certain aspects of my testimony in this proceeding. Exhibit No. SGH-6

through Exhibit No. SGH-16 provide the analytical support for the conclusions reached regarding the overall cost of capital for the integrated electric utility and gas distribution operations of Puget Sound Energy presented in the body of the testimony. These Exhibits were prepared by me and are correct to the best of my knowledge and belief.

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

A: My testimony is organized into four additional sections. First, I review the capital structure requested by Puget for ratemaking purposes in comparison to capital structures employed historically by the Company as well as capital structures utilized, on average, in the utility industry. This analysis shows that Puget has traditionally increased the common equity ratio of the Company during rate cases, but it has been capitalized on average over the past few years with far less equity capital than has been allowed in recent rate proceedings. I also discuss the linkage between the capital structure of Puget Sound Energy and its parent companies, the ability of the immediate parent company (Puget Energy) and ultimate parent (Puget Holdings) to achieve any particular target capitalization for Puget Sound Energy, as well as the actual capital mix currently used to finance the Company's utility assets.

Second, I review the current economic environment in which my equity return estimate is made, with a particular focus on the financial crisis of 2008 and the current recession. Third, I evaluate the cost of equity capital for utility

operations similar in risk to Puget using Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), Modified Earnings-Price Ratio (MEPR), and Market-to-Book Ratio (MTB) analyses.

Fourth, I comment on the pre-filed cost of capital testimony submitted by Company witness, Dr. Roger Morin. I show that Dr. Morin's equity cost estimation methods, when updated to recognize current interest rates and corrected for basic flaws, produce lower equity cost estimates. I also show that Dr. Morin has changed the manner in which he calculates his estimates of the cost of equity and that change in methodology works to increase the results of his equity cost estimates.

I have estimated the equity capital cost of combination electric and gas companies similar in risk to Puget Sound Energy to fall in a range of 9.25 percent to 9.75 percent. Within that range, I estimate the equity cost of the Company's electric and gas utility operations to be near the mid-point of that range, or 9.50 percent.

Applying that 9.50 percent equity capital cost to a capital structure that is reasonable for ratemaking purposes produces an overall cost of capital of 7.73 percent. That overall cost of capital affords the Company an opportunity to achieve a pre-tax interest coverage level of 2.72 times (Exhibit No. SGH-16). That level of pre-tax coverage is well above the level of interest coverage actually achieved by Puget over the past five years, which has ranged from 2.03 to 2.30x.[1] Therefore, the equity return I recommend is sufficient to support and improve the

[1] Puget Energy, 2008 S.E.C. Form 10-K, Exhibit 12.2.

Company's financial position and fulfills the requirement of providing the Company the opportunity to earn a return which is commensurate with the risk of the operation while maintaining the Company's ability to attract capital.

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

A: The Supreme Court of the United States has established, as a guide to assessing an appropriate level of profitability for regulated operations, that investors in such firms are to be given an opportunity to earn returns that are sufficient to attract capital and are comparable to returns investors would expect in the unregulated sector for assuming the same degree of risk. The *Bluefield* and *Hope* cases provide the seminal decisions [*Bluefield Water Works v. PSC*, 262 U.S. 679 (1923); *FPC v. Hope Natural Gas Company*, 320 U.S. 591 (1944)]. These criteria were restated in the *Permian Basin Area Rate Cases,* 390 U.S. 747 (1968). However, the Court also makes quite clear in *Hope* that regulation does not guarantee profitability and, in *Permian Basin*, that, while investor interests (profitability) are certainly pertinent to setting adequate rates, those interests do not exhaust the relevant considerations.

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

Q: The cost of equity capital is often estimated using a complex array of economic models and algebraic formulas. Is there a simple way to understand the concept of the cost of equity capital?

A: Yes. In a regulated rate setting context such as this, the cost of equity capital can be most easily understood as the rate of profit that should be allowed for the regulated firm. A firm's profit is the amount of money that remains from its revenues after a firm has paid all of its costs—operating costs (commodity supply costs, depreciation, equipment maintenance costs, salaries, fees, taxes, retirement obligations), as well as income taxes and interest costs. That dollar amount of profit, divided by the amount of common equity capital used to finance the firm's regulated assets produces a percentage rate of return on equity. If, for example, the profit earned by a utility is $10/year and investors have provided $100 of equity capital, the firm's return on equity (ROE), its profit, is 10 percent.

The purpose of all of the economic models and formulas used in cost of capital testimony is to estimate, using market data of similar-risk firms, the percentage rate of return investors require for that risk-class of firms—in this case, combination electric utility operations. If the profit included in the rates, as a percent of the firm's equity capital, is set equal to the cost of equity capital (the investors' required return), the utility, under efficient management, will be able to attract the capital necessary to maintain the firm's financial integrity and the interests of investors and ratepayers will be balanced, as called for in the U.S. Supreme Court cases cited above.

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Simply put, the amount of profit the utility should be allowed the opportunity to earn as a percentage of the total equity investment should be equal to the cost of equity capital.

II. CAPITAL STRUCTURE

Q: With what capital structure does the Company request rates be set in this proceeding?

A: The Company's overall rate of return request in this proceeding is based on the capital structure presented in the testimony of Company witness Gaines at page 30. That capital structure consists of 48.00 percent common equity, 48.05 percent long-term debt, and 3.95 percent short-term debt.

Q: Is the Company's requested capital structure similar to the manner in which it has been capitalized over the past few years?

A: No. Mr. Gaines notes that the Company's actual capital structure during the test year contained an average common equity ratio of 44.67 percent--a percentage well below the Company's requested ratemaking common equity ratio of 48 percent. Moreover, as shown on page 1 of Exhibit No. SGH-5, which shows PSE's quarterly capital structure as published in its S.E.C. filings from the average common equity ratio utilized by the Company from December of 2004 through December 2008 was 41.71 percent. During that period of time the Company has maintained a BBB bond rating with a substantially less expensive capital structure that they request in this proceeding.

Over the past few years, Puget has exhibited a pattern in which the Company increases its common equity ratio during rate proceedings, but, on

average, remains capitalized less expensively with more debt and less equity. Page 2 of Exhibit No. SGH-5 shows PSE's common equity ratio in a graphical format and shows the approximate time periods of this and the last two rate cases. For example, in Puget's 2006 rate proceeding,[2] the Company requested that its rates be set using a 45 percent common equity ratio, which was based on a projected rate-effective period of December 2006 through December 2007. The Commission authorized a level of common equity in the ratemaking capital structure of 44 percent. However, the actual average equity ratio for Puget during that period was only 40.86 percent.

Q: You mentioned that the Company's requested capital structure is more expensive than the capital structure employed in the past. Why is that the case?

A: There are two reasons that increasing the amount of common equity in the ratemaking capital structure for a regulated utility is expensive for ratepayers. First, equity costs more than debt. Investors require a higher return for common equity than debt because the expected income stream is more certain with a debt instrument than with a share of stock, because the debt payment is a contractual obligation but dividends are not required payments for the utility. As a result, a higher return must be offered to common equity investors. For example, current BBB utility bonds are yielding 6.13 percent returns according to Value Line.[3] My

[2] *WUTC v. Puget Sound Energy*, Docket Nos. UE-060266/UG-060267.
[3] Six-week average yield from Value Line Selection & Opinion (9/409-10/9/09). Puget's most recent debt issue carried a coupon rate of 5.75 percent.

estimate of the cost of equity for Puget is 9.5 percent--almost 350 basis points higher.

Second, ratepayers must also provide the monies necessary to pay the income taxes on the return allowed by the Commission. Therefore, the cost of common equity to the ratepayers (the pre-tax cost of equity capital) is not 9.5 percent, but 14.6 percent (9.5% ÷ (1-35% tax rate) = 14.6%)—more than twice the cost of debt. Therefore, when common equity replaces debt in the capital structure it is expensive for ratepayers—equity is the most expensive from of capital.

The combined electric and gas rate base requested by the Company in this proceeding is approximately $4.9 billion (Story Electronic Workpapers 3.03 and 3.04). As shown in Exhibit No. SGH-5, page 3, assuming an income tax rate of 35 percent, the pre-tax overall return that arises from the Company's requested capital structure in this proceeding is 11.35 percent. As shown on page 1 of Schedule SGH-5, prior to the recent merger PSE has historically been capitalized with about 42 percent common equity capital. Using that amount of common equity, and maintaining the amount of short-term debt requested by the Company at 3.95 percent (although the historical use has been higher), the pre-tax overall return, based on the Company's requested capital cost rates would be 10.76 percent.

When the difference between the overall return with 48 percent equity and the overall return with 42 percent equity is multiplied by the Company's requested $4.9 billion rate base, the annual impact of the extra common equity is

derived. Setting rates with a 48 percent common equity ratio rather than a 42 percent common equity ratio would cost Puget's Washington ratepayers approximately $29 million every year, as shown on page 3 of Exhibit No. SGH-5. Said another way, each additional one percent of common equity in PSE's ratemaking capital structure will add approximately $4.7 million every year to the rates customers have to provide for utility service. [$28.8 million ÷ (48-42) = $4.799 million.] Additional common equity is very expensive for ratepayers.

Q: How does PSE's requested capital structure compare to that utilized in the utility industry today?

A: PSE's ratemaking capital structure contains more common equity than is employed, on average, in the utility industry today. As shown on page 4 of Exhibit No. SGH-5 attached to my testimony, the average common equity ratio of the electric and combination gas and electric utility industry is 44 percent. PSE's ratemaking capital structure in this proceeding, contains considerably more common equity (48 percent) than the industry on average. For that reason, the capital structure requested by PSE would be considerably more expensive than average for a utility.

Page 4 of Exhibit No. SGH-5 also shows that the BBB-rated combination electric and gas companies have an average common equity ratio of 40 percent of total capital. By that comparison, PSE's requested capital structure would be substantially more expensive than that of other BBB-rated electric utilities. This data also indicates that the additional common equity requested by the Company for ratemaking purposes in this proceeding is unnecessary to maintain its credit

rating and would serve only to require ratepayers to provide additional funds to increase cash flow to the Company and its parents.

Q: Why is Puget concerned about increasing cash flow to its parent Companies?

A: In a word—debt. As a result of the merger there is significant additional debt that resides in corporate entities above PSE. Those debt obligations are contractual and must be met, and can be funded only through the cash flows generated by the regulated entity—PSE. In order to get more cash to its parents, immediately following the completion of the merger Puget Sound Energy substantially increased its dividend to its parent Puget Energy, and Puget Energy *doubled* its dividend payout to its investors from the previous year.

In the first quarter of 2008, Puget Energy paid out to its public investors $32.4 million in dividends. As the Commission will recall, that dividend had been held to $1 per share for many years in order to retain cash in the Company and re-build its financial strength. After the merger, in the first quarter of 2009, Puget Energy paid out $68.6 million in dividends to its private owners (the Macquarie-led investor consortium)—more than twice the historical dividend. If the Company were still publicly traded that action would be equivalent to increasing Puget's dividend to $2 per share. That action also means fewer earnings retained within PSE and more cash flow to the parent companies.

Clearly, the new owners are intent on increasing the cash flows out of PSE. Increasing the common equity ratio used in setting regulated rates for PSE is simply another means by which the cash flows available for debt service at the parent companies can be increased.

Q: How much additional debt exists at the parent companies?

A: As the Commission is aware, in conjunction with the merger, the investor consortium required that Puget Energy (PSE's immediate parent) use its borrowing capacity and borrow $1.2 billion that would reside at the PE corporate level and would be used to help fund its purchase by the investors. That debt now resides at Puget Energy, and, as shown on Exhibit No. SGH-5, page 5, the consolidated capital structure of Puget Energy in the first two quarters of 2009 contained about 45 percent equity and 55 percent debt, due to the additional debt assumed in the merger.[4]

Puget Energy's immediate parent, Puget Equico, LLC, has issued no additional debt and, as shown on page 5 of Exhibit No. SGH-5, has the same consolidated capital structure as Puget Energy.[5] However, Puget Equico's immediate parent, Puget Intermediate, Inc. has issued additional debt in the amount of **[Begin Confidential]** **XXXXXXX** **[End Confidential]**. Including that additional parent company debt, the actual consolidated capital structure supporting the utility operations of PSE consists of approximately **[Begin Confidential]** **XXXXXX XXXXXXXXXXXXXXXXXXXXX** **[End Confidential]**.[6] That capitalization is substantially more debt-heavy than what appears on the books of PSE.

[4] The Commission is also aware that the investors arranged for an additional $1 billion of debt to be issued at the PE level to fund construction projects for PSE. As construction continues and those funds are drawn down, the equity ratio at PE will decline further.

[5] The capital structure data for Equico were provided without restriction in PSE's Response to Public Counsel Data Request No. 127, for March 31, 2009, but were deemed confidential for June 30, 2009 in PSE's Response to Public Counsel Data Request No. 380.

[6] Because the ultimate parent, Puget Holdings, LLC., has issued no debt, the overall consolidated capital structure of Puget Holdings and all its subsidiaries including PE and PSE is effectively the same as that of Puget Intermediate.

The only assets generating cash in the privately-held Puget Holdings corporate chain that is Puget Holdings, which generate cash are those of the regulated utility—PSE. That entity (PSE), therefore, is the only source of monies to fund all of the debt that now resides above PSE. The simplest way for the investor consortium to extract more cash from Puget Sound Energy is for this Commission to 1) raise the common equity ratio used in setting rates and 2) raise the allowed return on common equity. The Commission should do neither. The Company has demonstrated the ability to maintain its credit when operating with a much lower common equity ratio (42% v. 48%) and the current cost of common equity (9.5%, as determined in the next section of my testimony), is below the equity return allowed in the settlement of the Company's prior rate case—10.1 percent.

Q: Isn't it true that the level debt to be issued, and the attendant consequences of that, were addressed in the merger with conditions to protect PSE?

A: The merger case addressed the issue of the additional debt to be issued at the immediate parent, Puget Energy, that would assist in funding the transaction, as well as the additional $1 billion loan to Puget Energy to fund capital additions at PSE. It is also true that the Commission set conditions intended to protect the financial health of PSE. However, it is not at all clear that the merger review considered that **[Begin Confidential]** **XXXXXX** **[End Confidential]** of additional debt would be issued at the Puget Intermediate level. Public Counsel's review of the record indicates the issuance of that debt was never discussed in the testimony of the applicants in the merger proceeding and that debt was not

included in the financial projections model and interest coverage calculations used to support the merger transaction.[7] The Investor Consortium indicated that neither Puget Holdings nor Puget Intermediate would issue debt to third parties.[8]

Q: Why was the additional debt at Puget intermediate issued?

A: Although it was widely touted during the merger proceeding that the "equity investors" were providing $3.2 billion of equity capital in buying Puget Energy, and through assuming PSE's debt and issuing an additional $1.2 billion at Puget Energy, the total agreed-upon sale price was reached. However, the investors never really intended to contribute $3.2 billion in an equity investment in Puget. Their plan, as outlined in the responses to ICNU Data Request No. 4.02 Attachment A (HC) and Public Counsel Data Request No. 3050 Attachment C (HC) in Docket No. U-072375, was **[Begin Highly Confidential] XXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX [End Highly Confidential]**—debt with a very high yield of **[Begin Highly Confidential] XXX XXXXXX [End Highly Confidential]**. The Macquarie subsidiaries and the Canadian pension funds each contributed **[Begin Highly Confidential]** XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXX **[End Highly Confidential]** as an equity investment. That debt

[7] The only additional merger-related debt included in the Macquarie financial model was debt that resided at Puget Energy (HoldCo) and consisted of the $1.2 billion used to fund the transaction and the $1 billion capital facility. (Exhibit No. 52 (HC) PSE's Response to UTC Data Request No. 1047, Docket No. U-072375).

[8] A review of the discovery in Docket No. U-072375 indicates that some information was provided regarding loans by members of the Investor Consortium to Puget Intermediate in their responses to INCU data request 4.02 Attachment A (HC) and Public Counsel data request 3050 Attachment C (HC). The response to Public Counsel data request 3050 was filed as an exhibit in the proceeding.

obligation—which must also be funded by Puget—resides at Puget Intermediate, Inc.

Q: If PSE is "ring-fenced," why does this matter?

A: Although I believe it is problematic and not in the public interest to capitalize a utility operation with the thin layer of equity existent in the consolidated Puget Holdings organization, that issue is moot here because the Commission has already approved the merger and set ring-fencing measures to protect PSE. The question at issue here is whether or not it is necessary to substantially increase the common equity ratio (and allowed return on equity) used to set rates for PSE, and the manner in which PSE's assets are actually capitalized deserves consideration in that regard.

Increasing the ratemaking equity ratio and raising the allowed return on equity are unnecessary for many reasons: the ratemaking common equity ratio requested by Puget substantially exceeds the average used in the industry and exceeds, to an ever greater extent, the average common equity ratio successfully employed by the Company when it was publicly-traded; increasing the common equity ratio is very expensive for ratepayers (and additional $4.8 million every year for a 1 percent increase in ratemaking common equity); the return on common equity requested is substantially above the cost of equity capital; and the return on common equity requested is well above the 10.1 percent allowed in the last proceeding, prior to completion of the merger.

With regard to that last point, the investors bought Puget with an in-place allowed return on equity of 10.1 percent. If that had not been a sufficient return,

i.e., the investors' required return—the cost of equity capital, the transaction would not have been consummated. It did proceed. Therefore, there is no reason to award the Company a higher return than the 10.1 percent awarded in the prior rate proceeding. Doing so would provide a return that clearly exceeds the investors' required return. Moreover, as I will show subsequently, that 10.1 percent is greater than the current cost of equity capital.

The Company seeks an increase in its ratemaking common equity ratio and an increase in its allowed return in order to assist in increasing the cash flows generated by PSE that will be used to fund the debt voluntarily issued by the new owners of the company. Capital costs to ratepayers should not be increased in order to assist in funding the debt load assumed in taking Puget private, and the Company's request for a higher common equity ratio should be denied.

Q: Is it reasonable to set rates using a capital structure that is similar to the regulated Company's actual capital structure, as the Company requests in this proceeding?

A: In some circumstances, yes. In this case, however; no. That action would not be reasonable for the reasons outlined above. It is important to recall that a parent company has the capability of injecting capital from any source into the equity account of its subsidiary and accept loans from or make loans to the subsidiary and, by so doing, can produce any subsidiary capital structure it wishes. Therefore, PSE's common equity ratio in this case is supported with a substantial amount of debt capital and the cash flows it generates have to fund not only the debt that appears on its books, but also the debt that appears on the books of *all* if

its parent companies as well. PSE's owners are effectively requesting that ratepayers pay the higher cost of additional common equity while they enjoy the advantages of the lower-cost debt they have used to capitalize the PSE assets. Those facts should not go unrecognized by this Commission.

Q: Based on the information you have provided what capital structure do you recommend for ratemaking purposes in this proceeding?

A: As I noted previously, PSE has successfully operated with less common equity on average than that granted by the Commission in its rate orders. In the most recent proceeding, the Commission set PSE's rates with a 46 percent common equity ratio. I believe that is too equity-rich to be commensurate with the operating risk of the Company and would be unnecessarily expensive for ratepayers. In the last proceeding I recommended the use of a 43 percent common equity ratio. While that ratio is higher than the average common equity ratio Puget has actually used over the last few years, I believe it is reasonable and fairly balances the safety and cost of common equity capital with the advantages of less expensive debt.

The Company has requested a short-term debt ratio of 3.95 percent, which is lower than its historical use of that type of capital. However, that historical average is skewed upward somewhat by heavy short-term debt usage during the pendency of the merger. A short-term debt level of 4.0 percent would be reasonable for ratemaking purposes. A common equity ratio of 43 percent and a short-term debt ratio of 4 percent imply a long-term debt ratio in the ratemaking capital structure of 53 percent of total capital.

Using the Company's requested and updated capital cost rates the ratemaking capital structure I recommend is shown in Table I, below.

Table I.
Recommended Ratemaking Capital Structure

Type of Capital	Percent	Cost Rate
Common Equity	43.00%	-
Long-term Debt	53.00%	6.70%
Short-term Debt	4.00%	2.47%
TOTAL	100.00%	-

Q: Does this conclude your discussion of capital structure?

A: Yes, it does.

III. ECONOMIC ENVIRONMENT

Q: Why is it important to review the economic environment in which an equity cost estimate is made?

A: The cost of equity capital is an expectational, or *ex ante*, concept. In seeking to estimate the cost of equity capital of a firm, it is necessary to gauge investor expectations with regard to the relative risk and return of that firm, as well as that for the particular risk-class of investments in which that firm resides. Because this exercise is, necessarily, based on understanding and accurately assessing investor expectations, a review of the larger economic environment within which the investor makes his or her decision is most important. Investor expectations regarding the strength of the U.S. economy, the direction of interest rates and the level of inflation (factors that are determinative of capital costs) are key building

blocks in the investment decision. Those factors should be reviewed by the analyst and the regulatory body in order to accurately assess investors' required return—the cost of equity capital to the regulated firm.

Q: What are the indications with regard to the cost of capital in the current economic environment?

A: In the tumultuous economic environment that existed during the third and forth quarters of 2008 and early 2009, the signals with regard to the cost of capital were, unsurprisingly, difficult to discern. Stock prices fell dramatically, increasing dividend yields, which would indicate increasing capital costs if expected growth rates were constant. However, fundamental indicators of capital cost rates—long-term U.S. Treasury bond yields—declined, signaling that investors actually required and expected lower returns during that difficult time.

It is important to note that the Company's cost of capital estimate was undertaken in February 2009, during those uncertain economic conditions. As I will show subsequently when I address the details of the Company's cost of equity testimony, the result of that testimony was skewed upward due to the short-term conditions that existed during the latter part of 2008 and early 2009, and is not representative of investors long-term expectations.

As shown in Chart I below, although there have been wide fluctuations in *short-term* interest rate levels over the past five years as the Federal Reserve Board (the Fed) raised and lowered the Federal Funds rate to slow down and encourage (respectively) economic growth, long-term interest rates ranged from 4.5 percent to 5.5 percent over most of that time, with a slow downward trend.

However, as a result of the recent economic downturn and market re-alignment, long-term Treasury bond yields dipped, for a time, below the lower end of that historical range. As the economic downturn has moderated and signs of a slow recovery are mounting, long-term T-bond yields have returned to their historical trend. According to the Federal Reserve Statistical Release H.15, the average 20-year T-Bond yield in August 2009 was 4.33 percent.[9]

The interest rate data in Chart I also indicate that the Fed lowered short-term interest rates to near zero to attempt to lessen the impact of the recession and, continues to take a very accommodative stance regarding monetary policy, with short-term Treasury Bills yielding below 1 percent. As a result, fundamental long-term capital costs have not increased due to the recent financial crisis and, in fact, currently indicate a continuation in the long-term downward trend in capital costs that began prior to the financial crisis.

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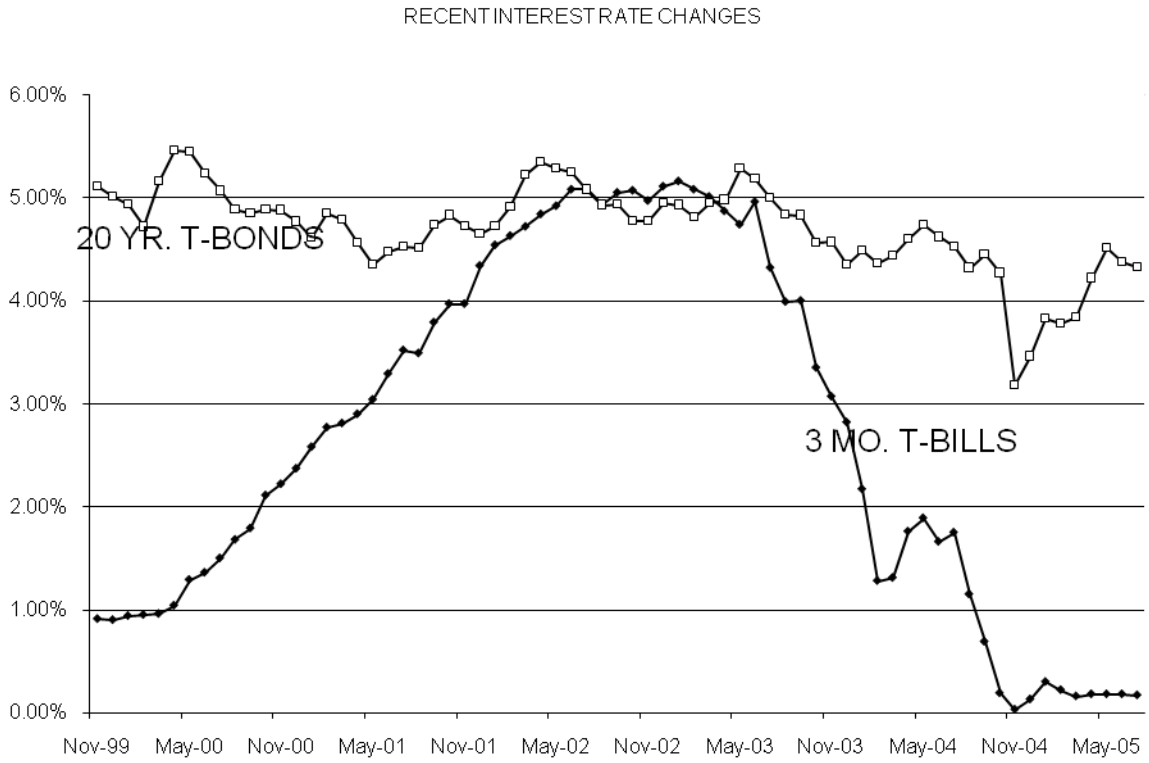
[9] http://www.federalreserve.gov/Releases/H15/Current/, September 28, 2009.

Chart I.



Data from Federal Reserve Statistical Release H.15

Because the market for U.S. Treasury securities has remained liquid throughout the recent financial crisis, it is reasonable to believe that the recent yields (approximately 4.3%) on long-term Treasuries are representative of investors' current long-term risk-free return expectations. Therefore, this fundamental building block of capital costs (the risk-free rate) provides an indication that in the current economic environment, capital costs are lower than they were prior to the economic troubles of late 2008 and early 2009.

A review of recent history indicates that declining yields were not the case with corporate bonds over the past few months. Following the demise of Lehman

Brothers and the turmoil in the financial community in the U.S. and abroad due to enormous debt obligations related to mortgage-back securities and credit default swaps, there was a temporary lack of liquidity in that sector of the market—even with the promise of government support of the successor financial institutions. The banks and investment brokerage firms were holding on to capital in order to shore up their own balance sheets rather than re-injecting those monies into the financial system through lending (buying corporate debt). As a result, even though the Fed was driving down short-term Treasury rates to provide additional liquidity for the economy in general, that liquidity was not reaching the corporate bond market and, with a lack of capital supply, corporate bond yields increased, as shown in Chart II, below.

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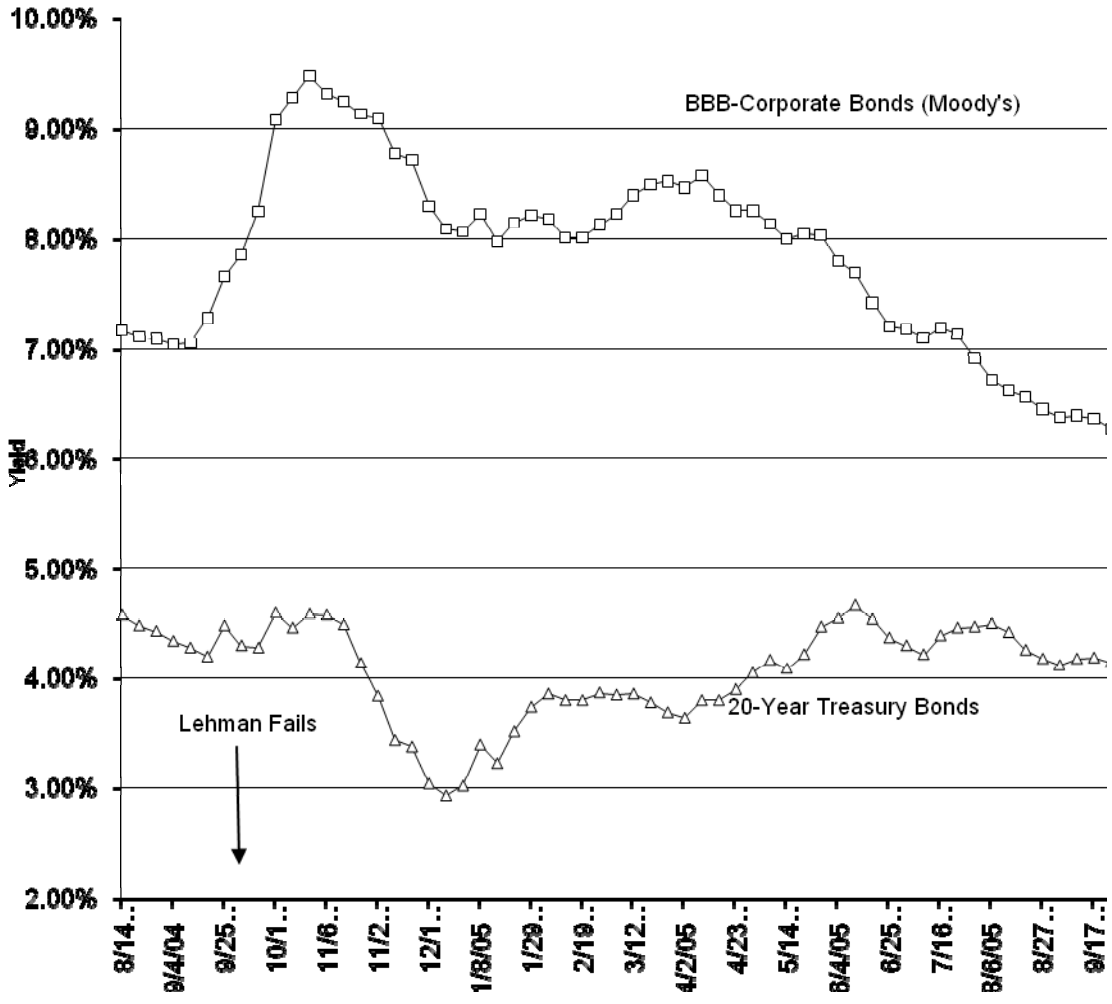
Chart II.

Financial Crisis: Bond Yield Changes



Following the failure of Lehman Brothers, as the full extent of the debt overhang in the financial industry became known, BBB-rated corporate bond yields began to increase, even as long-term Treasury yields remained relatively steady at about 4.5 percent. According to the database of the Federal Reserve, BBB-rated corporate bond yields rose dramatically by 250 basis points as the risk

of default, and the nervousness of investors increased. It was during this time period of abnormally elevated corporate bond yields that PSE's cost of capital witness, Dr. Morin, performed the cost of capital analysis presented in this case. That analysis, based in part on those unusual circumstances, does not accurately represent investors' long-term return expectations.

As liquidity began to be restored to the bond markets through direct government intervention, both corporate bond yields have declined from the highs established in the fall of 2008 and first part of 2009. Most recently, as the crisis environment has begun to fade and the rate of economic decline has slowed in response to Federal stimulus, investors concerns have eased, the stock market has begun to rebound, and corporate bond yields have declined below pre-crisis levels. Also, as noted above, long-term Treasury bond yields have increased from their lowest point established at the end of 2008. As a result, the yield spread differential between corporate bonds and long-term Treasury securities has now declined to a level *below* that experienced prior to the late 2008 financial crisis.

On balance, then, the fixed-income data available in the financial marketplace indicates that while there were technical difficulties in the corporate bond market that drove up yields for a period of time, that has not proven to be a long-term phenomena and the high yields experienced in the latter part of the financial crisis do not represent investors' long-term expectations. This data also indicates that investors' required return for a risk-free investment remains low by historical standards—around 4 percent. Therefore, the bond yield data available in the market place indicates that the risk-free rate of return, a fundamental

element of all capital costs, has declined from pre-crisis levels, and corporate bond yields have declined well below pre-crisis levels. These factors indicate a lower cost of capital in the current economic environment.

Q: What is the current expectation with regard to the economy and interest rates?

A: As Value Line notes in its most recent Quarterly Review the current expectation is that the recent recession is over and the economy will expand at a moderate pace during the remainder of 2009 and 2010 aid of accommodative Federal Reserve credit policy. However, increasing inflation pressures with energy, food and commodities indicate that the next interest rate move by the Fed will be toward tightening credit (i.e., increasing interest rates).

> **Economic Growth:** As we noted, the recession seems to be finally over, and an initially unexciting business upturn appears to be taking hold. Our forecast is that U.S. GDP growth will average about 2% in the third quarter (buoyed by likely inventory building, better auto demand, some emerging stability in manufacturing, and some sings of a bottoming in housing). We think the evolving expansion will be slow to gain momentum, however, in particular if the recent improvement in the employment data is not sustained in the months to come. Our thinking is that GDP growth will move forward by a bit more than 2% during the fourth quarter, and stay in that uninspired range for much of 2010 [chart omitted]
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> **Inflation**: So far, at least, the specter of escalating inflation seems safely off in the distance. In fact, until recently, we were more fearful of deflation—or falling prices—than rising prices . . . Have we seen the last of the deflation scare? That is hard to say, although our view is that with the adoption of aggressive fiscal stimulus and monetary easing initiatives by the government and the Federal Reserve, respectively, the prospective pricing concerns—albeit perhaps several years off—are likely to be on the inflation side [Chart omitted].

> **Interest Rates**: In late 2008, with the economy seemingly in freefall, the Federal Reserve voted to lower the federal funds rate target to near zero. In has kept it there ever since, as the central bank has sought to turn the nation's economic fortunes around. Recent data suggest that it has met with success in this endeavor . . . . Clearly, the next move will be for the Fed to raise rates. We do not think that will occur before 2010, though, especially if the economy shows just limited life during the second half of this year. (The Value Line Investment Survey, *Selection & Opinion*, August 28, 2009, pp. 3345-6.)

In that most recent Quarterly Economic Review, cited above, Value Line projects long-term Treasury bond rates will average 4.2 percent during the third quarter of 2009 and 5.0 percent by the end of 2010. The recent 20-year T-bond yield for the week ending September 25, 2009, according to the Federal Reserve is 4.19 percent (Federal Reserve Statistical Release H.15, September 28, 2009). Therefore, the indicated expectation with regard to long-term interest rates is that they could move somewhat higher in the near-term future, provided the economic recovery continues to advance.

IV. METHODS OF EQUITY COST EVALUATION

A. Discounted Cash Flow Model

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

A: The DCF model relies on the equivalence of the market price of the stock (P) with the present value of the cash flows investors expect from the stock, and assumes that the discount rate equals the cost of capital. The total return to the investor, which equals the required return and the cost of equity capital according to this

theory, is the sum of the dividend yield and the expected growth rate in the dividend.

The theory is represented by the equation,

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

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

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

A: The growth rate variable in the traditional DCF model is quantified theoretically as the dividend growth rate investors expect to continue into the indefinite future. The DCF model is actually derived by 1) considering the dividend a growing perpetuity, that is, a payment to the stockholder which grows at a constant rate indefinitely, and 2) calculating the present value (the current stock price) of that perpetuity. The model also assumes that the company whose equity cost is to be measured exists in a steady state environment, i.e., the payout ratio and the expected return are constant and the earnings, dividends, book value and stock price all grow at the same rate, forever. As with all mathematical models of real-world phenomena, the DCF theory does not exactly "track" reality. Payout ratios and expected equity returns do change over time. Therefore, in order to properly apply the DCF model to any real-world situation and, in this case, to find the

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long-term sustainable growth rate called for in the DCF theory, it is essential to understand the determinants of long-run expected dividend growth.

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

A: Yes, in Exhibit No. SGH-3, I provide an example of the determinants of a sustainable growth rate on which to base a reliable DCF estimate. Additionally, in Exhibit No. SGH-3, I show how reliance on earnings growth rates alone, absent an examination of the underlying determinants of long-run dividend growth, can produce inaccurate DCF results.

Q: Did you use a sustainable growth rate approach to develop an estimate of the expected growth rate for the DCF model?

A: I have calculated both the historical and projected sustainable growth rate for a sample of utility firms with similar-risk operations, but I have not relied solely on that type of growth rate analysis. To estimate an appropriate DCF growth rate, I have also utilized published data regarding both historical and projected growth rates in earnings, dividends, and book value for the sample group of utility companies. Through an examination of all of those data, which are available to and used by investors, I estimate investors' long-term internal growth rate expectations. To that long-term growth rate estimate, I add any additional growth that is attributable to investors' expectations regarding the on-going sale of stock for each of the companies under review.

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

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

Q: How were the firms selected for your analysis?

A: In selecting a sample of electric utility firms to analyze, I screened all the electric utilities followed by Value Line, because that investor service, in addition to providing a wealth of historical data, provides projected information, which is important in gauging investor expectations. I selected electric companies that had

at least 70 percent of revenues from electric operations, had generation assets, did not have a pending merger, did not have a recent dividend cut, had stable book values and a senior bond rating between "A-" and "BBB-". The screening process for electric utilities is summarized on Exhibit No. SGH-6, attached to my testimony. All of the electric utilities followed by Value Line are shown, as well as the screening parameters and the parameter values for each company. The Companies selected for analysis as most similar in risk to PSE are: Central Vermont Public Service (CV), FirstEnergy Corp. (FE), Northeast Utilities (NU), American Electric Power (AEP), Cleco Corp. (CNL), Empire District Electric (DPL), Entergy Corp. (ETR), Westar Energy (WR), Hawaiian Electric (HE), Idacorp (IDA), and Pinnacle West Capital Corp. (PNW).[10]

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

A: Exhibit No. SGH-7 pages 1 through 4, shows the retention ratios, equity returns, sustainable growth rates, book values per share and number of shares outstanding for the comparable electric companies for the past five years. Also included in the information presented in Exhibit No. SGH-7, are Value Line's projected 2009, 2010 and 2012-2014 values for equity return, retention ratio, book value growth rates and number of shares outstanding.

In evaluating these data, I first calculate the five-year average sustainable growth rate, which is the product of the earned return on equity (r) and the ratio of earnings retained within the firm (b). For example, Exhibit No. SGH-7, page 2,

[10] In the Schedules accompanying this testimony, the sample group companies are referred to by their stock

shows that the five-year average sustainable growth rate for one of the sample companies (American Electric Power—AEP) is 5.36 percent. The simple five-year average sustainable growth value is used as a benchmark against which I measure the company's most recent growth rate trends. Recent growth rate trends are more investor influencing than are simple historical averages. Continuing to focus on AEP, we see that sustainable growth has been quite consistent throughout the historical period indicating stable growth. By the 2012-2014 period, Value Line projects AEP's sustainable growth will moderate a bit from the recent five-year average, to 5.03 percent. These forward-looking data indicate that investors expect AEP to grow at a rate slightly lower than the growth rate that has existed, on average, over the past five years.

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

> "We have greater confidence in our year-ahead ranking system, which is based on proven price and earnings momentum, than in 3- to 5-year projections." (*Value Line Investment Survey, Selection and Opinion*, June 7, 1991, p. 854).

Another factor to consider is that AEP's book value growth is expected to increase at a 5.0 percent level over the next five years. This information tends to

ticker symbols, shown here in parentheses.

confirm the sustainable growth projections. Also, as shown on Exhibit No. SGH-7 page 2, AEP's dividend growth rate, which was negative 6 percent historically, is expected increase to a 3 percent rate of growth. While this also shows higher growth, the projected level is well below sustainable growth projections.

Earnings growth rate data available from Value Line indicate that investors can expect a relatively lower growth rate in the future (3%), compared to the sustainable growth rate projections. IBES and Zack's (investor advisory services that poll institutional analysts for growth earnings rate projections) also project moderate earnings growth rate for AEP—3.75 percent and 3.3 percent, respectively—over the next five years.

AEP's projected sustainable growth is expected to approach 5 percent, dividends are expected to increase at a 3 percent annual rate. Per share earnings growth is expected to range from 3 percent to 3.75 percent. A long-term growth rate of 4.25 percent is a reasonable expectation for AEP.

Q: Is the internal (b x r) growth rate the final growth rate you use in your DCF analysis?

A: No. An investor's sustainable growth rate analysis does not end upon the determination of an internal growth rate from earnings retention. Investor expectations regarding growth from external sources (sales of stock) must also be considered and examined. For AEP, page 2 of Exhibit No. SGH-7 shows that the number of outstanding shares increased at a 0.64 percent rate over the most recent five-year period. However, Value Line expects the number of shares outstanding to increase at a faster rate through the 2012-2014 period, bringing the share

growth rate to a 3.83 percent rate by that time, due to a large issuance expected this year. An expectation of share growth of 2 percent is reasonable for this company.

Because AEP is currently trading at a market price that is greater than book value, issuing additional shares will increase investors' growth rate expectations. Multiplying the expected growth rate in shares outstanding by (1-(Book Value/Market Value))[11] increases the investor-expected growth rate for AEP by 0.24 percent. Therefore, the combined internal and external growth rate for AEP is 4.49 percent (4.25% internal growth and 0.24% external growth).

I have included the details of my growth rate analyses for AEP as an example of the methodology I use in determining the DCF growth rate for each company in the electric industry sample. A description of the growth rate analyses of each of the companies included in my sample groups is set out in Exhibit No. SGH-4 and Exhibit No. SGH-8, page 1 of 2, attached to this testimony shows the internal, external and resultant overall growth rates for each of the electric utility companies analyzed.

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

A: Yes. Page 2 of Exhibit No. SGH-8 shows the results of my DCF growth rate analysis as well as 5-year historic and projected earnings, dividends and book value growth rates from Value Line, earnings growth rate projections from

[11] This is Gordon's formula for "v" the accretion rate related to new stock issues. B=book value, M=market value. (Gordon, M.J., *The Cost of Capital to a Public Utility*, MSU Public Utilities Studies, East Lansing, Michigan, 1974, pp., 30–33).

Reuters, the average of Value Line and IBES growth rates and the 5-year historical compound growth rates for earnings, dividends and book value for each company under study.

My average DCF growth rate estimate for all the electric utility companies included in my analysis is 4.67 percent. This figure exceeds Value Line's projected average growth rate in earnings, dividends and book value for those same companies (4.41%) and is well above the five-year historical average earnings, dividend and book value growth rate reported by Value Line for those companies (3.18%). My growth rate estimate for the electric companies under review is below the analysts' earnings growth rate projections—6.11 percent and 5.9 percent (IBES and Zack's, respectively). Also, my growth rate estimate is above the projected dividend growth rate of the sample companies, 3.55 percent.

Q: Some cost of capital witnesses rely exclusively on analysts' earnings projections as the growth rate in the DCF; you have not done so. Can you explain why?

A: In my view, earnings growth rate projections are widely available, are used by investors, and therefore deserve consideration in an informed, accurate assessment of the investor expected growth rate to be included in a DCF model. I do not believe, however, that projected earnings growth rates should be used as the only source of a DCF growth estimate as Company witness Morin has done in this case. In other words, projected earnings growth rates are influential in, but not solely determinative of, investor expectations.

First, it is important to realize that, as I discuss in Exhibit No. SGH-3, projected earnings growth rates may over or understate the growth that can be sustained over time by the companies under review. This is important because long-term sustainable growth is required in an accurate DCF assessment of the cost of equity capital. The efficacy of projected earnings growth rates in any specific DCF analysis can only be determined through a study of the underlying fundamentals of growth—something that those who rely exclusively on analysts' earnings growth rate projections fail to do.

Second, the studies that support the use of analysts' earnings projections measure the ability of analyst's estimates to predict stock prices versus simple historical averages of other parameters. In that sort of simplistic comparison, analysts' projections perform better. However, I am aware of no cost of capital analyst that relies exclusively on historical average growth rates, nor is it reasonable to believe that any astute investor would do so. Therefore, while studies do indicate that analysts' earnings growth estimates are better indicators of stock prices than are simple historical averages of other growth rate parameters, those studies do not provide any basis for exclusive reliance on earnings growth projections in a DCF analysis.

Third, the sell-side institutional analysts that are polled by IBES and other investor services offer relatively "rosy" expectations for the stock they follow—even when the analyst's actual expectations for the stock may not be so sanguine. That is, some analysts overstate growth expectations to make the stocks they want to sell appear more attractive. Although claims are often made that the opinions

of sell-side analysts are not affected by the profits made by the other parts of the business that actually trade the securities, the "Cinderella effect" (analysts' overstating stock growth expectations) is not a new phenomenon, and is recognized in academia. As the authors of a widely-used finance textbook note regarding the use of projected earnings growth rates in a DCF analysis:

> Estimates of this kind are only as good as the long-term forecasts on which they are based. For example, several studies have observed that security analysts are subject to behavioral biases and their forecasts tend to be over-optimistic [footnote omitted]. If so, such DCF estimates of the cost of equity should be regarded as upper estimates of the true figure. [footnote omitted]. *See, for example,* A. Dugar and S. Nathan, "The Effect of Investment Banking Relationships on Financial Analysts' Earnings Investment Recommendations." (*Contemporary Accounting Research* 12 (1995), pp. 131-160. Brealey, Meyers, Allen, *Principles of Corporate Finance, 8th Ed.*, McGraw-Hill Irwin, Boston, MA, (2006), p. 67.)

This concern regarding investors' use of analysts' growth estimates is also underscored by an investor's service sponsored by the *Wall Street Journal*:

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

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

A: Yes, it does.

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Q: How have you calculated the dividend yields?

A: I have estimated the next quarterly dividend payment of each firm analyzed and annualized them for use in determining the dividend yield. If the quarterly dividend of any company was expected to be raised in this or the next quarter (3rd or 4th quarter 2009), I increased the current quarterly dividend by (1+g). Because many of the companies had recently increased dividends or were not expected to increase dividends at all during 2009 and 2010, for the utility companies in the sample groups, a dividend adjustment was necessary only for American Electric Power and Cleco Corporation.

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

Exhibit No. SGH-9 contains the market prices, annualized dividends and dividend yields of the utility companies under study. The average dividend yield for the sample group of electric companies is 5.20 percent. The year-ahead dividend yield projection for that electric utility sample group published by Value Line is 5.18 percent (Value Line, *Summary & Index*, October 9, 2009). By that measure, my dividend yield calculation is representative of investor expectations.

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

A: Exhibit No. SGH-10 shows that the average DCF cost of equity capital for the group of electric utilities is 9.87 percent.

Q: Have you also performed a multi-stage DCF analysis in this proceeding?

A: Yes, I have included a multi-state DCF analysis in this testimony. A multi-stage DCF analysis is based on the same theory as the single-stage DCF, but selects particular growth rates for an initial growth stage and a final, long-term growth rate stage, rather than estimating one long-term sustainable growth rate.[12]

In my experience, the multi-stage DCF analysis used most often in rate proceedings is one that uses analysts' earnings growth rate estimates as the first stage and a projected Gross Domestic Product nominal growth rate (based on the assumption that it is reasonable to assume that, over time, all firms will grow at a rate similar to that of the general economy). There are problems with both of those assumptions that tend to cause that type of multi-stage DCF to overstate the cost of equity. First, as I noted above, analysts' earnings growth rates tend to overstate actual growth rate results. That problem is less of a concern in a multi-stage DCF because any overstatement of long-term sustainable growth has less impact on the outcome than assuming analyst earnings growth estimates will continue indefinitely (the operative assumption in a single-stage, traditional

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[12] In some instances, analysts will insert a third growth rate stage in the calculation in which the initial growth rate is changed gradually to the final growth rate—a "transition" stage. This adjustment makes little difference in the outcome of the model.

DCF). Second, historical evidence indicates that utilities grow at a rate below that of the general economy.[13]

Setting aside those concerns, Exhibit No. SGH-11 shows a multi-stage DCF analysis for all of the companies in my electric utility sample group. Averaging Value Line, IBES and Zack's earnings projections for each company provided the first stage growth rate. Using the 2010 dividend for each of those companies in my sample group as the first year dividend, I increased those annual dividends by one plus the average projected earnings growth rate for each company to determine the cash flows to the investor for the first five years.

Then for the second, long-term period I increased the dividend in each year by one plus the projected growth in Gross Domestic Product. The Congressional Budget Office's current expectation for long-term GDP growth is 4.2 percent. That is the growth rate used for the second stage of the multi-stage DCF model, shown in Exhibit No. SGH-11.

Then, using the current stock price of each company along with the projected cash flows just described, I employed an Internal Rate of Return function to calculate the discount rate that would equate the current stock price of each company with its future cash flows. The result of that analysis is an average multi-stage DCF estimate for the sample companies of 9.57 percent. Given the fact that this is a relatively conservative analysis (i.e., one that is likely to overstate the cost of equity), these results indicate that my standard DCF results may be overstated.

[13] Mergent Public Utility Manual, 2002; GDP data from St. Louis Federal Reserve.

B. Capital Asset Pricing Model

Q: Please describe the capital asset pricing model (CAPM) you used to arrive at an estimate for the cost rate of PSE's equity capital.

A: The CAPM states that the expected rate of return on a security is determined by a risk-free rate of return plus a risk premium, which is proportional to the non-diversifiable (systematic) risk of a security. Systematic risk refers to the risk associated with movements in the macro-economy (the economic "system") and, thus, cannot be eliminated through diversification by holding a portfolio of securities. The beta coefficient (β) is a statistical measure that attempts to quantify the non-diversifiable risk of the return on a particular security against the returns inherent in general stock market fluctuations. The formula is expressed as follows:

$$k = r_f + \beta(r_m - r_f), \qquad (2)$$

where "k" is the cost of equity capital of an individual security, "r_f" is the risk-free rate of return, "β" is the beta coefficient, "r_m" is the average market return and "$r_m - r_f$" is the market risk premium. The CAPM is used in my analysis, not as a primary cost of equity analysis, but as a check of the DCF cost of equity estimate. Although I believe the CAPM can be useful in testing the reasonableness of a cost of capital estimate, certain theoretical shortcomings of this model (when applied in cost of capital analysis) reduce its usefulness.

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Q: Can you explain why the CAPM analysis should be applied to cost of capital estimation with caution?

A: Yes. The reasons why the CAPM should be used in cost of capital analysis with caution are set out below. It is important to understand that my caution with regard to the use of the CAPM in a cost of equity capital analysis does not indicate that the model is not a useful description of the capital markets. Rather, my caution recognizes that in the practical application of the CAPM to cost of capital analysis there are problems that can cause the results of that type of analysis to be less reliable than other, more widely accepted models such as the DCF.

There has been much comment in the financial literature regarding the strength of the assumptions that underlie the CAPM and the inability to substantiate those assumptions through empirical analysis. Also, there are problems with the key CAPM risk measure, beta, that indicate that the CAPM analysis is not a reliable primary indicator of equity capital costs.

Cost of capital analysis is a decidedly forward-looking, or *ex-ante*, concept. Beta is not. The measurement of beta is derived with historical, or *ex-post*, information. Therefore, the beta of a particular company, because it is usually derived with five years of historical data, is slow to change to current (i.e., forward-looking) conditions, and some price abnormality that may have happened four years ago, for example, could substantially affect beta while, currently, being of little actual concern to investors. Moreover, this same shortcoming, which

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assumes that past results mirror investor expectations for the future, plagues the market risk premium in an ex-post, or historically-oriented CAPM.

Q: What value have you chosen for a risk-free rate of return in your CAPM analysis?

A: As the CAPM is designed, the risk-free rate is that rate of return investors can realize with certainty. The nearest analog in the investment spectrum is the 13-week U. S. Treasury Bill. However, T-Bills can be heavily influenced by Federal Reserve policy, as they have been over the past three years. While longer-term Treasury bonds have equivalent default risk to T-Bills, those longer-term government securities carry maturity risk that the T-Bills do not have. When investors tie up their money for longer periods of time, as they do when purchasing a long-term Treasury, they must be compensated for future investment opportunities forgone as well as the potential for future changes in inflation. Investors are compensated for this increased investment risk by receiving a higher yield on T-Bonds. However, when T-Bills and T-Bonds exhibit a "normal" (historical average) spread of about 1.5 percent to 2 percent, the results of a CAPM analysis that matches a higher market risk premium with lower T-Bill yields or a lower market risk premium with higher T-Bond yields, are very similar.

As I noted in my previous discussion of the macro-economy, in an attempt to fend off a recession and to inject liquidity into the financial system, the Fed has acted vigorously since August of 2007 to lower short-term interest rates. Over the most recent six-week period, T-Bills have produced an average yield of only 0.12

percent. During that time period Treasury Bonds have been priced to yield 4.19 percent (data from Value Line *Selection & Opinion,* in the six most recent weekly editions (9/4/098-10/9/09)). Therefore, for purposes of analysis in this proceeding I will use 4.2 percent as the long-term risk-free rate.

Q: What market risk premium have you used in your CAPM analysis?

A: The market risk premium is the difference between the return investors expect on stocks and the return they expect on a risk-free rate of return like a U.S. Treasury bond. The "traditional" view, supported primarily by the earned return data over the past 80 years published by Morningstar (formerly Ibbotson Associates), is based on the historical difference between the returns on stocks and the returns on bonds. That view assumes that the returns actually earned by investors over a long period of time are representative of the returns they expect to earn in the future.

For example, the current Morningstar data show that investors have earned a return of 11.7 percent on stocks and 6.1 percent on long-term Treasury bonds since 1926.[14] Therefore, based on those historical data, it is assumed that investors will require a risk premium in the future of 5.6 percent above the long-term risk-free rate to invest in stocks [11.7% - 6.1% = 5.6%]. With a current long-term T-Bond yield of approximately 4.2 percent, that assumption indicates an investor expectation of a 9.8 percent return for the stock market in general [4.2% + 5.6% = 9.8%]. However, current research indicates that there are aspects of the Morningstar historical data set that, when examined, point not only to lower

[14] Morningstar 2009 Risk Premia Over Time Report, p. 4.

historical risk premiums than those reported by Morningstar, but also expected risk premiums that are also lower.

Q: Has the research you mention found its way into today's finance textbooks?

A: Yes. In the 2006 edition of their widely-used finance textbook, Brealey, and Meyers [15] discuss the findings of many different recent studies regarding the market risk premium. Importantly, in prior editions of their textbooks Brealey, et al, cited the Morningstar historical data, now they do not. Instead they cite the risk premium work of Dimson, Staunton and Marsh, authors of "Triumph of the Optimists," in which they review a longer-term data set than that used by Morningstar and conclude that market risk premiums expected in the future are below historical averages.[16]

The textbook authors conclude, based on a review of the recent evidence regarding the market risk premium, that a reasonable range of arithmetic equity premiums above short-term Treasury Bills is 5 percent to 8 percent.[17] Because, the long-term historical difference in the return between T-Bonds and T-Bills has been 1.2 percent, Brealey and Meyers' textbook indicates a long-term market risk premium relative to T-Bonds ranging from 3.8% to 6.8% [5% - 1.2% = 3.8%; 8% - 1.2% = 6.8%].[18] The mid-point of that 3.8 percent to 6.8 percent reasonable risk premium range is 5.3 percent. Although 5.3 percent is higher than other risk premium estimates, that average market risk premium added to a current T-Bond

[15] Brealey, R., Meyers, S., Allen, F., *Principles of Corporate Finance, 8th Edition*, McGraw-Hill, Irwin, Boston, MA, 2006.
[16] Dimson, E., Staunton, M., March, P., *Triumph Of The Optimists, 101 Years of Global Investment Returns*, Princeton University Press, Princeton, NJ, 2002.
[17] Op cit, p. 154.
[18] Op cit, pp. 149, 222.

yield of 4.2 percent, would produce a current equity return expectation for U.S. equities of 9.5 percent. Because utility stocks are less risky than the market as a whole, an appropriate return on equity for utilities would be lower, according to CAPM theory.

Q: What have you chosen as the market risk premium for the CAPM analysis?

A: In their 2009 edition of *Stocks, Bonds, Bills and Inflation*, Morningstar indicates that the average market risk premium between stocks and T-Bonds over the 1926–2006 time period is 5.6 percent (based on an arithmetic average), and 3.9 percent (based on a geometric average). I have, in prior testimony, used these long-term historical average values as an estimate of the market risk premium in the CAPM analysis.

As I noted above, recent research in the field of financial economics has shown that the market risk premium data published by Morningstar is likely to overstate investor-expected market risk premiums. Current textbooks (Brealey & Meyers) indicate that the long-term arithmetic average market risk premium ranges from 3.8 percent to 6.8 percent. The mid-point of Brealey & Meyer's long-term risk premium range is 5.3 percent, which falls within the 3.9 percent to 5.6 percent range published by Morningstar. For purposes of determining the CAPM cost of equity in this proceeding I will use the mid-point of the long-term risk premium range set out in the most recent Brealey & Meyer's text—5.3 percent, as well as the Morningstar market risk premiums to develop a range of CAPM equity cost estimates.

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Q: What values have you chosen for the beta coefficients in the CAPM analysis?

A: Value Line reports beta coefficients for all the stocks it follows. Value Line's beta is derived from a regression analysis between weekly percentage changes in the market price of a stock and weekly percentage changes in the New York Stock Exchange Composite Index over a period of five years. The average beta coefficient of the sample of electric companies is 0.73.

Q: What is your recommended cost of equity capital for the sample of electric companies using the capital asset pricing model analysis?

A: Exhibit No. SGH-12 shows that the average Value Line beta coefficient for the group of electric companies under study is 0.73. The mid-point of the range of market risk premiums published by Brealey and Meyers of 5.3 percent would, upon the adoption of a 0.73 beta, become a sample group premium of 3.85 percent (0.73 x 5.3%). That non-specific risk premium added to the risk-free T-Bond rate of 4.20 percent, previously derived, yields a common equity cost rate estimate of 8.05 percent. Using the range of market risk premiums published by Morningstar (3.9% to 5.6%) the resulting CAPM equity cost estimates range from 7.04 percent to 8.49 percent. The average of all three CAPM estimates is 7.79 percent. This analysis, even at the high end (8.49%) indicates a cost of equity capital estimate that is substantially below the standard DCF analysis.

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C. Modified Earnings-Price Ratio Analysis

Q: Please describe the modified earnings-price ratio (MEPR) analysis of the cost of common equity capital.

A: The earnings-price ratio is the expected earnings per share divided by the current market price. In cost of capital analysis, the earnings-price ratio (which is one portion of this analysis) can be useful in a corroborative sense, since it can be a good indicator of the proper range of equity costs when the market price of a stock is near its book value. When the market price of a stock is *above* its book value, the earnings-price ratio *understates* the cost of equity capital. Exhibit No. SGH-13 contains mathematical proof for this concept. The opposite is also true, i.e. the earnings-price ratio *overstates* the cost of equity capital when the market price of a stock is *below* book value.

Under current market conditions, the utilities under study have an average market-to-book ratio of 1.21 and, therefore, the average earnings-price ratio alone will understate the cost of equity for the sample groups. However, I do not use the earnings-price ratio alone as an indicator of equity capital cost rates. Because of the relationship among the earnings-price ratio, the market-to-book ratio and the investor-expected return on equity described mathematically in Exhibit No. SGH-13, I have modified the earnings-price ratio analysis by including expected returns on equity for the companies under study. It is that modified analysis that I will use to assist in estimating an appropriate range of equity capital costs in this proceeding.

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Q: Please explain the relationship among the earnings-price ratio, the expected return on equity, and the market-to-book ratio.

A: When the expected return (ROE) approximates the cost of equity, the market price of the utility approximates its book value and the earnings-price ratio provides an accurate estimate of the cost of equity. As the investor-expected return on equity for a utility (ROE) begins to exceed the investor-required return (the cost of equity capital), the market price of the firm will tend to exceed its book value. As explained above, when the market price exceeds book value, the earnings-price ratio understates the cost of equity capital. Therefore, when the expected equity return (ROE) exceeds the cost of equity capital, the earnings-price ratio will understate that cost rate.

Also, in situations where the expected equity return is below what investors require for that type of investment, market prices fall below book value. Further, when market-to-book ratios are below 1.0, the earnings-price ratio overstates the cost of equity capital. Thus, the expected rate of return on equity and the earnings-price ratio tend to move in a countervailing fashion around the cost of equity capital.

When market-to-book ratios are above one, the expected equity return exceeds and the earnings-price ratio understates the cost of equity capital. When market-to-book ratios are below one, the expected equity return understates and the earnings-price ratio exceeds the cost of equity capital. Further, as market-to-book ratios approach unity, the expected return and the earnings price ratio approach the cost of equity capital. Therefore, the average of the expected book

return and the earnings price ratio provides a reasonable estimate of the cost of equity capital.

These relationships represent general rather than precisely quantifiable tendencies but are useful in corroborating other cost of capital methodologies. The Federal Energy Regulatory Commission, in its generic rate of return hearings, found this technique useful and indicated that under the circumstances of market-to-book ratios exceeding unity, the cost of equity is bounded above by the expected equity return and below by the earnings-price ratio (e.g., 50 *Fed Reg*, 1985, p. 21822; 51 *Fed Reg*, 1986, pp. 361, 362; 37 FERC ¶ 61,287). The mid-point of these two parameters, therefore, produces an estimate of the cost of equity capital which, when market-to-book ratios are different from unity, is far more accurate than the earnings-price ratio alone.

Q: Is there other theoretical support for the use of an earnings-price ratio in conjunction with an expected return on equity as an indicator of the cost of equity capital?

A: Elton and Gruber, *Modern Portfolio Theory and Investment Analysis* (New York University, Wiley & Sons, New York, 1995, pp. 401-404) provide support for reliance on my modified earnings price ratio analysis. The Elton and Gruber posit the following formula,

$$k = (1-b)E/(1-cb)P, \text{ where} \qquad (3)$$

"k" is the cost of equity capital, "b" is the retention ratio, "E" is earnings, "P" is market price and "c" is the ratio of the expected return on equity to the cost of

equity capital (ROE/k). This formula shows that when ROE = k, "c" equals 1.0 and the cost of equity capital equals the earnings-price ratio. Moreover, in that case, ROE is greater than "k" (as it is in today's market), "c" is greater than 1.0 and the earnings-price ratio will understate the cost of equity. Also, the more that ROE exceeds "k" the more the earnings price ratio will understate "k." In other words, as I note in my Direct Testimony those two parameters, the earnings-price ratio and the expected return on equity (ROE) orbit around the cost of equity capital, with the cost of equity as the locus, and fluctuate so that their mid-point approximates the cost of equity capital.

Assuming an industry average retention ratio of about 30 percent (i.e., 70% of earnings are paid out as dividends), the stochastic relationship between the expected return (ROE) and the earnings price ratio can be determined from Equation (ii), above, as shown in Table II below. Most importantly, Equation (3) shows that the average of the EPR and ROE (which is my MEPR analysis) will approximate "k", the cost of equity capital.

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Table II.

Support For The Modified Earnings Price Raito Analysis

Cost of Equity	Retention Ratio	ROE	ROE/k	Earnings Price Ratio	M.E.P.R. (ROE+EPR)/2
[1]	[2]	[3]	[4]=[3]/[1]	[5]	[6]=([3]+[5])/2
10.00%	35.00%	13.00%	1.3	8.38%	10.69%
10.00%	35.00%	12.00%	1.2	8.92%	10.46%
10.00%	35.00%	11.00%	1.1	9.46%	10.23%
10.00%	35.00%	10.00%	1.0	10.00%	10.00%
10.00%	35.00%	9.00%	0.9	10.54%	9.77%
10.00%	35.00%	8.00%	0.8	11.08%	9.54%
10.00%	35.00%	7.00%	0.7	11.62%	9.31%

[5] From Equation (3): $E/P = k(1-cb)/(1-b)$

As the data in Table II shows, the average of the expected return (ROE) and the earnings price ratio (EPR) produces an estimate of the cost of common equity capital of sufficient accuracy to serve as a check of other analyses, which is how I use the model in my testimony.

Q: What are the results of your earnings-price ratio analysis of the cost of equity for the sample group?

A: Exhibit No. SGH-13 shows the IBES projected 2010 per share earnings for each of the firms in the sample groups. Recent average market prices (the same market prices used in my DCF analysis), and Value Line's projected return on equity for 2010 and 2012-2014 for each of the companies are also shown.

The average earnings-price ratio for the electric sample group, 8.57 percent, is below the cost of equity for those companies due to the fact that their average market-to-book ratio is currently above unity (average electric utility M/B

= 1.21). The sample electric companies' 2009 expected book equity return averages 9.82 percent. For the electric sample group, then, the mid-point of the earnings-price ratio and the current equity return is 9.19 percent.

Exhibit No. SGH-14 also shows that the average expected book equity return for the electric utilities over the next three- to five-year period increases slightly to 10.09 percent. The midpoint of the longer-term projected return on book equity (10.09%) and the current earnings-price ratio (8.57%) is 9.33 percent. That longer-term analysis provides another forward-looking estimate of the equity capital cost rate of electric utility firms. The results of this MEPR analysis also indicate that the DCF equity cost estimate, previously derived, may be overstated (i.e., too high).

D. Market-to-Book Ratio Analysis

Q: Please describe your market-to-book (MTB) analysis of the cost of common equity capital for the sample groups.

A: This technique of analysis is a derivative of the DCF model that attempts to adjust the capital cost derived with regard to inequalities that might exist in the market-to-book ratio. This method is derived algebraically from the DCF model and, therefore, cannot be considered a strictly independent check of that method. However, the MTB analysis is useful in a corroborative sense. The MTB seeks to determine the cost of equity using market-determined parameters in a format different from that employed in the DCF analysis. In the DCF analysis, the available data is "smoothed" to identify investors' long-term sustainable expectations. The MTB analysis, while based on the DCF theory, relies instead

on point-in-time data projected one year and five years into the future and, thus, offers a practical corroborative check on the traditional DCF. The MTB formula is derived as follows:

Solving for "P" from Equation (1), the standard DCF model, we have

$$P = D/(k-g). \quad (4)$$

But the dividend (D) is equal to the earnings (E) times the earnings payout ratio, or one minus the retention ratio (b), or

$$D = E(1-b). \quad (5)$$

Substituting Equation (5) into Equation (4), we have

$$P = \frac{E(1-b)}{k-g} \ . \quad (6)$$

The earnings (E) are equal to the return on equity (r) times the book value of that equity (B). Making that substitution into Equation (6), we have

$$P = \frac{rB(1-b)}{k-g} \ . \quad (7)$$

Dividing both sides of Equation (7) by the book value (B) and noting from Equation (iii) in Appendix B that g = br+sv,

$$\frac{P}{B} = \frac{r(1-b)}{k-br-sv} \ . \quad (8)$$

Finally, solving Equation (8) for the cost of equity capital (k) yields the MTB formula:

$$k = \frac{r(1-b)}{P/B} + br+sv. \quad (9)$$

Equation (9) indicates that the cost of equity capital equals the expected return on equity multiplied by the payout ratio, divided by the market-to-book ratio plus growth. Exhibit No. SGH-15 shows the results of applying Equation (9) to the defined parameters for the electric utility firms in the comparable sample. For the electric utility sample group, page 1 of Exhibit No. SGH-15 utilizes next year (2010) data for the MTB analysis while page 2 utilizes Value Line's 2012-2014 projections.

The MTB cost of equity for the sample of electric utility firms, recognizing a current average market-to-book ratio of 1.21 is 9.71 percent using the current year data and 9.60 percent using projected three- to five-year data. Those point-in-time estimates are slightly below my DCF equity cost estimate.

E. Summary

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

A: My analysis of the cost of common equity capital for the sample group of integrated electric utility companies is summarized in the table below.

Table III.
Equity Cost Estimates

METHOD	Electric Utility Companies
DCF	9.87%
CAPM	7.79%/8.49%
MEPR	9.19%/9.33%
MTB	9.60%/9.71%

For the electric utility sample group, the DCF results are 9.87 percent. However, the multi-stage DCF results, using the Congressional Budget Office's projected growth in GDP as the final long-term growth rate indicates a lower cost of equity for electric utilities similar in risk to PSE. In addition, the corroborating cost of equity analyses (MEPR, MTB, and CAPM), also indicate that the traditional DCF result is overstated. Averaging the lowest and highest results of all the corroborative analyses for the electric companies produces an equity cost range of 8.86 percent to 9.18 percent, with a mid-point of 9.02 percent, 85 basis points below the DCF result. Therefore, weighing all the evidence presented herein (including the consideration that the next interest rate move by the Federal Reserve will probably be upward), my best estimate of the cost of equity capital for a company like PSE, facing similar risks as this group of electric utilities, ranges from 9.25 percent to 9.75 percent, with a mid-point of 9.5 percent.

Q: Is there independent evidence that confirms the reasonableness of your equity cost estimate for PSE?

A: Yes. In response to a Commission Staff data request in the merger docket (Data Request No. 1035 in Docket No. U-072375), the Company provided confidential presentations made during the merger negotiations to its Board of Directors by its financial advisors regarding the valuation of Puget. In those presentations and in order to estimate a reasonable value for Puget, its advisors presented cost of estimates for integrated gas and electric utilities and Puget specifically. All of those equity cost estimates for Puget were below the 9.5 percent I estimate in this proceeding.

In response to Public Counsel Data Request No. 134, the Company provides support from its pension fund managers regarding the long-term equity return expectation. The Company's pension plan administrator, RV Kuhns & Associates, projects a long-term return for common equity investments in the U.S. of about 8 to 9 percent. Importantly, that long-term equity return expectation is for common stocks, generally, not for utility stocks, which would have a lower equity return expectation due to their lower risk. That long-term equity return expectation for the common stocks in Puget's own pension fund is well below the 9.5 percent equity return I recommend and considerably below the 10.1 percent allowed by the Commission in the Company's most recent rate proceeding.

Q: Mr. Hill, isn't it reasonable to believe that pension fund return expectations are conservative (lower) in order to avoid exaggeration of the future value and subsequent under-funding of the fund?

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

However, it is also reasonable to believe that the Company would not want to under-estimate the pension fund return estimates either. Under-estimating the expected return would call for an unnecessarily high annual contribution every year to reach the future targeted amount of pension funds. Any unnecessarily large annual pension expense would reduce profitability—an undesirable outcome

for any manager. In addition, if ultimate returns turn out to be higher than predicted through under-estimating the portfolio return, the firm will, effectively, have funded its pension requirements with internally generated funds that could have been put to other uses such as production or distribution facilities. Also, the Company is relying on the advice of J.P. Morgan and that investment bank's assessment of long-term equity return expectations for the U.S., who would have no interest in "shading" the return expectation in either direction.

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

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

A: No, it does not.

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

A: An explicit adjustment to "account for" flotation costs is unnecessary for several reasons. First, it is often stated that flotation costs associated with common stock issues are similar to flotation costs associated with bonds. As a preliminary matter, that is not a correct statement because bonds have a fixed cost and common stock does not. Moreover, even if it were true, the current relationship

between the electric utility sample group's stock price and its book value would indicate a reduction to the market-based cost of equity, not an increase.

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

In the current economic environment for the electric utility common stocks studied to determine the cost of equity in this proceeding, those stocks are selling at a market price 50 percent above book value.[19] The difference between the market price of electric utility stock and book value dwarfs any issuance expense the companies might incur. Therefore, if common equity flotation costs are, as Dr. Morin testifies, analogous to bond flotation costs, if an explicit adjustment to the cost of common equity were necessary, it should be downward, not upward.

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

[19] Exhibit No. SGH-10, p. 1.

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

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

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

Fifth, research has shown that a specific adjustment for issuance expenses is unnecessary.[20] There are other transaction costs which, when properly considered, eliminate the need for an explicit issuance expense adjustment to equity capital costs. The transaction cost that is improperly ignored by the advocates of issuance expense adjustments is brokerage fees. Issuance expenses occur with an initial issue of stock in a primary market offering. Brokerage fees occur in the much larger secondary market where pre-existing shares are traded daily. Brokerage fees tend to increase the price of the stock to the investor to levels above that reported in the Wall Street Journal, i.e., the market price that analysts use in a DCF analysis. Therefore, if brokerage fees were included in a DCF cost of capital estimate they would raise the effective market price, lower the dividend yield and lower the investors' required return. If one considers transaction costs that, supposedly, raise the required return (issuance expenses), then a symmetrical treatment would require that costs that lower the required return (brokerage fees) should also be considered. As shown by the research noted above, those transaction costs essentially offset each other and no specific equity capital cost adjustment is warranted.

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

Q: What is the overall cost of capital for PSE's integrated utility operations that would result from the application of an allowed equity return of 9.50 percent?

A: Exhibit No. SGH-16 shows that an equity return of 9.50 percent, combined with my recommended ratemaking capital structure containing 43 percent common equity, 53 percent long-term debt and 4 percent short-term debt, and the embedded cost rates of debt requested by PSE, the overall cost of capital I recommend is 7.73 percent. Further, that allowed return will provide the Company an opportunity to achieve a pre-tax coverage of interest of 2.72 times. That level of interest coverage substantially exceeds the level that Puget has realized over the past five years (Puget Energy, S.E.C. Form 10-K, Exhibit 12.2). Therefore, the equity return, capital structure and overall return I recommend will afford the company an opportunity to earn a return similar to that of other firms of corresponding risk while maintaining or improving its credit risk profile, as called for in *Hope* and *Bluefield*.

Q: Does this conclude your analysis of the cost of equity capital, Mr. Hill?

A: Yes, it does.

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V. COMPANY COST OF CAPITAL TESTIMONY

A. Technical Issues

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

A: Dr. Morin uses the same methods to estimate the cost of equity capital the he used in prior testimony before this commission, but he has changed the manner in which he calculates the results of those methods. That change in methodology causes his results to be higher than they would be if he had not altered the manner in which his cost of equity estimation methods are applied.

One of Dr. Morin's equity cost estimates is provided by a risk premium analysis he terms "Historical Risk Premium Electric Utility Industry." He reports a result of 11.1 percent for that analysis. In prior testimony on behalf of Puget, Dr. Morin employed the same technique, but calculated it differently. First, instead of relying on Moody's Electric Utility Index to calculate the historical utility return as he has for many years, Dr. Morin has now elected to utilize the Standard & Poor's Utility Index. When we compare Dr. Morin's RAM-7 in this proceeding to that same Exhibit in his testimony in Puget's last rate case, we find that instead of the 5.5 percent long-term historical risk premium derived from Moody's historical data, Dr. Morin calculates a 5.9 percent risk premium over the same time period (1931-2005) using the S&P historical data. Therefore, that methodological change increases his Electric Utility Industry risk premium by 40 basis points.

However, Dr. Morin also changes the base yield onto which the risk premium is added. In his prior testimonies in this and other jurisdictions, Dr. Morin has, for many years, used long-term T-Bonds as the fundamental yield measure. In his testimony in this proceeding he used utility bond yields as the fundamental risk measure and, in so doing, substantially increased the equity cost estimate produced by that analysis. The following Q&A states Public Counsel's data request 162(c) in the proceeding and an excerpt from the response to it.

> **Q**: Is it true that, if Dr. Morin had based his Historical Risk Premium Electric Utility Industry analysis in this proceeding on U.S. Treasury bonds instead of utility bond yields (as he did in Docket Nos. UE-072300 and UG-072301, his result for that analysis would have been 9.7%? If not, please explain why not.
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> A: It is true that, if Dr. Morin had based the historical risk premium electric utility industry analysis in this proceeding on U.S. Treasury bonds instead of utility bond yields, the result for such analysis would have been 9.7%.

That 9.7 percent result is based on Dr. Morin's new reliance on the S&P Utility Index historical returns. If he had relied on the Moody's Utility Index historical returns as he has in previous testimonies, the 9.7 percent result would have been 40 basis points lower—9.3 percent.

Q: Dr. Morin claims in his direct testimony that the circumstances of the financial crisis called for his change to a different methodology. What are your comments?

A: As I have discussed previously, the recent financial crisis certainly contributed to temporary dislocations in the capital markets and investor uncertainty caused increases in the yield spreads between corporate debt and U.S. Treasury debt.

However, the Treasury debt markets remained liquid and U.S. Treasury bond yields continued to represent investors' risk-free return expectations. As such, they remain a reliable basis for a risk premium determination—for the same reasons Dr. Morin relied on that basic yield measure in his prior testimonies (and continues to rely on it in his current CAPM analysis). In other words, the financial crisis did not change the theory on which the risk premium analysis is based, it just produced lower results indicating that investor return requirements had been moderated by the financial crisis.

Also during the crisis, the yield spread between corporate bond yields and Treasury yields widened to very high levels as the credit markets dried up and investors' worries about default drove down bond prices. That was a very unusual circumstance and one that is not likely to represent the long-term expectations of investors. While switching to a utility bond yield measure in a risk premium analysis during a spike in yield spreads certainly works to increase the cost of capital result, it is unlikely to represent actual long-term investor expectations. Finally, as I show in Chart II of Section II in this testimony, the ostensible impetus for Dr. Morin's risk premium methodology change—a very high yield spread—has since moderated to pre-crisis levels. In sum, Dr. Morin's methodology change is not well founded.

Q: Are there other methodological changes in Dr. Morin's analysis presented in this testimony, compared to his prior testimony before this Commission?

A: Yes. In prior testimony in this and other jurisdictions, Dr. Morin for some time has employed a risk premium equity cost estimation method based on the 10-year

average difference between allowed utility equity returns and U.S. Treasury bond yields. That analysis was omitted from his testimony in this proceeding and a word search of Dr. Morin's Direct Testimony for "allowed returns" reveals no match.

If Dr. Morin had included that analysis in his testimony in this proceeding, as he has in the past, it would have produced an equity cost estimate below 10 percent. The following Q&A states Public Counsel's data request 162(e) in this proceeding and excerpt from the response to it.

> **Q**: Is it true that if the "Allowed Return" risk premium of 5.6% determined in Dr. Morin's analysis in Docket Nos. UE-072300 and UG-072301 were added to Dr. Morin's value for the current long-term T-Bond yield (3.6%), the cost of equity indication would be 9.2%? If not, please explain why not.
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> A: It is true that if the allowed return premium of 5.6% determined in Dr. Morin's analysis in WUTC Docket Nos. UE-072300 and UG-072301 were added to Dr. Morin's value for the current long-term T-Bond yield (3.6%), the cost of equity indication would be 9.2%.

By omitting his "Allowed Return" risk premium from his analysis in this proceeding, Dr. Morin increased the overall average of his cost of equity estimates.

Q: What reasons did Dr. Morin provide for the elimination of this "allowed return" risk premium method?

A: In response to Public Counsel Data Request No. 162 (d), Dr. Morin indicated that the omission was 1) to avoid circularity of reasoning, and 2) due to a scarcity of regulatory decisions since the financial crisis. First, the circular nature of using

average allowed returns to estimate the return to be allowed in a utility proceeding is the essence of this analysis, yet Dr. Morin has used the "Allowed Return" risk premium for many years. That aspect of the analysis did not deter him from using it in the past and, therefore, does not serve as a valid reason to eliminate that analysis here.

Second, Regulatory Research Associates reports in its October 2, 2009, edition that the number of rate case decisions has not declined as a result of the financial crisis. That publication indicates that in 2008 there were 37 electric utility regulatory rate decisions: 10 in the first quarter, 8 in the second quarter, 11 in the third quarter, and 8 in the fourth quarter. In 2007 there were 39 decisions, and in the first two quarters of 2009 there have been 19 electric utility rate case decisions (roughly half the number of the two prior years). Moreover, in prior years in which Dr. Morin elected to rely on his "Allowed Return" risk premium analysis without questioning the number of rate case orders, there were only 16 (2006) and 7 (2001). Therefore, Dr. Morin's assessment of a "scarcity" of regulatory decisions is neither accurate nor a reasonable rationale to omit a methodology he used for many years.

Q: Are there other technical aspects of Dr. Morin's analyses that cause his results to be overstated?

A: Yes, there is one other unnecessary adjustment applied by Dr. Morin that causes his average ROE results to be overstated by approximately 12 basis points. Dr. Morin's DCF analysis relies on dividend yields published in Value Line. I have no concerns with the use of that source of information. In calculating his DCF

dividend yields, however, Dr. Morin increases the current dividend yield by one plus the DCF growth rate. As Value Line explains to its subscribers in "A Subscribers' Guide," the dividend yield published by Value Line, is based on the "cash dividends estimated to be declared in the next 12 months divided by the recent [stock] price." Therefore, in adjusting the dividend yield published by Value Line for one year's expected growth, Dr. Morin is double counting that growth.

Dr. Morin's dividend growth adjustment (multiplying Value Lines dividend year-ahead dividend by (1+g)) increases the cost of equity capital from 20 to 30 basis points. In his testimony in this proceeding, half of Dr. Morin's equity cost estimates are based on the DCF. It is reasonable to assume, then, that Dr. Morin's additional dividend adjustment adds 12 basis points to his cost of equity.

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

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

In selecting his primary sample group for the purpose of determining the cost of equity of Puget Sound Energy, Dr. Morin selected a group from

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

However, Dr. Morin elects also to analyze the equity capital cost of another group of utilities (the S&P electric utility group) that are, in the main, not similar in risk to Puget. First, fifteen of the companies included in Dr. Morin's S&P group were specifically excluded from consideration in constructing his primary electric utility sample. Dr. Morin excluded those companies from his primary sample group because they had characteristics that made them dissimilar in risk to Puget. It would be unreasonable, therefore, to re-include those companies in a separate sample group used to estimate Puget's cost of equity.

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

Third, the inclusion of an additional sample group serves to double the number of DCF results produced in Dr. Morin's cost of equity analysis. Because

those results are the higher than Dr. Morin's risk premium results, the addition of a second sample group results in a higher average equity cost estimate.

Q: If Dr. Morin had not changed his historical risk premium analysis, had included his allowed return risk premium, had not double-counted dividend growth and had used only one similar-risk sample group for his DCF analysis, what would be his average cost of equity estimate?

A: Table IV, below, shows that, with the conditions posed in the question, the average result of Dr. Morin's analyses would be 10.1 percent.

Table IV.

Morin Results Consistent With Prior Testimony

STUDY	ROE
CAPM	8.5%
Empirical CAPM	8.9%
Historical Risk Premium Elec Utility Industry	9.7%
Allowed Return Risk Premium	9.2%
DCF Vert Integr Elec Utilities Value Line Growth	12.3%
DCF Vert Integr Elec Utilities Zacks Growth	12.0%
Overall Average of All Results	10.1%

B. Dr. Morin's Equity Cost Methods

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

A: Because Dr. Morin's CAPM and Risk Premium methods produce results that bracket my own cost of equity recommendation in this proceeding, I will comment only on his DCF analysis.

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

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

The growth rate portion of Dr. Morin's DCF analysis is also problematic. First, Dr. Morin's growth rate analysis is mechanistic in that it simply plugs selected projected data into a formula to produce a growth rate with no underlying analysis of either the historical or projected growth rate fundamentals. Dr. Morin, in his own published work, warns against this type of analysis.[21]

Second, Dr. Morin's growth rate analysis relies exclusively on earnings growth rate projections. As I discussed in detail in Exhibit No. SGH-3 attached to this testimony, exclusive reliance on earnings growth, absent any examination of the underlying fundamentals of long-run growth, can lead to inaccurate equity

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

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

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

Fourth, Dr. Morin uses both Zack's and Value Line earnings projections in determining his standard DCF growth rate. Earnings growth projections are the only growth rate that Zack's publishes, so the use of that parameter is reasonable, although there are other providers of analysts' projected earnings growth. However, in addition to and right along side of its earnings projections, Value Line also publishes 3- to 5-year dividend and book value growth rate projections for each company it follows. In his Exhibit No. RAM-9, showing why historical growth is not appropriate for the companies in his sample group, Dr. Morin cites

all three types of growth published by Value Line. Investors have equal access to all three growth rates (earnings, dividends and book value) and, it would be reasonable to assume, utilize all three when making a determination of long-term sustainable growth. Moreover, in theory, the DCF assumes that earnings, dividends and book value all grow at the same rate. Therefore, the use of the average of those three projected growth rate parameters published in Value Line would provide a more balanced growth rate analysis in Dr. Morin's mechanistic standard DCF model.

For example, Dr. Morin's Exhibit No. RAM-14 contains his DCF analysis of his integrated electric utility sample group, based only on Value Line's earnings projections. Table V, below, replicates Dr. Morin's analysis using the most recent projected earnings, dividends and book value published by Value Line for each company, as well as the year-ahead dividend yield published in the October 9, 2009 edition of Value Line (Summary & Index):

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Table V.

Morin Integrated Electric Sample Group
DCF – Value Line Projected Dividend Yield and Growth Rates

Company	Value Line Projected Growth			Year-ahead
	Earnings	Dividends	Book Value	Div. Yield
ALLETE	-1.00%	3.00%	3.00%	5.30%
Alliant Energy	4.50%	7.00%	4.00%	5.50%
American Electric Power	3.00%	3.00%	5.00%	5.30%
Ameren Corp.	1.00%	-6.50%	2.50%	6.00%
Cleco Corp	9.50%	10.00%	4.50%	3.90%
DTE Energy	7.50%	3.00%	2.50%	6.00%
Duke Energy	5.00%	nmf	-0.50%	6.10%
Edison International	3.50%	4.00%	6.50%	3.70%
Empire District Electric	6.00%	1.50%	2.00%	7.10%
Entergy Corp.	6.00%	5.50%	6.50%	3,70%
FirstEnergy Corp.	4.00%	4.50%	4.50%	4.80%
FPL Group	9.50%	6.00%	8.50%	3.60%
Hawaiian Electric	7.00%	0.00%	2.00%	6.80%
IDACORP Inc.	4.50%	2.50%	5.00%	4.10%
NV Energy	4.50%	nmf	3.50%	4.00%
PG&E Corp.	6.50%	7.50%	7.00%	4.30%
Portland General	3.50%	5.50%	2.50%	5.20%
Progress Energy	6.00%	1.00%	2.00%	6.30%
Southern Company	4.50%	4.00%	5.00%	5.60%
Unisource Energy	17.5%	10.00%	7.00%	3.80%
Xcel Energy Inc.	6.50%	3.00%	4.50%	5.10%
Average	5.67%	3.92%	4.17%	
Overall Average		**4.58%**		**5.13%**
DCF Cost of Equity			**9.71%**	

Table V, above, shows that the average of Value Line's projected earnings, dividends and book value (all of which are available to investors) is 4.58 percent,

roughly 110 basis points below the 5.67 percent earnings-only Value Line growth rate preferred by Dr. Morin. Moreover, simply by using all the projected growth rate data available in Value Line instead of just some of it, the DCF equity cost estimate for the combination electric utilities is 9.71 percent. That equity cost estimate, is roughly 330 basis points below the 13.0 percent DCF result Dr. Morin provides in his Exhibit No. RAM-11. Dr. Morin's exclusive reliance on projected earnings growth rates in a mechanically-applied analysis causes his DCF equity cost estimate to overstate the cost of equity capital.

Q: Does this conclude you comments on Dr. Morin's testimony?

A: Yes, it does.

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

A: Yes, it does.