BEFORE THE WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

WUTC v. PUGET SOUND ENERGY INC.

DOCKET NOS. UE-040641 & UG-040640

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

ON BEHALF OF

PUBLIC COUNSEL

SEPTEMBER 23, 2004

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

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1 **INTRODUCTION / SUMMARY**

2 **Q: Please state your name, occupation and address.**

3 **A:** My name is Stephen G. Hill. I am self-employed as a financial consultant, and principal

4 of Hill Associates, a consulting firm specializing in financial and economic issues in

5 regulated industries. My business address is P.O. Box 587, Hurricane, West Virginia,

6 25526 (e-mail: sghill@compuserve.com).

7 **Q: Briefly, what is your educational background?**

8 **A:** After graduating with a Bachelor of Science degree in Chemical Engineering from

9 Auburn University in Auburn, Alabama, I was awarded a scholarship to attend Tulane

10 Graduate School of Business Administration at Tulane University in New Orleans,

11 Louisiana. There I received a Master's Degree in Business Administration. More

12 recently, I have been awarded the professional designation "Certified Rate of Return

13 Analyst" by the Society of Utility and Regulatory Financial Analysts. This designation is

14 based upon education, experience and the successful completion of a comprehensive

15 examination. I have also recently been asked to be on the Board of Directors of that

16 national organization. A more detailed account of my educational background and

17 occupational experience appears in Exhibit___(SGH-2) attached to this testimony.

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

19 **A.** Yes, I have appeared previously before this Commission. In addition, I have testified on

20 cost of capital, corporate finance and capital market issues in more than 220 regulatory

21 proceedings before the following regulatory bodies: the West Virginia Public Service

22 Commission, the Arizona Corporation Commission, the Texas Public Service

23 Commission, the Public Utilities Commission of the State of California, the Public

1   Service Commission of the State of Maine, the Maryland Public Service Commission, the

2   Public Utilities Commission of the State of Minnesota, the Ohio Public Utilities

3   Commission, the Insurance Commissioner of the State of Texas, the North Carolina

4   Insurance Commissioner, the Rhode Island Public Utilities Commission, the City Council

5   of Austin, Texas, the Missouri Public Service Commission, the South Carolina Public

6   Service Commission, the Public Utilities Commission of the State of Hawaii, the New

7   Mexico Corporation Commission, the Oklahoma Public Service Commission, the

8   Georgia Public Service Commission, the Public Service Commission of Utah, the Illinois

9   Commerce Commission, the Kansas Corporation Commission, the Indiana Utility

10   Regulatory Commission, the Virginia Corporation Commission, the Montana Public

11   Service Commission, the Pennsylvania Public Utilities Commission, the Public Service

12   Commission of Wisconsin, the Vermont Public Service Board, the Federal

13   Communications Commission and the Federal Energy Regulatory Commission. I have

14   also testified before the West Virginia Air Pollution Control Commission regarding

15   appropriate pollution control technology and its financial impact on the company under

16   review and have been an advisor to the Arizona Corporation Commission on matters of

17   utility finance.

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

19   **A:**. I am testifying on behalf of the Attorney General of Washington, Public Counsel Section

20   (Public Counsel).

21   **Q: What is the purpose of your testimony?**

22   **A.** In this testimony, I present the results of studies I have performed related to the

23   establishment of an appropriate return on equity and overall cost of capital for the

1   integrated electric utility and gas distribution operations of Puget Sound Energy, Inc.

2   (PSE, Puget, the Company), a subsidiary of Puget Energy, Inc. (the Parent). In addition to

3   my testimony regarding the Company's current cost of capital, I review the cost of capital

4   testimony provided by Dr. Charles Cicchetti and discuss the shortcomings contained

5   therein.

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

7   **A:** Yes. Attached to my testimony are 17 Exhibits (Exhibit___(SGH-2) through

8   Exhibit___(SGH-18)). Exhibit___(SGH-2) through Exhibit___(SGH-5) contain

9   additional detail regarding certain aspects of my narrative testimony, and

10   Exhibit___(SGH-6) though Exhibit___(SGH-18) provide analytical support for the

11   conclusions reached in my testimony in this proceeding.

12   **Q: Please summarize your testimony and findings concerning the rate of return that**
13   **should be utilized in setting rates for PSE's Washington electric and gas utility**
14   **operations in this proceeding.**
15
16   **A:** My testimony is organized into four sections. First, I discuss the cost of capital standard

17   as a measure of the return to be allowed for regulated industries, and review the current

18   economic environment in which the equity return estimate is made. Second, I review the

19   capital structure requested by PSE for ratemaking purposes in comparison to capital

20   structures employed by the Company historically as well as those existing in the utility

21   industry today. From that review, I develop a capital structure appropriate for ratemaking

22   purposes.

23   Third, I evaluate the cost of equity capital for similar-risk utility operations using

24   Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), Modified Earnings-

25   Price Ratio (MEPR), and Market-to-Book Ratio (MTB) analyses. Fourth, I comment on

1   the pre-filed cost of capital testimony submitted by Company witness, Dr. Charles

2   Cicchetti.

3   I have estimated the equity capital cost of electric utility and gas distribution

4   companies to fall in a range of 9.00% to 10.00%. Within that range, I estimate the equity

5   cost of the Company's Washington utility operations to be at the higher end of a

6   reasonable range of equity costs for fully-integrated electric utilities and gas

7   distributors—9.75%.

8   Applying that 9.75% equity capital cost to a capital structure which is reasonable

9   for ratemaking purposes produces an overall cost of capital of 8.01% (Exhibit___(SGH-

10   18)). That overall return, based on the Company's actual capital structure and affords

11   Puget an opportunity to achieve a pre-tax interest coverage of 2.46 times. Over the past

12   three years, during which time the Company has maintained its current bond rating, its

13   average pre-tax interest coverage was 1.99 times. Therefore, the equity return I

14   recommend is sufficient to support or improve the Company's current bond rating and

15   fulfills the requirement of providing the Company the opportunity to earn a return which

16   is commensurate with the risk of the operation and serves to support and maintain the

17   Company's ability to attract capital.

18

1 **Q: Your equity return recommendation seems low by historical standards. Have other**
2 **regulatory bodies determined single-digit equity returns to be appropriate over the**
3 **last year?**
4
5 **A:** Yes, capital costs have been low and several regulatory bodies have set the allowed

6 equity return in the single-digits. The regulatory jurisdictions of New York, New Jersey,

7 Arkansas, Tennessee, Colorado, Connecticut, New Hampshire and Wyoming have set

8 equity returns below 10% during 2003 and thus far in 2004.[1] In addition, the West

9 Virginia Public Service Commission recently set the equity return of a water utility

10 company at 7.0%.[2]

11 **Q: Why should the cost of capital serve as a basis for the proper allowed rate of return**
12 **for a regulated firm?**
13
14 **A:** The Supreme Court of the United States has established, as a guide to assessing an

15 appropriate level of profitability for regulated operations, that investors in such firms are

16 to be given an opportunity to earn returns that are sufficient to attract capital and are

17 comparable to returns investors would expect in the unregulated sector for assuming the

18 same degree of risk. The <u>Bluefield</u> and <u>Hope</u> cases provide the seminal decisions

19 [<u>Bluefield Water Works v. PSC</u>, 262 US 679 (1923); <u>FPC v. Hope Natural Gas</u>

20 <u>Company</u>, 320 US 591 (1944)]. These criteria were restated in the <u>Permian Basin Area</u>

21 <u>Rate Cases</u>, 390 US 747 (1968). However, the Court also makes quite clear in <u>Hope</u> that

22 regulation does not guarantee profitability and, in <u>Permian Basin,</u> that, while investor

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[1] New York: Rochester Gas & Electric, 9.96%, NY PUC Lexis 140; St. Lawrence Gas Co., 9.5%, NY PUC Lexis 427; Crown Point Telephone Corp., 8.93%, NY PUC Lexis 474; Chazy & Westport Telephone Corp., 8.01%, NY PUC Lexis 475; Fishers Island Electric, 9.0%, NY PUC Lexis 497. New Jersey: Jersey Central Power & Light, 9.5%, NJ PUC Lexis 248; Rockland Electric Co., 9.75%, NJ PUC Lexis 259. Arkansas: Arkansas Western Gas Co., 9.9%, Ark. PUC Lexis 397. Tennessee: Tennessee-American Water Co., 9.9%, Case No. 03-00118. Wyoming: Lower Valley Energy, Inc., 9.21%, Wyo. PUC Lexis, 128, Colorado: Phillips County Telephone, 9.5%, Col. PUC Lexis 1428, Connecticut: Connecticut Light & Power, 9.85%, Docket No. 03-07-02, New Hampshire: Kearsarge Telephone Company, 8.89%, Docket No. DT 01-221, Verizon New Hampshire, 8.82%, Docket No. DT 02-110.
[2] W.V.P.S.C. Case No. 03-0353-W-42T, West Virginia-American Water Works, January 2, 2004.

1   interests (profitability) are certainly pertinent to setting adequate rates, those interests do

2   not exhaust the relevant considerations.

3   As a starting point in the rate-setting process, then, the cost of capital of a

4   regulated firm represents the return investors could expect from other investments, while

5   assuming no more and no less risk. Since financial theory holds that investors will not

6   provide capital for a particular investment unless that investment is expected to yield

7   their opportunity cost of capital, the correspondence of the cost of capital with the

8   Court's guidelines for appropriate earnings is clear.

9   **I.   ECONOMIC ENVIRONMENT**

10   **Q: Why is it important to review the economic environment in which an equity cost**
11   **estimate is made?**
12
13   **A:** The cost of equity capital is an expectational, or *ex ante*, concept. In seeking to estimate

14   the cost of equity capital of a firm, it is necessary to gauge investor expectations with

15   regard to the relative risk and return of that firm, as well as that for the particular risk-

16   class of investments in which that firm resides. Because this exercise is, necessarily,

17   based on understanding and accurately assessing investor expectations, a review of the

18   larger economic environment within which the investor makes his or her decision is most

19   important. Investor expectations regarding the strength of the U.S. economy, the direction

20   of interest rates and the level of inflation (factors that are determinative of capital costs)

21   are key building blocks in the investment decision. They should be reviewed by the

22   analyst and the regulatory body in order to assess accurately investors' required return—

23   the cost of equity capital to the regulated firm.

24   **Q: Why do you believe an equity return in the range of 9.00% to 10.00% is reasonable**
25   **for an energy utility in today's economic environment?**
26
27   **A:** Although there was an upward movement in interest rate levels during 1999 and 2000,

1   that movement reversed course during 2001 and continued declining to much lower

2   levels in 2002 and 2003. During the first half of 2004, the interest rate levels have risen

3   somewhat from their nadir in late 2003, but not much. The overall level of fixed-income

4   capital costs has been relatively low by historical standards for several years, and

5   continues to be low at present even with the recent interest rate increases. Also, there are

6   examples in the marketplace for equities indicating that investor return requirements are

7   low by historical standards.

8   A recent A.G. Edwards report on the gas utility industry[3] shows that market return

9   expectations for gas utility stocks are below historical earned returns. The report states

10   that, for a sample of 20 large and small gas distributors, the median total return

11   expectation (dividend yield plus expected growth—a DCF-type calculation) is 8.45%.

12   Those data confirm that my 9.00%-10.00% equity return range for the electric and

13   gas utility operations under consideration here is reasonable, if not overly conservative.

14   In addition, those data represent information to which investors are exposed in the equity

15   marketplace for rate-regulated companies and underscore the fact that investor return

16   requirements for that type of equity investment currently are low by historical standards.

17 **Q. Are there other indications that capital costs are at historically low levels?**

18 **A:** Yes. Another indication of the reason investors are willing to buy and hold stocks that

19   offer what seem to be "low" returns is shown in Exhibit__(SGH-6). It depicts Moody's

20   A-rated utility bond yields from 1984 through June 2004. Page 1 of Exhibit___(SGH-6)

21   shows that interest rates and capital costs remain very low relative to the interest rate

22   levels that existed in the mid-1980s, and have continued a strong downward trend begun

23   in 2000.

1   Also, page 2 of Exhibit___(SGH-6), which presents the year-average Moody's A-

2   rated bond yields for each year over the past 35 years (1969-2004), shows that A-rated

3   bond yields thus far in 2004 are below the bond yield levels seen in the U.S. in the late

4   1960s. Also, the most recent average A-rated utility bond yield, 5.92%[4], falls well below

5   the lower range of interest rates that have existed over the past 30 years. (See

6   Exhibit___(SGH-6), page 2) Simply put, a fundamental reason that the current cost of

7   common equity capital for combination electric utility operations of 9.00% to 10.00% is

8   reasonable is that capital cost rates are lower than they have been in more than thirty

9   years.

10   The above data indicate that capital costs, with the recent credit loosening by the

11   Federal Reserve Bank (the Fed), remain at low levels and generally support the efficacy

12   of my range of equity capital costs. However, it is important to note here that equity

13   capital cost rates and bond yields do not move in lock-step fashion over time. In fact, the

14   variability of that return differential is a fundamental reason why risk premium type

15   analyses—which attempt to quantify the additional return over bond yields required by

16   equity investors—are not reliable as primary indicators of equity capital cost. Therefore,

17   it is necessary to perform an independent cost of equity capital analysis, rather than to

18   simply "index" the cost of capital to current interest rates.

19   **Q: Please briefly describe the interest rate changes that have occurred in the U.S.**
20   **economy over the past few years and how they impact capital cost rate expectations**
21   **for the future.**

22   **A:** The substantial interest rate decline that occurred following the historically-high interest

23   rates in the early 1980s spurred increased economic activity in the U.S. The rate of

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[3] A.G. Edwards, "Gas Utilities Quarterly Review," April 4, 2004.
[4] Value Line *Selection & Opinion*, most recent six weekly editions (7/23/04-8/27/04, inclusive), 20/30-year
A-rated utility bond yield averages.

1   growth in the U.S. Gross Domestic Product (GDP) began to increase at a rapid rate by the

2   end of 1987 and showed signs of continuing to gain strength. That increased economic

3   activity, in turn, led to increased inflation expectations (a rapid rate of economic growth

4   creates shortages in labor and materials, driving up the price of those factors of

5   production, which ultimately results in higher prices in all sectors of the economy). The

6   expectation of increased inflation, in turn, caused the Fed to act aggressively to slow

7   down what was widely believed to be an overheating economy. The very sharp interest

8   rate rise that followed in late 1987 and 1988, shown on page 1 of Exhibit___(SGH-6),

9   succeeded in damping down the economy, reducing inflationary pressures, and allowing

10   interest rates to fall again.

11   Since that time, the interaction between the Federal Reserve's moves to expand or

12   restrain the money supply and burgeoning inflation has been a primary influence in the

13   U.S. macro-economy and the level of interest rates. Overall, as inflation has remained

14   calm and economic activity has been moderate, interest rates have trended downward, but

15   that general downward direction has been interrupted when investors (and/or the Fed)

16   believed that falling interest rates would spur too-rapid economic growth. Historically,

17   rapid economic growth has created unwanted inflation. Investors, anticipating that higher

18   inflation and interest rates might be the result of rapid economic expansion, have reacted

19   to positive economic news (e.g., increasing GDP growth rates, lower unemployment) or

20   negative inflation news (e.g., increasing commodity prices, factory capacity or labor

21   shortages) by bidding down debt prices and driving up interest rates.

22   As shown on page 2 of Exhibit___(SGH-6), single-A rated utility debt yielded

23   about 7.6%, on average, in 1999, while, in 2000, equivalently rated debt was priced to

24   yield approximately 8.2%, on average. That cost rate increase primarily was due to

25   investors' concerns regarding the continued strength of the recent U.S. economic

26   expansion and the potential for increased inflation caused by what was perceived to be a

9

1   rapid (inflationary) level of growth. However, that rapid rate of economic growth did not

2   come to pass, and the interest rate increases engineered by the Federal Reserve in 2000 to

3   slow down a rapidly growing economy worked a little too well, resulting in declining

4   economic growth. Then, in response to an economy that was slowing down, the Fed

5   elected to increase the supply of money by dramatically lowering the Federal Funds rate

6   (the rate at which money center banks can lend funds on an overnight basis—a

7   fundamental building block of capital costs in the U.S.). In order to revive what became a

8   slowing economy, the Fed lowered short-term interest rates eleven times in 2001 (and

9   again in early November 2002 as well as at mid-year 2003). By 2003, single-A utility

10   debt was trading at prices that produced yields averaging 6.54%.

11   As Value Line notes in its most recent Quarterly Review regarding economic

12   growth (August, 2004), inflation and the interest rate environment, the current

13   expectation is that as the economic upturn begun in 2003 is expected to proceed more

14   slowly than previously anticipated. Therefore the short-term interest rate increases

15   expected to be implemented by the Federal Reserve (the Fed) will also be more moderate

16   that previously expected:

17
18   **Economic Growth**: As noted above, optimism on the
19   economy, which was so widespread during the early part of
20   this year, has waned, held back by a succession of reports
21   showing moderating growth in non-farm payrolls, wages,
22   consumer spending, and personal income. The slowing in
23   activity thus far has been from a higher to a lower rate of
24   growth. For now, at least, the broader measures of
25   consumer and industrial activity are not suggesting that the
26   nation's maturing business expansion is coming to an end.
27   However, it is also clear that the economic upturn has hit a
28   soft patch brought about, in large part, by rising oil prices,
29   and to a lesser extent by higher interest rates and faltering
30   equity prices. Strengthening capital goods demand, firming
31   manufacturing levels, and the continuation of high real
32   estate values (which serve as a positive wealth effect offset
33   to declining stock prices) are helping to limit the slowdown
34   in economic growth.
35   …

1   **Inflation**: The news here is mixed. The so-called core
2   rates of inflation, which exclude the volatile food and
3   energy components, are continuing to register only modest
4   increases. On the other hand, the nominal rates of price
5   growth, which include energy and food, have been up
6   significantly thus far this year. The Fed's recent interest
7   rate hikes are, in part, aimed at keeping the core rate of
8   inflation (which includes medical care costs, entertainment
9   tabs, retail prices, home ownership, and retail bills) under
10   better control.
11   …
12   **Interest Rates**: Here, as well, there is some uncertainty
13   about the road ahead. Three months ago, it seemed rather
14   logical to expect the Fed to raise interest rates through
15   much of next year in an effort to cool off an economic
16   engine that appeared to be in some danger of overheating.
17   Since that time, the business expansion has slowed. Should
18   this moderating pace of economic growth continue, the Fed
19   may be less aggressive in raising rates than we thought at
20   the time of our last "Quarterly Economic Review." We now
21   expect the Fed to push rates up at a measured pace over the
22   next several years, as it seeks to sustain the economic
23   upturn, while curbing any tendencies toward higher price
24   inflation [chart omitted].
25
26   The Value Line Investment Survey, *Selection & Opinion*, 2147-8, August 27, 2004.

27
28   In that most recent Quarterly Economic Review, Value Line projects long-term Treasury

29   bond rates will average 5.3% in 2004 and 6% through 2005. The recent six-week average

30   30-year T-bond yield is 5.15% (data from Value Line, *Selection & Opinion*, six weekly

31   editions, July 23, through August 27, 2004, inclusive).

32   Also, while Value Line projects that short-term Treasury Bill rates will rise from

33   1.4% in 2004 to 3.3% in 2008, that investor service publication also projects a much

34   smaller increase in corporate bond yields: 5.9% in 2004 to 6.8% in 2008. Finally, those

35   projected interest rate levels (3% for T-Bills and 6.8% for AAA-rated Corporate Bonds)

36   are below the average levels for those securities in 2000 [5.8% for T-Bills and 7.6% for

1   Corporate Bonds]. Therefore, the indicated expectation is that interest rates are likely to

2   move somewhat higher in coming years but will remain at relatively low levels for some

3   time to come.

4 **Q: Are utility investors aware of the expectations for somewhat higher interest rates in**
5 **the future, and have they reacted to that news?**
6

7 **A:** Yes. A widely accepted tenet of modern finance is that U.S. capital markets are

8   informationally efficient and news that impacts stock valuation is quickly assimilated into

9   stock prices. Higher interest rates have been forecast for some time and, it is reasonable

10   to believe, utility investors have incorporated that expectation into the stock prices they

11   are willing to provide for utility stocks.

12 **Q: Are there other reasons to believe that common equity capital costs for utilities are**
13 **generally lower today than they have been in the past?**

14 **A:** Yes. The recently enacted change in the Federal tax law lowered the tax rate on

15   dividends. Under the old law, dividends were taxed at rates that typically were

16   approximately 30%[5]; now dividends are taxed at no more than 15%. The result of this tax

17   cut is that investors are keeping a greater percentage of dividends, and dividend-paying

18   stocks such as utilities have become more valuable than they were before the change in

19   the tax law. In other words, because investors can now keep more of their dividends from

20   their utility investment, they are willing to pay more for those same stocks, resulting in a

21   lower cost of equity capital.

22   The impact of the tax change on the stock prices of utilities has been recognized

23   by investor advisory services:

24

---

[5] Prior to the tax law change, federal income tax rates were 10%,15%,27%,30%,35%,or 38..6% depending upon the relevant income bracket. Under the newly passed law, the 27% drops to 25%, the 30% to 28%, the 35% to 33% and the 38.6% to 35%. Since the old 27% tax bracket applied to married couples with a combined income of no more than $47,450, it is reasonable to say that the dollar weighted dividends paid to most individual investors were in brackets of between 27% and 38.6%.

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"**Tax reform has resulted in a fundamental shift in the
group's trading range.** We estimate that the reduction in
dividend and capital gains taxes should result in a 10%
increase in the average gas utility stock price. Prior to tax
reform, the median gas utility P/E [price/earnings ratio]
traded in a range of 11.5X to 14.5X. With the tax reduction,
we believe the new trading range in now 12.5X to 16.0X."

8   A. G. Edwards, Gas Utilities Quarterly Review, April 4, 2004, p. 5.

9   A simple example will facilitate understanding how the tax law change has

10 lowered the cost of equity. Assume a utility with a dividend of $0.50, a stock price of

11 $10, and a long-term investor-expected growth rate of 5.5%. A simple DCF estimate of

12 the cost of equity for that utility would be 10.5%, comprised of a dividend yield of 5.0%

13 ($0.50/$10) and a growth rate of 5.5%. When the tax law changes, investors increase the

14 price they are willing to provide for that stock by 10%, to $11 per share [10$/share x 1.10

15 = $11/share]. Due to the re-valuation of the stock to $11/share, the dividend yield now

16 becomes 4.5% [$0.50/$11 = 4.545%, rounded to 4.5%]. Because the tax law does not

17 affect the company or its utility operations, its anticipated long-term growth does not

18 change; it remains at 5.5%. The new cost of equity, however is 10% (4.5% dividend yield

19 + 5.5% growth rate), roughly 50 basis points below the pre-tax change cost of equity

20 capital. In sum, another factor contributing to the relatively low cost of common equity

21 capital for utilities in the current capital markets is the recent dividend tax law change.

22
23 **Q: Does the current level of market-to-book ratios existing in the electric industry,**
24 **along with investors' expectations regarding the return on equity that electric and**
25 **gas utilities are expected to earn, support your equity cost estimate in this**
26 **proceeding?**

27 **A:** Yes. It is a long-held and widely-understood tenet of regulatory finance that when

28 investors are providing market prices above book value of utility stocks the return

29 investors expect (the cost of capital) is below the return the utility will earn on its book

30 value. In other words, when market prices are above book value, investors expect utilities

31 to earn equity returns that are greater than the market-based cost of equity capital for

32 those companies.

33 In the current market environment, the market prices of electric utility stocks is

1   50% higher than their book value (i.e., M/B = 1.50).[6] Moreover, Value Line reports that

2   electric utilities are expected to earn returns on the book value of their equity capital over

3   the next three to five years of approximately 11%[7]. Those data indicate that it is

4   unreasonable to believe the cost of equity capital for combination utilities is above or

5   even reaches 11% (11.75% to 12.5%, as Dr. Cicchetti indicates), and that the lower cost

6   of equity that I recommend, is reasonable.

7 **Q: What is the difference between the expected return and the cost of capital?**

8 **A:** The expected return is the return on book equity (ROE) that the utility is expected to

9   earn. That return is an accounting return. It is based, in part, on the return allowed by the

10   regulator, the company's operating efficiency and on other income available to the firm

11   (if the firm has unregulated operations). The cost of equity capital is the return investors

12   require to commit equity capital to a particular enterprise. That is the cost of equity

13   capital to the firm—the minimum return investors require to invest in a particular type of

14   company. That return is a market-based return, because whatever return the investor

15   receives (yield + dividend growth) will be measured against the market price the investor

16   provided to purchase the stock.

17   Regulators seek to set the allowed return equal to the cost of equity capital for the

18   same reason they set the return allowed on utility debt equal to the cost of that type of

19   capital. Utility rates should be cost-based. That includes the cost of money—equity and

20   debt.

21   Investors understand that utility returns are allowed and earned on the book value

22   (original cost less depreciation) of the utility's plant investment. That long-standing

23   regulatory paradigm has been in existence for many, many years and, through

24   informationally efficient markets, utility investors are aware of that fact.

25

26 **Q: Please explain in more detail why a utility's market-to-book ratio is indicative of the**

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[6] CA Turner Utility Reports, August 2004, pp. 6.
[7] The Value Line Investment Survey, *Ratings & Reports*, August 13, 2004, p. 1773.

1   **relationship between the expected return and the cost of equity capital.**
2
3   **A:** A simple example will illustrate this important point. Assume that a utility has a book

4   value of equity capital equal to $10 per share. Let's also assume, for simplicity of

5   exposition, that this utility pays out all its earnings in dividends. If regulators allow the

6   utility a 12% return on that equity, investors will expect the company to earn (and pay

7   out) $1.20 per share. If investors require a 12% return on this investment, they will be

8   willing to provide a market price of $10 per share for this stock ($1.20 dividends/$10

9   market price = 12% required return). In that case, the allowed/expected return (12%) is

10   equal to the cost of capital (investors' required return, 12%), and the per share market

11   price is equal to the book value (M=B, or M/B=1.0).

12   To conform our example to the market situation that presently exists with

13   combination utilities, let's assume that investors' required return (the utility's cost of

14   equity capital) falls to 10%, but the utility continues to be allowed a 12% return on the

15   equity portion of its rate base investment. Investors would be drawn to a utility stock in a

16   risk class for which they require a 10% return but which was expected to pay out a 12%

17   return. This increased demand by investors would result in an increase in the market price

18   of the stock until the total share yield equaled the investors' required return. In our

19   example, that point would be $12 per share ($1.20 dividends/$12 market price = 10%

20   required return). In that case, the allowed/expected return (12%) is greater than the

21   required return (10% - the cost of equity capital) *and* the per share market price

22   ($12/share) exceeds the book value ($10/share), producing a market-to-book ratio greater

23   than one ($12/$10 = 1.20).

24   Therefore, the market-to-book / expected return relationship that actually exists

25   today in the market for utility stocks indicates that investors expect that those companies

1   will earn a return on the book value of their equity (ROE) which exceeds the cost of

2   equity capital.

3 **Q: How can electric and gas utilities have projected book equity return of 11% and a**
4   **cost of equity of 9.0% to 10%?**

5 **A:** If investors were providing stock prices (market prices) that approximated the book value

6   of electric utilities, that is if M/B ≈ 1.0, then it would be reasonable to believe that the

7   cost of capital (investors' market-required return) would approximate 11%. However, if

8   investors are willing to provide a stock price that is considerably more than book value

9   for a group of stocks that is expected to earn an 11% return on book value, their expected

10   return on that stock price (the cost of equity capital to the firm) must be <u>less</u> than the

11   expected return on book value—less than 11%. Currently, investors are paying about

12   150% of book value for their electric utility investments. Therefore, they require a return

13   below the 11% expected to be earned on book value. In that regard, the cost of equity

14   estimates in this proceeding between 9% and 10% are most reasonable.

15   Finally, the market data cited above provides dramatic evidence that Dr.

16   Cicchetti's equity return estimate of 11.75% to 12.5% cannot represent investor's

17   expectations. If an investor required a 12% return on a stock she expected to earn 11% on

18   book value, would she pay <u>more</u> than book value for that stock? Clearly, the answer is

19   no. Therefore, Dr. Cicchetti's cost of equity estimate cannot be accurate.

21 **Q: Does this relationship between market price, book value, the earned return and the**
22   **cost of capital hold for unregulated firms?**

23 **A:** No. Unlike regulated firms, there is no nexus between the book value of an unregulated

24   firm and its earnings. Therefore, a market price above book value is not indicative of

25   whether or not an unregulated firm is earning its cost of capital. For a utility firm

26   however, a market price well above book value indicates that investors expect that firm to

27   earn a return above the return they require to invest in that type of firm (the cost of equity

28   capital). Similarly, a utility market price below book value connotes an investor

1   expectation that that firm will earn an ROE which is below that which investors require

2   (the firm's cost of equity capital).

3

4   **Q: Is the relationship between a utility's market-to-book ratio, the expected book**
5   **return, and the cost of equity capital you have just outlined well documented in the**
6   **financial literature?**

7   **A:** Yes. The DCF model is often referred to as the "Gordon model" because of the definitive

8   work Myron Gordon has done regarding the DCF model and the cost of equity capital of

9   utilities. Professor Gordon has explained that the market-to-book value ratio is greater

10 than (equal to, less than) one when the ratio of the allowed (or expected) rate of return to

11 the cost of capital is greater than (equal to, less than) one. Gordon, M.J., The Cost of

12 Capital to a Public Utility, 63-64 (1974).There is additional support in the financial

13 literature for the value of market-to-book ratios in regulation.[8]

14   It is important to realize that the relationship between market price and book

15 value for a utility operation is not a linear or one-for-one relationship. That is, just

16 because the stock price of a particular utility is, say, 50% above its book value does not

17 indicate that its cost of equity is 50% below the utility's expected book return. Also, there

18 are differences between book value and rate base which mean that, even if a utility is

19 allowed and expected to earn its cost of equity capital, the market price may not exactly

20 equal book value. For utility operations, it will approximate book value, however, as

21 supported in the financial literature noted above. Therefore, market-to-book ratios, when

22 reviewed in conjunction with expected returns on book equity, provide a valuable

23 indication of the proper range of equity capital costs for utilities.

24   **II. CAPITAL STRUCTURE**

25 **Q: With what capital structure does Puget request rates be set in this proceeding?**

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[8] Kolbe, Read, Hall, The Cost of Capital, Estimating the Rate of Return for Public Utilities, 25-33 (1986);
Lawrence Booth, ("The Importance of Market-to-Book Ratios in Regulation," NRRI Quarterly Bulletin,
Vol. 18, No. 4, at 415-16 (Winter 1997)

1   **A:**. The Company has filed its rate request based on a projected or pro forma capital structure

2   consisting of 45% common equity, 0.04% preferred stock, 6.31% trust preferred and

3   48.65% total debt. That capital structure is shown on page 3 of Company witness Gaines'

4   Direct Testimony.

6   **Q: Is the Company's requested capital structure an actual, booked capital structure?**

7   **A:** No, it is a pro-forma capital structure based on the assumptions regarding future debt and

8   equity issuances, and future earnings and dividend payouts of the Company.

9   **Q: Is the Company's requested capital structure similar to the manner in which it has**
10   **recently been capitalized?**

11   **A:** No. The Company's requested ratemaking capital structure is different from the manner

12   in which it has been capitalized recently. Page 1 of Exhibit___(SGH-7) attached to my

13   testimony shows the Company's capital structure as published in its Securities and

14   Exchange Commission reports to investors over the five quarters from March 2003,

15   through March 2004. During that period PSE's common equity ratio improved, with a

16   minimum of 36.9% and a maximum of about 41.28% (including consideration of short-

17   term debt).

18   The average capital structure over the past five quarters for Puget consisted of

19   39.97% common equity, 1.02% preferred stock, 7.09% trust preferred, and 52.93% total

20   debt. By March 2004, the Company's common equity ratio had improved to 41.28%.

21   However, the Company showed a zero balance of short-term debt on that date, causing

22   the amount of common equity to represent a larger percentage of total capital than would

23   exist with normal levels of short-term debt. Moreover, there are other aspects of the

24   Company's current short-term debt arrangements, which are discussed below and which

25   could lead to an understatement of the Company's reliance on that type of capital.

27   **Q: How has the Company's parent, Puget Energy, Inc., been capitalized over the past**
28   **five quarters?**

29   **A.** As shown on page 2 of Exhibit___(SGH-7), Puget Energy's (PE's) capital structure over

30   the past five quarters has consisted of 38.29 % common equity, 7.67% preferred stock

18

1   and trust preferred securities, 47.96% long-term debt and 6.07% short-term debt. PE has

2   been capitalized less expensively, i.e., with less equity and more debt than PSE over the

3   past five quarters. Also, PE has been capitalized with considerably less equity and more

4   debt that requested by PSE in its ratemaking capital structure.

5   That capital structure inter-relationship is significant because PE, with its

6   unregulated competitive operations (Infrastrux), has a higher risk profile than its

7   regulated utility subsidiary, PSE. Companies that have higher business risk are optimally

8   capitalized with more equity and less debt than less risky companies, according to long-

9   accepted tenets of modern corporate finance. However, in this proceeding PSE, the

10   regulated firm with *lower* operating risk, is requesting that its rates be set with a common

11   equity ratio which is substantially *higher* than that utilized by its operationally riskier

12   parent. If this Commission were to utilize the Company's requested equity-heavy

13   ratemaking capital structure, it would effectively support financial cross-subsidization of

14   PE's unregulated operations by PSE's regulated ratepayers.

15   **Q: Please explain what you mean by financial cross-subsidization and why this**
16   **Commission should be aware of that issue.**

17   **A:** Cross-subsidization of a company's unregulated operations by its regulated operations

18   can occur in many forms. For example, the unregulated firm could provide services to the

19   utility at above-market rates or, conversely, the utility could provide services to its

20   unregulated affiliates at rates below that which would prevail in an arms-length

21   transaction.

22   Financial cross-subsidization occurs when the capital structure of the utility

23   operation provides financial strength to the holding company, which, in turn, allows the

24   parent to capitalize its unregulated operations with more debt and less equity (i.e., more

25   cheaply) than they would otherwise be able to do. In other words, the utility (and,

26   thereby, utility ratepayers) shoulders some of the financial risk of the unregulated

1   affiliates by allowing the latter to be capitalized in a manner which would not prevail in a

2   stand-alone situation.

3   One way that PE can maintain a stronger financial profile and offset the increased

4   risks of its unregulated operations, is to set rates with a high common equity ratio for its

5   regulated utility operations while simultaneously financing its unregulated operations

6   with a higher percentage of debt capital than would otherwise be possible. That is the

7   essence of financial cross-subsidization. The tangible result of that action is a common

8   equity ratio for PE that is below that of PSE. It would not be reasonable, therefore, for

9   this Commission to set rates for PSE using the Company's requested common equity

10   ratio which is substantially in excess of the equity capitalization of its riskier parent.

11

12 **Q: Is the Company's requested common equity ratio—45%—similar to the average**
13   **equity ratio existing in the electric/gas utility industry today?**

14 **A:** No. The ratemaking capitalization requested by PSE for ratemaking purposes contains

15   more common equity and less debt capital than that utilized by the electric industry, on

16   average. Because common equity capital, from a ratepayers' perspective (i.e., pre-tax), is

17   twice as costly as debt capital, the capital structure requested by PSE would be far more

18   expensive that the capital structure used, on average, in the electric and gas utility

19   industry.

20   As shown on page 3 of Exhibit___(SGH-7), the average common equity ratio of

21   combination electric utilities—electric utilities that also have gas operations, like Puget,

22   as reported in the August 2004 edition of C.A. Turner's Utility Reports, is 38%. For

23   investment grade combination electrics (i.e., those that have bond ratings of "BBB" or

24   above), the average common equity ratio is 39% of total capital. C.A. Turner's also

25   indicates that for electric utilities (without gas operations) the average common equity

26   ratio is 43% of total capital. For investment grade electric utilities, the average common

27   equity ratio is the same—43%. Page 3 of Exhibit___(SGH-7) also shows that for electric

1   and combination electric and gas utilities that have "BBB" bond ratings, the average

2   common equity ratio ranged from 36% to 41% of total capital.

3   As shown on page 1 of Exhibit___(SGH-7), the actual common equity ratio

4   employed by PSE over the past year is about 39% including short-term debt. That

5   common equity ratio is equal to that average common equity ratio for combination

6   electric/gas utilities and within the 39% to 43% range of common equity ratios for all

7   electric and gas utilities. However, the common equity ratio requested by the Company

8   for ratemaking purposes in this proceeding, 45%, substantially exceeds the average for

9   the industry and would be unduly burdensome for the Company's Washington ratepayers.

10   The evidence available in the market indicates that the capital structure requested

11   for ratemaking purposes by PSE contains a level of equity capital above that used, on

12   average, in the combination electric/gas utility industry. Those data show that PSE

13   requests that its rates be set with a capital structure which is far more expensive than that

14   which exists, on average, even for electric and combination electric/gas utility operations.

15

16 **Q: Do bond rating agencies publish guidelines with regard to the amount of debt and**
17   **equity that is appropriate for particular bond ratings?**

18 **A:** Yes. Standard and Poor's publishes bond rating benchmarks, and has recently revised

19   those benchmarks. On June 2 of this year, S&P published its new bond rating guidelines[9].

20   Those guidelines show that "wires" companies (electric transmission and distribution

21   companies) and gas distributors have substantially lower business risk that other energy

22   utilities. On a scale of 1 to 10, with 1 signifying the least risk, distribution and

23   transmission companies have business risk rankings of approximately 3, on average. S&P

24   indicates that with a business risk ranking of 3, a capital structure consisting of 55% to

25   65% debt (35% to 45% total equity) would support a "BBB" bond rating.

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[9] Standard & Poor's Ratings Direct, *New Business Profile Scores Assigned for US Utility and Power Companies; Financial Guidelines Revised*, June 2, 2004.

1   For fully-integrated electrics and combination utilities like Puget, generation adds

2   additional business risk and their average business position is 5. Puget's S&P business

3   risk raking is 5—average for an integrated utility operation. S&P indicates that such a

4   firm should have a debt ratio of 50% to 60% of total capital (total equity ratio of 40% to

5   50%) in order to achieve a "BBB" bond rating. Puget's current common equity ratio

6   (approximately 40% of total capital) meets S&P's newly published guidelines for a

7   "BBB" bond rating[10].

8   On the upper end of the scale, energy merchants and independent generation

9   operations have the most business risk. The average business position score for those

10   types of energy operations, according to S&P, is 9 out of a possible 10 (highest risk). In

11   order to achieve a "BBB" bond rating a firm with a business risk position of 9, S&P's

12   guideline indicates a debt ratio of 40% to 50% (total equity ratio of 50% to 60%) is

13   appropriate.

15 **Q: The Company's requested ratemaking common equity ratio, 45%, also falls within**
16 **S&P's new bond rating guidelines for a "BBB" bond rating. Why would it not be**
17 **appropriate for ratemaking purposes?**

18 **A:** There are three main reasons. First, a 45% common equity ratio does not represent the

19   manner in which the Company is actually capitalizing its utility operations. Second,

20   setting rates with a 45% common equity ratio rather than a 40% common equity ratio

21   would be considerably more expensive for ratepayers. Third, it is not clear that even if

22   that additional expense were forced upon ratepayers there would be any change in the

23   Company's bond rating. Moreover, even if there were a change in Puget's bond rating, it

24   is unlikely that any interest cost savings generated by, say, a move from "BBB" to

25   "BBB+" would outweigh the additional cost imposed by the increase in the ratemaking

26   common equity raito.

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[10] It is important to note that S&P's published bond rating benchmarks are guidelines, not absolutes that, if violated would cause a bond rating change. As an example, it is important to remember that two years ago Puget's common equity ratio was approximately 30% of total capital—well below its current common equity ratio—and during that time the Company maintained its bond rating.

1

2 **Q: Can you estimate the rate impact of using the Company's requested capital**
3 **structure for rate setting purposes rather than PSE's actual capital structure?**
4

5 **A:** Yes. Page 4 of Exhibit___(SGH-7) shows that, assuming a combined Federal tax rate of

6 35%, the Company's requested capital structure and cost rates produce a pre-tax overall

7 cost of capital of 11.96%. Using the Company's requested cost rates and PSE's recent

8 actual average capital structure (containing about 39% common equity) results in a pre-

9 tax overall cost of capital of 11.35%. The difference between those pre-tax capital cost

10 rates, 0.61%, or sixty-one basis points. While that seems like a small difference, that cost

11 rate differential (0.61%) multiplied by the Company's rate base in this proceeding, $2.6

12 billion, indicates that the requested capital structure would produce an excess annual cost

13 to ratepayers of about $15.7 million—even at the Company's requested return on

14 common equity.

15 This additional cost of the company's proposed hypothetical 45% equity capital

16 structure dwarfs any potential interest savings on debt that might be attributable to the

17 Company's hoped-for shift to "BBB+" First Mortgage Debt from the "BBB" level it now

18 has. In the current capital markets the yield difference between "BBB+" and "BBB" 30-

19 year utility debt is 17 basis points. Assume that, in the year following a bond rating

20 improvement, the Company issued $500 Million (a very large amount of debt—Puget's

21 current total long-term debt is about $2 Billion). The interest cost savings on that debt

22 would be $850,000 in debt every year—considerably less than the $15.7 Million cost to

23 attain those savings.

24 Therefore, if the Commission elects to use the Company's requested capital

25 structure rather than the capital structure with which it has actually been capitalized over

26 the most recent four quarters, it will increase rates to PSE's Washington customers by

1     $15.7 Million every year, as long as the rates set in this case are in effect. Of course, that

2   analysis does not consider that the Company's requested return on equity substantially

3   exceeds the current market-based cost of equity capital. If the Company's requested cost

4   of common equity, 11.75%, were used instead of the actual cost of equity 9.75%

5   (determined in Section III of this testimony), the annual rate impact to Puget's customers

6   would be an additional $30 Million.

7 **Q:** **Are there other reasons that customers should not be asked to shoulder the cost of**
8   **additional equity capital that the company does not have?**

9 **A:** Yes. As a result of the most recent rate proceeding for Puget before this Commission,

10   rates were set on a hypothetical capital structure of 40% even though the Company, at

11   that time, had a common equity ratio substantially below that level. Rates were set on the

12   higher equity ratio and the Company was required to meet equity ratio targets (or face

13   ROE penalties) in order to shore up the financial strength of Puget. Therefore, the

14   Company's Washington ratepayers, for a period of time provided a return on common

15   equity the company did not have in order to preserve the long-run health of the Company.

16   The goal was a capital structure with 40% common equity. That goal has been reached

17   and ratepayers have done their part to help support Puget's financial recovery. Therefore,

18   the further strengthening of Puget Sound Energy's balance sheet, sought by the Company

19   in this proceeding, should not be realized through continuing to require ratepayers to

20   provide returns on equity capital the Company does not have.

21   If Company management deems it necessary to reduce debt or increase its

22   common equity ratio, that is certainly its prerogative. Moreover, if, by the time of the

23   next rate proceeding, the Company has achieved a common equity ratio of 45%, then it

24   would be reasonable to consider it for ratemaking purposes. However, I do not believe it

25   is reasonable to require ratepayers—for the second consecutive rate proceeding—to

26   provide a return on equity capital the Company does not yet have.

27

24

1 **Q: Are there additional capital structure issues that should be brought to the attention**
2 **of the Commission?**

3 **A:** Yes. First, it is worth noting that although the Company discusses, at length, in its Direct

4 Testimony its concerns regarding its leverage and financial health. Page 1 of

5 Exhibit___(SGH-7) shows that the Company elected to reduce its outstanding balance of

6 preferred stock from almost $100 Million in March 2003 to almost $2 Million in March

7 2004. While preferred stock is fixed-income capital (i.e., capital that requires a fixed

8 percentage payment), its cost rate is lower than common equity and the dividend

9 requirements are not as rigorous as the interest payments on debt. That is, dividends on

10 preferred stock can often be skipped for a time if the firm is in serious financial

11 circumstances, however if interest payments on debt are skipped, the debt-owners can

12 require that the firm's assets be liquidated to pay off the debt liability—a far more serious

13 consequence.

14 While the current interest rate environment remains very favorable and it is

15 reasonable to believe that less expensive financing was available using debt at current

16 costs rather than preferred stock, the Company's decision to eliminate $100 Million of

17 preferred stock effectively raises the total debt-to-total capital ratio and the resultant

18 financial risk of the firm. Therefore, the Company's action to reduce its preferred stock

19 position does not square with its stated concern regarding reducing financial risk. By

20 eliminating its preferred stock Puget has increased its financial risk.

21 Second, Trust Preferred Securities is not preferred stock, it is effectively debt

22 capital. Typically in such an arrangement, preferred secutities are issued to the public.

23 However, the dividend payments on that preferred stock are secured by and paid with the

24 interest payments of debt that is issued by a wholly-owned special purpose entity,

25 specifically for the purpose of paying the trust security dividend payments. In this way,

26 the Trust Preferred dividend payments (which are actually interest payments) do not have

27 tax consequences for the firm, and are treated as debt by rating agencies.

1   Third, the Company has elected to pledge its accounts receivable to a wholly-

2   owned subsidiary, Rainier Receivables, which, in turn, borrows short-term debt from a

3   consortium of banks. Because the short-term debt is, essentially, secured with the

4   expected cash flows of PSE's receivables, as the Company indicated to the Commission

5   when it applied for the facility, it should be able to issue short-term debt less expensively

6   that standard commercial paper. While that arrangement is not uncommon (in other

7   jurisdictions it is called "factoring" of receivables) the Company's treatment of that

8   additional source of short-term debt funds is troubling.

9 **Q: What are your concerns with the Company's treatment of short-term debt?**

10 **A:** I have two primary concerns with the Company's sale of its receivables through a

11   wholly-owned, unregulated facility. First, the short-term debt issued by Rainier

12   Receivables doesn't appear on the books of its utility company parent. That means that it

13   is difficult to determine for ratemaking purposes, how much short-term debt Puget is

14   using to finance its operations. It is also not clear whether the short-term debt issued by

15   Rainier Receivables is being used to fund PSE's cash needs, or the needs of Puget

16   Energy's unregulated operations. Because it is PSE's receivables that are securing that

17   debt, it should be attributed to the utility operations in determining its cost of service.

18   The balance sheet of Rainier Receivables over the most recent five quarters is

19   shown on page 5 of Exhibit___(SGH-7) attached to my testimony. Those data were

20   provided by the Company in response to Data Request PC-71. Over the past five quarters,

21   Rainier Receivables has had an average balance of short-term debt outstanding of $184

22   Million. As I noted previously, PSE's balance sheet over the same period of time shows

23   an average short-term debt balance of only $10.5 Million (see page 1 of

24   Exhibit___(SGH-7)). In other words, PSE's receivables are enabling the issuance of

25   short-term debt amounts ranging from $150 Million to $200 Million per quarter—but that

26   debt does not appear on PSE books of account.

1   In addition, given the fact that Puget Energy, Inc., to my knowledge, does not

2   have a short-term debt facility of its own and Infrastrux has only a $150 Million credit

3   line, it appears that the short-term debt issued by Rainier Receivables does appear on the

4   books of the parent company. As shown on page 2 of Exhibit___(SGH-7), the average

5   level of short-term debt at the parent company level over the past five quarters was $250

6   Million. That information, coupled with the fact that the Rainier Receivables debt does

7   not appear on PSE's balance sheet indicates that the short-term debt enabled through the

8   sale of PSE's accounts receivable may not be supporting the utility operations of PSE,

9   but may be supporting the parent company's unregulated operations.

10
11 **Q: What is your other primary concern regarding the receivables securitization of**
12   **short-term debt?**

13 **A:** When the actual amount of short-term debt used by PSE does not appear on its books of

14   account, but the costs associated with securing that short-term debt are applied to the

15   smaller balances that do appear the result is an exaggeration of short-term debt cost rates.

16   Shown on page 6 of Exhibit___(SGH-7) is the Company's response to PC-07 (revised in

17   response to PC-63). That data response shows a dramatic shift in short-term debt costs

18   following the initiation of the securitization facility in the first quarter of 2003. Through

19   applying the costs associated with the securitization facility to the smaller amount of

20   short-term debt that appears on the books of PSE, the Company is able to calculate a

21   short-term debt cost rate approaching 8%, while the current commercial paper rate is

22   below 2% (Federal Reserve Statistical Release H.15, August 26, 2004).

23   Short-term debt that actually costs more than long-term debt benefits neither the

24   company nor ratepayers and should not be included in the financial mix of any on-going

25   entity. There is no financial reason to issue short-term debt if long-term debt can be

26   obtained at a lower cost. Moreover, 8% short-term debt conflicts with Puget's previous

27   statements before this Commission that the receivables securitization facility would be

28   beneficial to ratepayers in that it would allow the Company access to short-term debt at

27

1   rates below the cost of commercial paper. Ratepayers would certainly receive no benefit

2   from PSE issuing short-term debt at a cost rate higher than long-term debt in the current

3   interest rate environment.

4
5   **Q: Is the Company requesting an 8% cost of short-term debt?**
6   **A:** No, the Company is projecting a short-term debt cost of 4.71%. However, it is including

7   all the costs of the receivables securitization facility, even though those costs (fees)

8   should be reduced by the amounts borrowed. Also, given the fact that the Rainier

9   Receivables debt does not appear on PSE's books it is difficult to know if the Company is

10   projecting its actual short-term debt usage.

11   As shown on page 7 of Exhibit___(SGH-7), if the short-term debt outstanding on

12   Rainier Receivables books is added to that on PSE's books of account the average short-

13   term debt for PSE over the past five quarters would have been approximately $184

14   Million. That amount represents 4.70% of the Company's total capital. In its projected

15   capital structure, PSE includes a smaller amount of short-term debt, $137.8 Million,

16   which represents 3.1% of total capital.

17 **Q: What capital structure do you recommend for ratemaking purposes in this**
18 **proceeding?**

19 **A:** PSE's requested ratemaking capital structure containing 45% common equity is not

20   appropriate for setting rates in this proceeding. The Company's requested 45% common

21   equity ratio is higher than the actual level of common equity used by the Company,

22   higher than the common equity ratio of PE—the operationally riskier parent company.

23   Also the amount of short-term debt actually actually available to the Company.

24   I recommend that rates be set for PSE using, as a basis, the Company's most

25   recent actual capital structure, including consideration of all short-term debt. That capital

26   structure at March 31, 2004 is shown on page 7 of Exhibit___(SGH-7) and consists of

27   39.12% common equity, 0.05% preferred stock, 6.74% trust preferred, 50.31% long-term

28

1   debt and 4.70% short-term debt. For purposes of ratesetting, I recommend reducing the

2   amount of total short-term debt in order that the common equity ratio be 40% of total

3   capital. Page 8 of Exhibit___(SGH-7) shows my recommended ratemaking capital

4   structure along with the associated embedded cost rates of preferred stock, trust preferred

5   and long-term debt.

6   I have reviewed the projected cost rates for preferred stock, trust preferred

7   securities and long-term debt requested by the Company and have found those cost rates

8   to be reasonable. Therefore, I will use the Company-requested cost rates to determine my

9   recommended overall cost of capital in this proceeding. With regard to short-term debt,

10   however, I am not convinced that the 4.71% forward cost rate proposed by the Company

11   is reasonable.

12   First, while the current expectation is that the Federal Reserve will slowly raise

13   short-term interest rates, that expectation is based on the continuation of an economic

14   recovery. The most recent economic news indicates that the pace of the economic

15   recovery has moderated, thereby easing the pressure on the Fed to raise interest rates.

16   Also, as I noted above, I have concerns that the Company has overstated its costs relative

17   to its short-term debt facilities (Rainier Receivables). For ratesetting purposes, then, I

18   believe a forward-looking short-term debt rate of 4.0% is reasonable.

20   **Q: Does this conclude your discussion of capital structure?**

22   **A:** Yes, it does.

24   **III.   METHODS OF EQUITY COST EVALUATION**

25   **A. DISCOUNTED CASH FLOW MODEL**

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

29   **A:** The DCF model relies on the equivalence of the market price of the stock (P) with the

30   present value of the cash flows investors expect from the stock, providing the discount

1   rate equals the cost of capital. The total return to the investor, which equals the required

2   return according to this theory, is the sum of the dividend yield and the expected growth

3   rate in the dividend.

4   The theory is represented by the equation,

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

6   where "k" is the equity capitalization rate (cost of equity, required return), "D/P" is the

7   dividend yield (dividend divided by the stock price) and "g" is the expected sustainable

8   growth rate.

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

11 **A:** The growth rate variable in the traditional DCF model is quantified theoretically as the

12   dividend growth rate investors expect to continue into the indefinite future. The DCF

13   model is actually derived by 1) considering the dividend a growing perpetuity, that is, a

14   payment to the stockholder which grows at a constant rate indefinitely, and 2) calculating

15   the present value (the current stock price) of that perpetuity. The model also assumes that

16   the company whose equity cost is to be measured exists in a steady state environment,

17   i.e., the payout ratio and the expected return are constant and the earnings, dividends,

18   book value and stock price all grow at the same rate, forever. As with all mathematical

19   models of real-world phenomena, the DCF theory does not exactly "track" reality. Payout

20   ratios and expected equity returns do change over time. Therefore, in order to properly

21   apply the DCF model to any real-world situation and, in this case, to find the long-term

22   sustainable growth rate called for in the DCF theory, it is essential to understand the

23   determinants of long-run expected dividend growth.

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

27 **A:** Yes, in Exhibit ___ (SGH-3), I provide an example of the determinants of a sustainable

28   growth rate on which to base a reliable DCF estimate. In addition, in Exhibit ___ (SGH-

1   3), I show how reliance on earnings or dividend growth rates alone, i.e., absent an

2   examination of the underlying determinants of long-run dividend growth, can produce

3   inaccurate DCF results.

4
5   **Q: Did you use a sustainable growth rate approach to develop an estimate of the**
6   **expected growth rate for the DCF model?**
7
8   **A:** Yes. I have calculated both the historical and projected sustainable growth rate for a

9   sample of electric and gas utility firms with similar-risk operations. However, I have not

10   relied exclusively on that analysis. In addition to the sustainable growth rate analysis, I

11   have also analyzed published data regarding both historical and projected growth rates in

12   earnings, dividends, and book value for a sample group of combination gas and electric

13   companies.

14   **Q: Why have you used the technique of analyzing the market data of several**
15   **Companies?**

16   **A:** I have used the "similar sample group" approach to cost of capital analysis because it

17   yields a more accurate determination of the cost of equity capital than does the analysis

18   of the data of one individual company. Any form of analysis, in which the result is an

19   estimate, such as growth in the DCF model, is subject to measurement error, i.e., error

20   induced by the measurement of a particular parameter or by variations in the estimate of

21   the technique chosen. When the technique is applied to only one observation (e.g.,

22   estimating the DCF growth rate for a single company) the estimate is referred to,

23   statistically, as having "zero degrees of freedom." This means, simply, that there is no

24   way of knowing if any observed change in the growth rate estimate is due to

25   measurement error or to an actual change in the cost of capital. The degrees of freedom

26   can be increased and exposure to measurement error reduced by applying any given

27   estimation technique to a sample of companies rather than one single company.

28   Therefore, by analyzing a group of firms with similar characteristics, the estimated value

1   (the growth rate and the resultant cost of capital) is more likely to equal the "true" value

2   for that type of operation.

3   **Q: How were the firms selected for your analysis?**

4   **A:** In selecting a sample of electric firms to analyze, I screened all the electric and gas utility

5   firms followed by Value Line. I selected companies from that group that had a

6   continuous financial history and had at least 50% of operating revenues generated by

7   electric utility operations. In addition, I eliminated companies that were in the process of

8   merging or being acquired <u>and</u> had realized an upward stock price shift due to that

9   activity or companies that had recently cut or omitted dividends[11]. Also, the companies in

10   the selected sample had to have a bond rating ranging from "BBB-" to "BBB+",

11   generation assets, and a stable book value. I have eliminated from consideration

12   companies that are only "wires" companies, which have less operational risk than fully-

13   integrated electrics, in order to properly match the risk of the sample group with PSE.

14   The sample group selection screening process I utilized is shown in detail on

15   Exhibit___(SGH-8) attached to this testimony.

16   Thirteen electric and combination electric/gas utilities passed the screening

17   process. The companies included in the sample group are: Central Vermont Public

18   Service (CV), Energy East Corp. (EAS), FirstEnergy Corp. (FE), Progress Energy

19   (PGN), Cinergy (CIN), Cleco Corp. (CNL), Empire District Electric (EDE), Entergy

20   Corp. (ETR), Great Plains Energy (GPX), Hawaiian Electric (HE), PNM Resources

21   (PNM), Pinnacle West Capital Corp. (PNW), and Puget Energy, Inc. (PSD). [Note: In the

22   Exhibits accompanying this testimony, the sample group companies are referred to by

23   their stock ticker symbols, designated above in parentheses.]

24
25   **Q: Has your selection process produced a sample group that is similar in risk to Puget**
26   **Sound Energy?**

---

[11] I made one exception to the dividend reduction criterion in order to include Puget's parent company, Puget Energy, Inc. in the sample.

1   **A:** Yes, according to objective measures of investment risk, the risk of the sample group is

2   similar to or greater than that of Puget. For example, Standard & Poor's recently revised

3   its published bond rating benchmarks and its business position (business risk) rankings[12].

4   Puget Sound Energy's business position is 5 on a scale of 1 through 10 (1 being lowest

5   risk and 10 being the highest). For integrated electric and gas utilities like Puget,

6   Standard & Poor's reports that for integrated electric and gas utilities the average

7   business risk score is 5. In other words, Puget has average risk for a company of its type.

8   The average business position of the sample group, without Puget is 5.75. According to

9   S&P's business position ranking, then, the sample group has greater business risk than

10   Puget.

11   With regard to the value that investors place of a dollar of earnings (a firms price-

12   earnings, P/E, ratio), the average for the electric industry is 14.5[13]. That is, investors are

13   willing to provide $14.5 dollars in stock price for every $1 earned by electric utilities, on

14   average. For the sample group, the average P/E is 14.85, very near the industry average.

15   For Puget, however, it's recent P/E is 16.3. In the current market, investors value a dollar

16   of earnings by Puget more highly than that of the sample group. Again, Puget can be

17   considered to have lower investment risk by that measure.

18   Regarding analyst's buy or sell recommendations, Puget again exhibits a more

19   advantageous position than the sample group. According to data available from First

20   Call/Thomson Financial (August 30, 2004)[14], the average consensus recommendation for

21   the sample group is 2.8. That amounts to an average "hold" recommendation, because a

22   consensus analyst ranking from 1.6 to 2.5 indicates a "buy" recommendation and from

23   2.6 to 3.5 constitutes a "hold" recommendation, i.e., neither buy nor sell. The current

24   consensus analyst's recommendation for Puget is 2.5—at the upper end of the "buy"

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[12] Standard & Poor's Ratings Direct, *New Business Profile Scores Assigned for US Utility and Power Companies; Financial Guidelines Revised*, June 2, 2004.
[13] Data from Zack's Investor Service, available on MSN.com, August 30, 2004.
[14] Available at CNNmoney.com.

33

1   range. Again, Puget is ranked as more attractive to investors that the sample group on

2   average.

3   Puget Sound Energy's First Mortgage Bond rating is "BBB" by Standard &

4   Poor's, which is similar to but slightly lower than the average S&P bond rating of the

5   sample group, which falls between "BBB" and "BBB+". Moody's ranks Puget's senior

6   bonds at Baa2 and the sample group average is Baa1—again, a slightly higher bond

7   rating for the sample group.

8   In sum, objective indicators imply that the sample group is similar in risk to

9   Puget.

11   **Q: How have you calculated the DCF growth rates for the sample of comparable**
12   **Companies?**

14   **A:** Exhibit___(SGH-9) pages 1 through 5, shows the retention ratios, equity returns,

15   sustainable growth rates, book values per share and number of shares outstanding for the

16   comparable companies for the past five years. Also included in the information presented

17   in Exhibit___(SGH-9), are Value Line's projected 2004, 2005 and 2007-2009 values for

18   equity return, retention ratio, book value growth rates and number of shares outstanding.

19   In evaluating these data, I first calculate the five-year average sustainable growth

20   rate, which is the product of the earned return on equity (r) and the ratio of earnings

21   retained within the firm (b). For example, Exhibit___(SGH-9), page 1, shows that the

22   five-year average sustainable growth rate for Energy East Corp. (EAS) is 5.8%. The

23   simple five-year average sustainable growth value is used as a benchmark against which I

24   measure the company's most recent growth rate trends. Recent growth rate trends are

25   more investor-influencing than are simple historical averages. Continuing to focus on

26   EAS, we see that sustainable growth in 2003 was 2.4%—well below the average growth

27   for the five-year period, indicating a decreasing trend in growth. By the 2007-2009

34

1   period, Value Line projects EAS's sustainable growth will settle at a level below the

2   recent five-year average—about 4.4%. These data would indicate that investors expect

3   EAS to grow at a rate in the future below the growth rate that has existed, on average,

4   over the past five years[15].

5   It is important to note that, while the five-year projections are given consideration

6   in estimating a proper growth rate because they are available to and are used by investors,

7   they are not given sole consideration. Without reviewing all the growth rate data

8   available to investors, both projected and historic, sole reliance on projected information

9   may be misleading. Value Line readily acknowledges to its subscribers the subjectivity

10   necessarily present in estimates of the future:

11   We have greater confidence in our year-ahead ranking
12   system, which is based on proven price and earnings
13   momentum, than in 3- to 5-year projections. (Value Line
14   Investment Survey, Selection and Opinion, June 7, 1991,
15   p.854).
16
17   Another factor investors consider is that EAS's book value growth is also

18   expected to decrease in the future. Growing at a 3% level over the next five years, after

19   increasing at a 4.5% rate historically. Also, as shown on Exhibit___(SGH-10), page 2,

20   EAS's dividend growth rate, which was 6% historically, is expected to decrease a 4% rate

21   in the future. This confirms that future growth is likely to be lower than historical growth,

22   and the projected dividend growth is similar to the sustainable growth rate projections.

23

---

[15] I have included the details of my growth rate analyses for Energy East as an example of the methodology I use in determining the DCF growth rate for each company in the industry sample. A description of the growth rate analyses of each of the companies included in my sample group is set out in Exhibit ___ (SGH-4). Exhibit___(SGH-10), page 1, attached to this testimony shows the internal, external and resultant overall growth rates for all the companies analyzed.

1   Earnings growth rate data available from Value Line indicate that investors can expect a

2   much lower growth rate in the future (1.0%) than has existed over the past five years

3   (4%). However, Thomson financial and Zack's (investor advisory services that poll

4   institutional analysts for growth earnings rate projections) project earnings growth rate

5   for EAS over the next five years at a rate similar to sustainable growth forecasts—4.0 to

6   4.5%.

7   EAS's projected sustainable growth, book value, dividend and projected earnings

8   growth indicates that investors can expect lower growth than has occurred, on average, in

9   the past. A long-term sustainable growth rate of 4.5% is a reasonable expectation for

10   EAS.

11   **Q: Is the internal (B x R) growth rate the final growth rate you use in your DCF**
12   **analysis?**

13   **A:** No. An investor's sustainable growth rate analysis does not end upon the determination

14   of an internal growth rate from earnings retention. Investor expectations regarding growth

15   from external sources (sales of stock) must also be considered and examined. For EAS,

16   page 1 of Exhibit___(SGH-9) shows that the number of outstanding shares increased at

17   about a 7.5% rate over the most recent five-year period, due to a large equity issuance in

18   2002. Since that equity issuance shares outstanding for that company have increased at a

19   0.8% rate annually. Value Line expects the number of shares outstanding to increase

20   more slowly through the 2007-2009 period, bringing the share growth rate to about a

21   0.6% rate by that time. An expectation of annual share growth of 1% is reasonable for

22   this company.

23   The current market price of EAS is approximately 35% above its book value. As I

24   noted previously a utility market price significantly above book value indicates that the

25   utility is earning a return in excess of its cost of capital. If the external ("sv") portion of

26   the sustainable growth rate is estimated using a market-to-book ratio that is indicative of

36

1   over-earnings, then the growth rate will be effectively based on an expectation of

2   perpetual over-earnings and, thus, overstated. If that expected DCF growth rate,

3   predicated on the expectation of over-earning the cost of capital, is then used to set the

4   allowed return the process becomes cyclical, leading to higher and higher allowed

5   returns.

6   Also, because a goal of regulation is to duplicate the strictures of the competitive

7   marketplace and, in so doing, to allow a utility to recover no more than its cost of capital,

8   it is reasonable to assume that the market price/book value ratio would have a tendency

9   toward unity in order to mitigate the impact of over-earning on the projected external

10   growth rate.

11   In addition, Professor Myron Gordon, often referenced as the "father" of DCF in

12   regulation, indicates that the DCF will overstate the cost of common equity capital when

13   allowed returns exceed the cost of capital (i.e., when market prices are substantially

14   above book value as they are currently)[16]. Given the current relationship between market

15   prices and book value of the companies under study, Gordon indicates that the DCF

16   would overstate the cost of common equity. Finally, although I have selected firms for

17   analysis which derive at least 50% of their revenues from electric operations, those firms

18   are not "pure play" utilities—they do have some other operations. Those other operations,

19   therefore, are likely to have an upward impact on the market price and the market-to-

20   book ratio of those companies.

21   I believe, therefore, that a reasonable estimate of investors' expectations for utility

22   price/book ratios is that it will range between current levels and 1.0. I have used the

23   average as an estimate of investors' expectations for the future. At the time of this

24   analysis, EAS's market price is 135% of its year-end book value (M/B = 1.35). The result

25   of combining expected internal (b x r = 4.5%) and external growth rates (1%) yields an

---

[16] Gordon, M.J., The Cost of Capital to a Public Utility, MSU Public Utilities Studies, East Lansing, Michigan, 1974, pp. 9, 10.

1   investor-expected long-term growth rate of 4.67% (see Exhibit___(SGH-10), page 1 of

2   2).

3
4   **Q: Have you checked the reasonableness of your growth rate estimates against other,**
5   **publicly available, growth rate data?**

6   **A:** Yes. Page 2 of Exhibit___(SGH-10) shows the results of my DCF growth rate analysis as

7   well as 5-year historic and projected earnings, dividends and book value growth rates

8   from Value Line, earnings growth rate projections from First Call (and Zack's), the

9   average of Value Line and First Call growth rates and the 5-year historical compound

10   growth rates for earnings, dividends and book value for each company under study.

11   For the utility sample group, Exhibit___(SGH-10), page 2, shows that my DCF

12   growth rate estimate for those companies is 4.66%. That long-term growth rate estimate

13   is significantly higher than Value Line's average projected earnings, dividend, and book

14   value growth rate (3.35%) and also much higher than the historical average of those same

15   parameters (2.59%). In addition, my DCF growth rate estimate for the electric companies

16   is also higher than First Call's and Value Line's projected earnings growth rate estimate

17   (4.07%, 3.73%, respectively), but below Zack's projected earnings growth rate (5.04%).

18   Given the weight of the evidence available to investors, my DCF growth rates for these

19   companies may be conservative (i.e., on the high side), when compared to that published

20   information.

21
22   **Q: Does this conclude the growth rate portion of your DCF analysis?**

23   **A:** Yes, it does.

24   **Q: How have you calculated the dividend yields?**

25   **A:** I have estimated the next quarterly dividend payment of each firm analyzed and

26   annualized them for use in determining the dividend yield. If the quarterly dividend of

27   any company were expected to be raised in the quarter following that in which the most

28   recent dividend was declared, I increased the current quarterly dividend by (1+g). For the

29   utility companies in the sample group, a dividend adjustment was unnecessary for most

1   of the companies under study because they either recently raised their dividend or were

2   not projected to raise the dividend in 2004 or 2005. A dividend adjustment was required

3   for two companies in the sample, Entergy and Pinnacle West.

4   The next quarter annualized dividends were divided by a recent daily closing

5   average stock price to obtain the DCF dividend yields. I use the most recent six-week

6   period to determine an average stock price in a DCF cost of equity determination because

7   I believe that period of time is long enough to avoid daily fluctuations and recent enough

8   so that the stock price captured during the study period is representative of current

9   investor expectations.

10   Exhibit___(SGH-11) indicates that the average dividend yield for the sample

11   group of combination electric/gas utility companies is 4.66%. Value Line's most recent

12   year-ahead dividend yield projection for the companies in my sample group averaged

13   4.64%—very similar to the dividend yield I use in my analysis (Value Line, *Summary &*

14   *Index,* August 27, 2004). That indicates that the dividend yield used in my DCF analysis

15   is reasonable, and is representative of investor expectations.

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

19 **A:** Exhibit___(SGH-12) shows that the average DCF cost of equity capital for the entire

20   group of electric and gas utilities studied is 9.32%.

22   **B. CORROBORATIVE EQUITY COST ESTIMATION METHODS**

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

25 **A:** To support and temper the results of my DCF analysis, I have used three additional

26   econometric methods to estimate the cost of equity capital for a group of firms similar in

27   investment risk to PSE. The three methodologies are: 1) the Capital Asset Pricing Model

28   (CAPM), 2) the Modified Earnings-Price Ratio (MEPR) analysis, and 3) the Market-to-

29   Book Ratio (MTB) analysis. The similar risk sample group of firms analyzed with these

1   three methods is the same as that selected for the DCF analysis, discussed previously.

2   The theoretical details of each of those analyses is contained in Exhibit ___ (SGH-5),

3   attached to this testimony. The actual calculations and data supporting the results of each

4   of these models is shown in the attached Exhibits.

5   Exhibit___(SGH-13) attached to this testimony shows the detail regarding the

6   CAPM analysis, which indicates a cost of capital for electric companies ranging from

7   8.94% to 10.15%. Exhibit___(SGH-15) shows the data and calculations regarding the

8   Modified Earnings Price Ratio (MEPR) analysis, which indicates a current cost of equity

9   capital for companies like PSE ranging from 8.55% to 8.82%. Exhibit___(SGH-16)

10   attached to this testimony contains the supporting detail for the Market-to-Book Ratio

11   (MTB) analysis, which indicates a current cost of equity capital of 9.26% (near-term) to

12   9.02% (long-term).

13   **C. SUMMARY**

14   **Q: Please summarize the results of your equity capital cost analyses for the sample**
15   **group of similar-risk electric and combination electric and gas Cmpanies.**

16   **A:** My analysis of the cost of common equity capital for the sample group of electric and gas

17   utility companies is summarized in the table below.

18

METHOD	COST OF EQUITY
DCF	9.32%
CAPM	8.94%/10.15%
MEPR	8.55%/8.82%
MTB	9.26%/9.01%

19

20   The DCF result noted above, which is my primary indication of the cost of equity

21   capital, is 9.32%. Averaging the lowest and the highest results of the corroborative

22   analyses (CAPM, MEPR, and MTB) produces an equity cost rate range of 8.83% to

1   9.41%—a range that encompasses the DCF result. The other corroborative analyses

2   indicate that my DCF results provide an accurate estimate of the cost of common equity

3   of electric and gas utilities.

4   Given the results shown above, it would be reasonable to construct a current range

5   of equity capital costs with the DCF result at the mid-point of that range. However, over

6   the next year or two capital may increase to some degree if the U.S. economy continues

7   to advance. Therefore, weighing all the evidence presented herein, I believe it is

8   reasonable to construct a current cost of equity range around the DCF estimate, and my

9   best estimate of the cost of equity capital for a firms similar in risk to Puget Sound

10   Energy is 9.00% to 10.00%. The mid-point of that range is 9.50%.

11   **Q: Are you recommending the mid-point of the range common equity costs as**
12   **appropriate for Puget?**

13   **A:** No. As I explain below, Puget's capital structure is slightly more leveraged that the

14   average capital structure of the sample companies. Adjusting for that financial risk factor

15   as well as taking into account Puget's higher-than-average reliance on purchased power, I

16   recommend a point-estimate cost of equity higher than the mid-point of my range for

17   ratemaking purposes.

18   **Q. Does your equity cost estimate include an increment for flotation costs?**

19   **A:** No, it does not.

20
21   **Q: Can you please explain why an explicit adjustment to the cost of equity capital for**
22   **flotation costs is unnecessary?**

23   **A:** An explicit adjustment to "account for" flotation costs is unnecessary for several reasons.

24   First, there is no information in the evidence presented by the Company in this case that

25   indicates that it anticipates a public stock offering in the future. Absent such an offering,

26   the Company will not incur flotation costs going forward and should not be reimbursed

27   for a cost it will not incur. Moreover, any attempt to collect equity financing costs

1   incurred in prior periods would amount to retro-active ratemaking.

2   Second, flotation cost adjustments are usually predicated on the prevention of the

3   dilution of stockholder investment. However, the reduction of the book value of

4   stockholder investment due to issuance expenses can occur only when the utility's stock

5   is selling at a market price at to or below its book value.

6   In the current market environment for electric and gas utility common stock,

7   Puget Energy stock is selling at a sizeable premium to its book value. Therefore, every

8   time a new share of that stock is sold, existing shareholders realize an *increase* in the per

9   share book value of their investment. No dilution occurs, even without any flotation cost

10   allowance.

11   Third, the vast majority of the issuance expenses incurred in any public stock

12   offering are "underwriter's fees" or "discounts". Underwriter's discounts are not out-of-

13   pocket expenses for the issuing company. On a per share basis, they represent only the

14   difference between the price the underwriter receives from the public and the price the

15   utility receives from the underwriter for its stock. As a result, underwriter's fees are not

16   an expense incurred by the issuing utility and recovery of such "costs" should not be

17   included in rates.

18   In addition, the amount of the underwriter's fees are prominently displayed on the

19   front page of every stock offering prospectus and, as a result, the investors who

20   participate in those offerings (e.g., brokerage firms) are quite aware that a portion of the

21   price they pay does not go to the company but goes, instead, to the underwriters. By

22   electing to buy the stock with that knowledge, those investors have effectively accounted

23   for those issuance costs in their risk-return framework by paying the offering price.

24   Therefore, they do not need any additional adjustments to the allowed return of the

25   regulated firm to "account" for those costs.

26   Fourth, my DCF growth rate analysis includes an upward adjustment to equity

42

1   capital costs which accounts for investor expectations regarding stock sales at market

2   prices in excess of book value, and any further explicit adjustment for issuance expenses

3   related to increases in stock outstanding is unnecessary.

4   Fifth, research has shown that a specific adjustment for issuance expenses is

5   unnecessary[17]. There are other transaction costs which, when properly considered,

6   eliminate the need for an explicit issuance expense adjustment to equity capital costs. The

7   transaction cost that is improperly ignored by the advocates of issuance expense

8   adjustments is brokerage fees. Issuance expenses occur with an initial issue of stock in a

9   primary market offering. Brokerage fees occur in the much larger secondary market

10   where pre-existing shares are traded daily. Brokerage fees tend to increase the price of

11   the stock to the investor to levels above that reported in the Wall Street Journal, i.e., the

12   market price analysts use in a DCF analysis. Therefore, if brokerage fees were included

13   in a DCF cost of capital estimate they would raise the effective market price, lower the

14   dividend yield and lower the investors' required return. If one considers transaction costs

15   which, supposedly, raise the required return (issuance expenses), then a symmetrical

16   treatment would require that costs which lower the required return (brokerage fees)

17   should also be considered. As shown by the research noted above, those transaction costs

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

19
20 **Q: Are there other factors to be considered before determining a point-estimate for**
21   **Puget within a reasonable rage for similar-risk firms?**

22 **A:** Yes. As I noted in Section II of this testimony, Puget's capital structure contains a level

23   of common equity capital which is similar to that of the electric industry, generally, but

24   somewhat lower than that of the sample group of utility companies I used to estimate the

25   9.0% to 10% range of cost of equity capital. Therefore, the financial risk of Puget is

---

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

1   somewhat higher than that of the sample group, and should be recognized in determining

2   a point-estimate return to be allowed in this proceeding.

3
4   **Q: Is there a recognized method with which differences in financial risk can be**
5   **quantified?**

6   **A:** Yes. The cost of equity capital is affected by the capital structure a company employs.

7   When a company increases the proportion of debt in its capital structure, it increases the

8   riskiness of its equity. Financial risk (created by the use of debt in the capital structure)

9   causes investors to demand a higher rate of return; that is, financial risk increases the cost

10   of equity capital.

11   The impact of debt leverage on the cost of equity capital can be approximated

12   through an examination of the changes in beta, which occur when leverage is increased or

13   decreased. The Value Line betas for the sample companies, i.e., the betas which are

14   calculated from a comparison of the individual return volatility of one stock versus that of

15   a market index (referred to in this analysis as the "measured" betas), reflect the market's

16   (investors') perception of both the business risks and the financial risks of a firm. That is,

17   one portion of the measured beta of a firm is related to the business risk of the firm (the

18   risk inherent in its operations) and one portion of the measured beta is related to the

19   financial risk of that firm (the risk associated with the use of debt). Therefore, if a firm

20   elects to finance its operations with debt as well as equity, the measured beta coefficient

21   of that firm will reflect both the business and financial risk. When a firm uses debt to

22   finance its operations, the measured beta can also be referred to as a "levered" beta (i.e., a

23   beta coefficient that includes the impact of debt leverage).

24   The average measured beta coefficient of the sample group of utilities can be

25   "unlevered." That is, the beta-risk related to the level of debt capital used by the firm can

26   be removed. "Unlevering the betas" amounts to estimating what the firm's beta would be

44

1   if it were financed entirely with equity capital. Equation (2) is used to estimate the

2   unlevered beta for a firm[18].

3
$$\beta_U = \frac{\beta_{Measured}}{(1+(1-t)D/E)} \tag{2}$$

4   Equation (2) indicates that an estimate of the unlevered beta (β_U) of a firm can be

5   calculated by dividing the measured beta ($\beta_{Measured}$, e.g. the beta coefficient reported by

6   investor services such as Value Line) by one plus the average debt-to-equity ratio,

7   adjusted to account for taxes. The debt-to-equity ratio is measured using the average

8   market value of the sample group's common equity capital. Once the unlevered beta for

9   the firm (or, in this case, for the sample group of market-traded utility companies) is

10   calculated, the beta coefficient is "re-levered" and adjusted to conform to the ratemaking

11   capital structure for Puget. In this instance, the ratemaking capital structure is that which I

12   recommend for Puget in this proceeding (40% equity capital). The formula used to "re-

13   lever" the utility betas is shown below.

14
$$\beta_{Relevered} = \beta_U\,(1+(1-t)D/E) \tag{3}$$

15   Equation (3) states that the relevered beta equals the unlevered beta (β_U) multiplied times

16   one plus the target debt-to-equity ratio (in this case Puget's ratemaking capital structure),

17   again adjusted for taxes. (Of course, if the Commission elected to use Puget's requested

18   45% common equity ratio rather than the 40% actual equity ratio, the Company would

19   have less financial risk than the sample group and the equity cost should be adjusted

20

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[18]Equation (2) is a version of the Hamada equation which combines the Miller-Modigliani theories
regarding capital structure and the logic of the CAPM: Hamada, R.S., "Portfolio Analysis, Market
equilibrium and Corporation Finance," *Journal of Finance*, March 1969, pp. 13-31.

1   downward from the mid-point, not upward.).

2   Exhibit___(SGH-17) shows that, considering preferred stock and short-term debt

3   as debt capital[19], the average capital structure of the sample group of electric companies

4   consists of 43.8% common equity and 56.2% fixed-income capital. That capital structure,

5   adjusted to market levels by an average 1.46 market-to-book ratio and accounting for a

6   35% tax rate, produces a value for (1-t)D/E in Equation (2) of 0.60.

7   Exhibit___(SGH-17) shows further that the measured (average Value Line) beta

8   coefficient of the sample group of utility firms is 0.76, and the underlined beta coefficient

9   of those firms (i.e., what the average beta would be if those firms were financed entirely

10   with common equity) is 0.48. When that beta is "relevered" using the methodology

11   described above to conform to Puget's ratemaking capital structure, the resulting average

12   beta coefficient is 0.78, an increase in beta of 0.02 due to the sample group's higher

13   average equity capitalization ["measured" beta of 0.76 vs. "relevered" beta of 0.78].

14   Finally, with the increase in beta determined, the CAPM can be used to estimate

15   the impact of that adjustment on the cost of capital. A review of the CAPM equation

16   (Equation (i) in Exhibit ___ (SGH-5)) indicates that the beta coefficient is multiplied by

17   the market risk premium $(r_m - r_f)$ as a step in the determination of the cost of capital.

18   Therefore, it is possible to measure the impact of an adjustment to beta by multiplying the

19   difference in the measured and relevered betas of the electric companies by the market

20   risk premium. As I noted in my discussion of the CAPM analysis, the market risk

21   premium used in my equity cost estimate—5% to 6.6%—is provided by Ibbotson

22   Associates. As shown in Exhibit___(SGH-17), an increase in the average beta coefficient

1   of 0.02 indicates an increase in the cost of capital of from 12 to 16 basis points (0.02 x

2   5%-6.6% = 0.12%-0.16%).

3   The range of common equity costs for combination electric companies, derived

4   above is 9.00% to 10.00%, and the mid-point of that range is 9.50%. Given that an

5   appropriate adjustment to Puget's equity capital cost to account for its higher financial

6   risk ranges from about 12 basis points to 16 basis points, in addition to the fact that Puget

7   has somewhat higher exposure to purchased power risk it is reasonable to set the point-

8   estimate cost of equity capital for Puget higher than the mid-point of the reasonable

9   range. In my opinion 9.75% would be reasonable for ratemaking purposes.

10   **Q: What is the overall cost of capital for Puget's electric and gas utility operations,**
11   **based on an allowed equity return of 9.75%?**

12   **A:** Exhibit___(SGH-18) attached to my testimony shows that an equity return of 9.75%,

13   operating through an appropriate ratemaking capital structure and the Company's

14   forward-looking capital cost rates, produces an overall return of 8.01% for Puget Sound

15   Energy. Exhibit___(SGH-18) also shows that a 8.01% overall cost of capital affords the

16   Company an opportunity to achieve a pre-tax interest coverage level of 2.46 times.

17   According to Puget Energy's 2003 Annual Report (p. 79), Puget Sound Energy's

18   pre-tax interest coverage over the past three years has averaged 1.99x (2003 - 2.06x; 2002

19   -1.85x; 2001 - 2.05x). During that time period, the Company has maintained its current

20   bond rating status. The equity return and capital structure I recommend offers the

21   Company an opportunity to significantly improve its pre-tax interest coverage and,

22   thereby, shore up or improve its current bond rating. Also, the equity return I recommend

23   offers fulfills the legal requirement of Hope and Bluefield of providing the Company the

24   opportunity to earn a return which is commensurate with the risk of the operation and

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[19]The "deleveraging" analysis could be extended to take account of each form of fixed income capital (e.g. preferred stock), but due to the very small amount of preferred stock the impact on the cost of equity capital would be essentially the same.

1 serves to support and maintain the Company's ability to attract capital.

2
3 **IV.   COMPANY COST OF CAPITAL TESTIMONY**
4
5 **Q: What methods has Company cost of capital witness Cicchetti used in this**
6 **proceeding?**

7 **A:** Dr. Cicchetti has provided the Commission a Discounted Cash Flow (DCF) and Capital

8 Asset Pricing Model (CAPM) analyses as his primary analyses to estimate the cost of

9 equity capital for Puget Sound Energy in this proceeding; and has also included a Risk

10 Premium analysis as a corroborative methodology. As a result of those analyses. Dr.

11 Cicchetti recommends Puget be awarded a return on equity of at least 11.75% and not

12 more than 12.5%.

13
14 **Q: Do the analyses used by Dr. Cicchetti in this proceeding provide a reasonable**
15 **estimate of the Company's cost of equity capital?**

16 **A:** No. Dr. Cicchetti's DCF analysis relies solely on stock price growth as the growth rate

17 used to estimate the DCF cost of equity capital. While, in theory, stock price growth

18 mirrors that of dividends, book value and earnings in the DCF model, in reality, stock

19 market price growth is considerably more variable than any of the other growth rate

20 measures. As a result, the results reached using that method are extremely variable and,

21 thus, unreliable for the purposes of setting an allowed return on common equity for a

22 regulated utility operation. I will demonstrate the volatility of Dr. Ciccetti's method

23 below. Also, Dr. Ciccetti's choice of DCF methodology is unorthodox. In more than

24 twenty years of cost of capital experience in regulated industries I am not aware of

25 another instance in which a witness has relied solely on stock price growth to estimate the

26 cost of equity. Finally, his DCF method is inconsistent with DCF methodology used in

27 other rate of return testimony.

28   That same flawed reliance on volatile stock price movements plagues Dr.

29 Cicchetti's CAPM analysis. In determining a market risk premium (the expected market

30 return less the current risk-free rate of interest), Dr. Cicchetti elects to use a DCF-type

48

1 return based on recent stock price increases in the broad market. Again, that methodology

2 is simply too variable to provide a reliable estimate of the cost of common equity capital.

3   Also, Dr. Cicchetti elects to calculate his own beta coefficients. While the results

4 are not substantially different from beta coefficients available from widely-disseminated

5 public source such as Value Line, they are different and, thus, are far less likely to

6 represent investors' expectations with regard to beta and the relative risk that that

7 parameter is designed to represent. Also, Dr. Ciccetti's position on the reliability of the

8 CAPM in this proceeding is inconsistent with his testimony in the past. In prior testimony

9 Dr. Cicchetti elected to omit the use of a CAPM cost of equity estimate as being too

10 unreliable. He offers no discussion of CAPM unreliability in his testimony in the instant

11 proceeding.

12   Finally, Dr. Cicchetti's corroborative Risk Premium analysis is also flawed

13 because the return differences he indicates are appropriate for companies like Puget are

14 actually based on return data for broad market indices, not regulated monopolies.

15 Therefore, to the extent that Dr. Ciccetti's Risk Premium analysis produces results similar

16 to his DCF and CAPM, that simply confirms that the results of his other methods are too

17 high to be appropriate for less-risky regulated utility operations like Puget Sound Energy.

19 **Q: You noted previously that a DCF method based solely on stock price growth is**
20 **unreliable. What evidence can you provide to support that statement?**

21 **A:** The extreme variability that results from the type of DCF analysis presented by Dr.

22 Cicchetti in this proceeding is demonstrated in two ways by the evidence he, himself,

23 presents. First, Table 1 below displays Dr. Ciccetti's DCF results for utility companies he

24 believes are similar in risk to Puget. Those DCF results are based on stock price growth[20].

25

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[20] For some unexplained reason, Dr. Cicchetti's DCF analysis for similar-risk companies was undertaken in the 3rd quarter of 2003 (Cicchetti Direct, p. 35, l. 2), while his analysis for Puget used data through the first quarter of 2004.

1   Table 1

2   Dr. Cicchetti's DCF Results

3

	Cicchetti's
Company	**DCF Results**
Black Hills	20.23%
Hawaiian Electric	6.69%
IDACORP	11.99%
ALLETE	27.71%
Cleco	24.76%
Empire District	32.04%
Great Plains Energy	50.63%
OGE Energy	34.89%
Otter Tail	3.06%
Central Vermont	26.83%
Green Mt. Power	27.47%
UIL Holdings Corp.	6.93%
Avista	35.79%
MDU Resources Group	40.58%
PNM Resources	27.01%
Puget Energy	13.89%
Sierra Pacific	-22.83%
Alliant Energy	19.02%
Aquilla	-19.25%
MGE Energy	20.87%
WPS Resources	20.25%
Wisconsin Energy	25.47%
SCANA	31.22%
TECO Energy	-5.99%
Gas Combo Average	**15.50%**
Standard Deviation	**20.72%**
Average + 2 S.D.	**56.95%**
Average - 2 S.D.	**-25.95%**

4   As he reports on page 35 of his Direct Testimony, the average DCF for the combination

5   gas and electric and gas utilities is 15.50%. What Dr. Cicchetti does not discuss is the

6   extreme volatility evidenced in his DCF results that rely solely on stock price growth.

7   While the average result for the gas combination utilities is, indeed, 15.5%, the standard

8   deviation, 20.72%, is even greater than the average. That means, if we construct a typical

9   two standard deviation unit range around the sample average (15.5%), Dr. Cicchetti's

1   DCF analysis indicates that we can be 95% confident that the cost of common equity

2   capital for Puget lies somewhere in the range between –25.95% and +50.95% [15.50% ±

3   2 x 20.72%]. In other words, Dr. Cicchetti's DCF analysis doesn't provide useful

4   information. That sort of extreme variability of result follows from Dr. Cicchetti's use of

5   changes in market price as a measure of long-term growth in the DCF and provides little

6   reliable information to the Commission as to Puget's actual cost of equity capital.

7   Second, the volatility of Dr. Cicchetti's DCF/stock price growth analysis can also

8   be seen in his DCF results for Puget. In his Table 5, at page 34 of his Direct Testimony,

9   Dr. Cicchetti shows his stock-price growth DCF analysis for Puget. Measuring the

10   month-to-month change in stock price over the past year and adding that to the average

11   dividend produces a DCF result of 12.2%.

12   Table 2, below, exactly replicates Dr. Cicchetti's DCF analysis for Puget, but uses

13   the most recent data available (July 2003 to July 2004). The more current DCF result is

14   8.6%, three hundred sixty basis points below the cost of equity indication reached using

15   annual stock price growth just four months earlier, from March 2003 to March 2004.

16   While the result shown in Table 2 happens to be not far off the mark with regard to the

17   current cost of equity, it is simply not reasonable to believe that the cost of equity capital

18   for Puget or any other combination electric and gas utility has declined over three

19   hundred basis points in four months. Nevertheless, that is the information provided by the

20   particular DCF method Dr. Cicchetti has elected to sponsor in this proceeding. Dr.

21   Cicchetti's DCF method in this case, i.e. relying solely on historical stock price growth,

22   does not provide a reliable estimate of the cost of common equity capital.

23

1   Table 2

2   Dr. Cicchetti's DCF Analysis for Puget - Updated

3

Date	Growth in Stock Price	Dividend Yield	DCF Rate of Return
Jul-04	-1.06%	4.62%	3.56%
Jun-04	-8.56%	4.56%	-4.00%
May-04	-8.77%	4.66%	-4.11%
Apr-04	3.90%	4.55%	8.45%
Mar-04	4.85%	4.47%	9.32%
Feb-04	10.58%	4.44%	15.02%
Jan-04	17.64%	4.23%	21.87%
Dec-03	7.51%	4.21%	11.71%
Nov-03	7.54%	4.30%	11.84%
Oct-03	6.54%	4.40%	10.94%
Sep-03	9.43%	4.46%	13.89%
Aug-03	0.46%	4.59%	5.05%
Jul-03	4.15%	4.57%	8.73%
AVERAGE	4.17%	4.47%	8.64%

4
5   **Q: Has Dr. Cicchetti been consistent in the type of DCF analysis he uses to estimate the**
6   **cost of equity capital?**

7   **A:** No. Dr. Cicchetti and I were witnesses in a rate proceeding regarding Westar Energy

8   (then Western Resources), before the Kansas Corporation Commission—Docket No. 01-

9   WSRE-436-RTS. In that testimony, Dr. Cicchetti performed a DCF analysis on a group

10   of utility companies. His DCF analysis in that proceeding was based on Value Line

11   dividend yields and Value Line projected earnings growth rates. In that prior testimony,

12   he made no mention whatsoever of stock price growth to estimate the DCF cost of equity.

13
14 **Q: What would be the result of using Dr. Cicchetti's former DCF method on his**
15   **current sample group of Companies?**

16 **A:** Table 3, below, shows that using Value Line's dividend yield and projected three- to five-

17   year earnings growth rates for each of Dr. Cicchetti's sample group of companies, the

18   DCF result would range from 7.56% to 9.25%, depending on whether one uses the

19   average (as Dr. Cicchetti did in the past) or the median of the DCF results, respectively.
20

1   Table 3

2   Dr. Cicchetti's Former DCF Method and Current Sample Group

3

Company	Value Line Dividend Yield	Value Line Earnings Growth	DCF Result
Black Hills	4.10%	1.50%	5.60%
Hawaiian Electric	4.90%	4.00%	8.90%
IDACORP	4.20%	1.50%	5.70%
ALLETE	3.40%	5.50%	8.90%
Cleco	5.10%	1.00%	6.10%
Empire District	6.40%	6.50%	12.90%
Great Plains Energy	5.50%	5.50%	11.00%
OGE Energy	5.20%	5.00%	10.20%
Otter Tail	4.20%	2.00%	6.20%
Central Vermont	4.70%	7.50%	12.20%
Green Mt. Power	3.50%	3.50%	7.00%
UIL Holdings Corp.	6.40%	-2.00%	4.40%
Avista	3.10%	7.50%	10.60%
MDU Resources Group	3.10%	7.00%	10.10%
PNM Resources	3.20%	-1.50%	1.70%
Puget Energy	4.60%	8.50%	13.10%
Sierra Pacific	0.00%	nmf	nmf
Alliant Energy	3.90%	3.00%	6.90%
Aquilla	0.00%	-13.50%	-13.50%
MGE Energy	4.40%	6.00%	10.40%
WPS Resources	4.80%	5.00%	9.80%
Wisconsin Energy	2.60%	4.50%	7.10%
SCANA	4.30%	5.50%	9.80%
TECO Energy	6.30%	6.50%	12.80%
AVERAGE	**4.08%**	**3.48%**	**7.56%**
MEDIAN	**4.25%**	**5.00%**	**9.25%**
Data from May 14, June 4 and July 2 Editions of Value Line			

4
5   **Q: Has Company cost of capital witness Cicchetti provided the Commission a reliable**
6   **DCF equity cost estimate in this proceeding?**

7   **A:** No. By electing to rely solely on stock price growth, Dr. Cicchetti has produced results

8   that are so variable as to be unusable in setting rates for Puget or any other regulated

9   utility. Also, while a more current version of his DCF produces a result (8.6%) which is

10 relatively close to the actual current cost of common equity for electric/gas combination

1 utilities, I believe that is simply happenstance and does not indicate that a DCF based on

2 stock price growth is a reliable equity cost estimation method for ratesetting purposes.

3 Finally, Dr. Cicchetti's unorthodox selection of stock price growth as the engine of his

4 DCF estimate is logically inconsistent with his own prior testimony that used a more

5 conventional measure of DCF growth—projected earnings. That former DCF method

6 endorsed by Dr. Cicchetti produces DCF results of 7.5% to 9.25% and confirms that my

7 equity cost estimate in this proceeding, 9% to 10%, is reasonable and, perhaps, too

8 conservative.

10 **Q: What are your comments regarding Dr. Cicchetti's application of the capital asset**
11 **pricing model?**

12 **A:** While Dr. Cicchetti makes much ado about the calculation of beta coefficients in his

13 Direct Testimony, ultimately the betas he calculates for Puget and the other utilities is not

14 much different from those published by widely-circulated investor services like Value

15 Line. Where differences do occur, it is reasonable to believe that the published betas are

16 more representative of investor opinion that those calculated by Dr. Cicchetti, which are

17 published only in his testimony in this proceeding.

18 A fundamental problem with Dr. Cicchetti's CAPM in this proceeding, and the

19 reason that the results of that model substantially overstate the actual cost of equity

20 capital can be found in the Company witness' construction of the market risk premium

21 portion of the model. The market risk premium is, according to CAPM theory, designed

22 to represent the return differential investors expect between the risk-free rate of return

23 (proxied by Dr. Cicchetti as the long-term US Treasury Bond yield) and the expected

24 return available in a proxy for the broad stock market, usually the S&P 500 or the Dow

25 Jones Industrials. Rather than use a long-term historical average of return differences

26 between market indicies and the risk-free rate, as I have done in Section III of this

27 testimony, Dr. Cicchetti elects to look only at short-term history and measure a DCF-type

28 return for the Dow Jones Industrial Average (DJIA) using, again, stock price growth as

1   the measure of "g" in the DCF model. Moreover, he elects to look only at periods that

2   show very high rates of growth (March 2003-March 2004: 37.97%; January 2003-

3   December 2003: 25.3%; and 1993-2003: 17.8%).

4   If Dr. Cicchetti had considered other holding periods, his conclusion regarding the

5   growth investors expect from the DJIA would have been drastically different. For

6   example in March 2002 the DJIA was 10,403, and two years later in March 2004 it was

7   10,357, representing negative growth over that period. If we compare the level of the

8   DJIA in March 2001 with the level two years later in March 2003, we find a decline in

9   the price of that index of 20%--negative 205 growth. Also, the Dow started 2004 at

10   10,341 and closed on August 2, 2004, at 10,179—again, negative price growth[21]. Yet,

11   ignoring these recent negative growth trends in the market, Dr. Cicchetti opines that

12   investors expect a return on the DJIA to be 17.8%.

13   The salient point here is that, by selecting any one particular period the analyst

14   can effectively create whatever growth rate is desired. If one is to use historical data to

15   determine a nominal expectation for long-term growth, then it is reasonable to use a very

16   long-term time frame in order to eliminate abnormalities that may be included in shorter-

17   term time periods.

19   "The estimate of the equity risk premium depends on the
20   length of the data series studied. A proper estimate of the
21   equity risk premium requires a data series long enough to
22   give a reliable average with out being unduly influenced by
23   very good and very poor short-term returns. When
24   calculated using a long data series, the historical equity risk
25   premium is relatively stable. Furthermore, because an
26   average of the realized equity risk premium is quite volatile
27   when calculated using a short history, using a long series
28   makes it less likely that the analyst can justify any number
29   he or she wants." (Ibbotson Associates, Stocks, Bonds,
30   Bills and Inflation: Valuation Edition, 2004 Yearbook, p.
31   76.

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[21] All market price data from Yahoo!Finance.com.

55

1   According to Ibbotson Associates[22] the average market return over the past 77 years has

2   ranged from 10.4% to 12.4%. Moreover there exists recent research on the subject of

3   market risk premiums that indicate the Ibbotson Associates data may be somewhat

4   overstated. For example, Siegel (Siegel, J., <u>Stocks for the Long Run</u>, 1994, Irwin,

5   Chicago IL, p. 20) shows that over the very long-term history (reaching back into the

6   1800s), a more normal risk premium between stocks and bonds is 2% to 3%. Fama

7   (Fama, E. and French, K., "The Equity Premium," *The Journal of Finance*, Vol. LVII,

8   No, 2, April 2002, pp. 637-659) found a representative risk premium to range from 2.5%

9   to 4.3%, again well below the Ibbotson estimates. Also, Dimson, et al, (Dimson, March

10   and Staunton, <u>Triumph of the Optimists</u>, Princeton University Press, Princeton NJ,

11   Oxford England, 2002) found that even the return data in the Siegel publication is

12   questioned as being too high, due to "survivor bias." That phenomenon, according to

13   Dimson, exaggerates historical stock returns by one to two percentage points.

14   In sum, Dr. Cicchetti has again based his return estimate for the risk premium

15   portion of the CAPM on stock price growth rates—a very volatile series that can lead to

16   extreme distortions of investor expectations especially when short-term time periods are

17   studied. The result of that flaw is a market risk premium estimate (12.91%[23]) that is

18   *double* the highest Ibboston long-term historical estimate of 6.60%[24], which, according to

19   recent academic research, may also overstate the actual investor-expected return premium

20   for investing in stocks rather than bonds. Simply substituting Ibbotson's long-term

21   arithmetic market risk premium of 6.60% for Dr. Cicchetti's selected 12.91% in the

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[22] <u>Stocks, Bonds, Bills and Inflation: Valuation Edition, 2004 Yearbook</u>, p. 28.
[23] Cicchetti Direct, p. 40: 17.8% market return less 4.89% risk-free rate = 12.91%.
[24] See Exhibit___(SGH-12) attached to this testimony. 6.60%= arithmetic return differential between stocks and long-term Treasury bonds over the past 77 years.

1   CAPM formula appearing on page 40 of his Direct Testimony results in an equity cost

2   estimate for Puget Sound Energy of 9.04% [4.89% + 0.62807 x 6.60% = 9.04%]. Again,

3   Dr. Cicchetti's reliance on stock price growth to proxy long-term investor expectations

4   has produced an unreliable CAPM cost of equity analysis that substantially overstates the

5   equity cost estimate provided by more traditional, less volatile, CAPM methods.

6   **Q: Do you believe CAPM cost of equity estimates should be given equal weight with**
7   **DCF estimates?**

8   **A:** No, I do not. I discuss the reasons why in Exhibit ___ (SGH-5) attached to my testimony

9   and will not repeat that logic here. Simply stated, CAPM estimates should be considered

10   in determining the cost of equity capital because that methodology is widely used in

11   academia and provides a plausible description of risk and return in capital markets. As I

12   discuss in Exhibit ___ (SGH-5), however, there are many implementation problems when

13   the theoretical CAPM is applied in real-world circumstances such as those we encounter

14   here in this rate proceeding. Therefore, I believe the CAPM should inform the process of

15   setting the allowed rate of return for regulated firms, but not be a primary determinant in

16   that process.

17
18   **Q: Has Dr. Cicchetti consistently used a CAPM analysis when estimating the cost of**
19   **common equity in rate proceedings?**

20   **A:** No. In the last rate proceeding in which Dr. Cicchetti and I were involved (Western

21   Resources, now Westar Energy) he elected not to use a CAPM analysis, stating as

22   follows:
23   "Currently, KPL and KGE [divisions of Western
24   Resources] do not have stock that trades. Accordingly, it is
25   difficult to agree on the underlying Beta statistic for KPL
26   and KGE. This would mean that Staff, other interveners
27   [sic] and I would need to engage in a subjective argument
28   about the appropriate Beta and/or method for determining
29   same in order to determine a KPL and KGE stock price
30   separate from Western Resources.
31   In addition, there would be debates over the
32   relevance of how the various utility indices have jumped
33   sharply (i.e., more than 40 percent) this past six months.

1   This would most likely introduce arguments about the use
2   of other indices, which have shown much greater variation.
3   Effectively, this means that a different CAPM answer could
4   be formed by selecting different time periods to determine
5   the level of the market portfolio's underlying return.
6   Finally, the past year has had some anomalous relationships
7   between short-term and long-term interest rates on risk-free
8   bonds of the federal government.
9   CAPM is generally fraught with differences in
10   experts' opinions that often yield wide variation. The past
11   twelve months have generated data in financial markets that
12   would make these differences more extreme than is usually
13   the case. As I pointed out above, stock for KPL and KGE
14   does not now trade apart from Western Resources, and in
15   combination with the other issues I identified above, I
16   conclude that a CAPM analyses would not add value to this
17   proceeding." (Cicchetti Direct, on behalf of Western
18   Resources in Kansas Corporation Commission Docket No.
19   01-WSRE-436-RTS, p. 22, l. 11 through p. 23, l. 9.)

20

21   In the instant proceeding, Puget Sound Energy does not have stock that trades, Dr.

22   Cicchetti notes that the Dow Jones Utilities Index recently increased nearly 40%

23   (Cicchetti direct, p. 39, l. 10) and the current yield differential between long- and short-

24   term U.S. Treasury securities is unusually wide. Those are the very same conditions that,

25   according to his prior testimony, prevented his inclusion of a CAPM analysis in the

26   Western Resources proceeding. As he notes in his prior testimony, a CAPM analysis

27   wasn't presented because, with those conditions he cited, "a different CAPM answer

28   could be formed by selecting different time periods." Interestingly, that's exactly what's

29   wrong with his CAPM in the instant proceeding.

30   **Q: What other equity cost estimation analysis does Dr. Cicchetti present in his**
31   **testimony in this proceeding?**

32   **A:** Dr. Cicchetti utilizes a Risk Premium analysis to estimate the cost of equity as a "check

33   on the reasonableness" of his other analyses. His Risk Premium analysis is based on

34   studies published in the early 1990s which utilize stock return and bond yield data from

1   1982 to 1991 and "much of the 1990s" (Cicchetti Direct, p. 45). Both of the risk premium

2   studies use DCF equity cost estimates of the S&P 500 as a measure of market returns,

3   and subtract bond yields from those returns to obtain risk premium estimates. The studies

4   referenced by Dr. Cicchetti also find a negative relationship between the level of interest

5   rates and risk premiums (as interest rates fall, risk premiums rise). Dr. Cichetti adjusts the

6   risk premium findings reported in the studies to "comport" with current interest rate

7   levels. The result is an estimate of the cost of equity capital of about 12%.

8   The DCF results presented in the risk premium studies that form the basis of Dr.

9   Cicchetti's analysis in this proceeding use analysts' earnings growth projections as the

10   sole measure of long-term sustainable growth. That procedure, as I discuss in Exhibit ___

11   (SGH-3) attached to my testimony can lead to inaccurate equity cost estimates; and, in

12   this instance, the risk premium results are only as reliable as the DCF equity cost

13   estimate. However, the structure of the DCF equity cost estimate in Dr. Cicchetti's

14   referenced studies is not the fundamental flaw which makes those results inapplicable in

15   the instant proceeding, it is the focus of the DCF study—the S&P 500.

16   The studies on which Dr. Cicchetti relies for his risk premium analysis are based

17   on the cost of equity capital of a broad market measure (the S&P 500), not on the cost of

18   capital of utility operations. Therefore, the 12% cost of capital estimates he provides

19   (even if we assume his "updating" of the risk premiums is accurate) is that of

20   unregulated, industrial operations not the cost of capital of a combination electric/gas

21   utility operation. Utility operations are significantly less risky than the S&P 500, and Dr.

22   Cicchetti's Risk Premium results, which are based on the cost of equity of the latter,

23   should not be considered a reliable estimate of the cost of equity of the former.

24   For example, at page 45 of his Direct Testimony, Dr. Cicchetti indicates that the

25   two studies show that the S&P 500 cost of equity about 7.25% above the yield on long-

26   term Treasury bonds. However, the S&P 500, a surrogate for the capital market, by

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1   definition has a beta (relative risk) coefficient of 1.0. Electric and gas utilities, on the

2   other hand, are considerably less risky and have an average beta of about 0.62 (Dr.

3   Cicchetti's beta estimate for Puget). Therefore, a 7.25% risk premium applicable to the

4   market would indicate a 4.5% risk premium is applicable to utility stocks (7.25% x 0.62

5   beta = 4.49%). That Puget-specific risk premium, 4.5%, added to Dr. Cicchetti's long-

6   term Treasury bond rate, 4.89%, indicates an equity cost for Puget's utility operations of

7   9.38% (4.89% + 4.5%). In other words, when adjusted to produce a cost of capital

8   appropriate for the risk of a utility operation like Puget, Dr. Cicchetti's Risk Premium

9   analysis tends confirm my own estimate of the cost of equity capital for firms in that risk-

10   class.

11   In sum, Dr. Cicchetti's Risk Premium analysis does not confirm the

12   reasonableness of his DCF and CAPM analyses. Because his Risk Premium analysis is

13   designed to estimate the equity capital cost of the S&P 500, that analysis shows, instead,

14   that Dr. Cicchetti's DCF analysis has produced an equity cost estimate which is similar to

15   that of unregulated industrial firms. Moreover, when that analysis is conformed to take

16   into account the risk differences between unregulated industrial firms and utility

17   operations, that analysis confirms my equity cost estimate of 9.0% to 10.0% and

18   underscores the degree to which the Company's requested equity return, 11.75% to

19   12.5%, overstates the cost of equity capital for Puget Sound Energy.

20
21   **Q: Does this conclude your comments on the pre-filed direct testimony of company**
22   **witness Cicchetti?**
23   **A:** Yes, it does.

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

25   **A:** Yes, it does.