AVISTA CORPORATION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

CASE NOS. UE-991606 AND UG-991607

DIRECT TESTIMONY

OF

STEPHEN G. HILL

Exhibit___(SGH-T)

ON BEHALF OF

THE

WASHINGTON ATTORNEY GENERAL

PUBLIC COUNSEL

May 5, 2000

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INTRODUCTION / SUMMARY

Q. PLEASE STATE YOUR NAME, OCCUPATION AND ADDRESS.

A. My name is Stephen G. Hill. I am self-employed as a financial consultant, and principal of Hill Associates, a consulting firm specializing in financial and economic issues in regulated industries. My business address is P.O. Box 587, 4000 Benedict Road, Hurricane, West Virginia, 25526 (e-mail: sghill@compuserve.com).

Q. BRIEFLY, WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. After graduating with a Bachelor of Science degree in Chemical Engineering from Auburn University in Auburn, Alabama, I was awarded a scholarship to attend Tulane Graduate School of Business Administration at Tulane University in New Orleans, Louisiana. There I received a Master's Degree in Business Administration. More recently, I have been awarded the professional designation "Certified Rate of Return Analyst" by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. A more detailed account of my educational background and occupational experience appears in Appendix A (Exhibit__(SGH-2)).

Q. HAVE YOU TESTIFIED BEFORE THIS OR OTHER REGULATORY COMMISSIONS?

A. Yes, I have appeared previously before this Commission. In addition, I have testified on cost of capital, corporate finance and capital market issues in over 170 regulatory proceedings before the following regulatory bodies: the Federal Communications Commission, the Federal Energy Regulatory Commission, the West Virginia Public Service Commission, the Texas Public Utilities Commission, the Oklahoma State Corporation Commission, the Public Utilities Commission of the State of California, the

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

Q. ON BEHALF OF WHOM ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the Attorney General of Washington, Public Counsel (PC).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. In this testimony, I present the results of studies I have performed related to the establishment of an appropriate return on equity and overall cost of capital for the gas and electric utility operations of Avista Corporation (Avista, the Company). In addition, I comment on the pre-filed Direct Testimony of Company witnesses Avera and Dukich.

Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR TESTIMONY?

A. Yes. I have prepared an Exhibit (Exhibit__(SGH-1)) consisting of 13 Schedules which support the analyses described in the body of my testimony. This Exhibit was prepared by

me and is correct to the best of my knowledge and belief. In addition, I have provided four Appendices ("A" through "D") that contain additional detail regarding certain aspects of my testimony in this proceeding.

Q. PLEASE SUMMARIZE YOUR TESTIMONY AND FINDINGS CONCERNING THE RATE OF RETURN THAT SHOULD BE UTILIZED IN SETTING RATES FOR AVISTA'S GAS AND ELECTRIC UTILITY OPERATIONS IN THIS PROCEEDING.

A. My testimony is organized into four sections. First, I discuss the cost of capital standard as a measure of the return to be allowed for regulated industries, and review the current economic environment in which my equity return estimate is made. Second, I review the capital structure recommended by the Company for ratemaking purposes, the capital structure actually employed by Avista management to capitalize its utility operations, and the capital structure of combination gas and electric utility operations prevalent in today's marketplace. I select a capitalization that balances the interests of ratepayers and stockholders and is appropriate for ratemaking purposes. Third, I evaluate cost of equity capital for combination gas and electric utility operations using a Discounted Cash Flow (DCF) analysis as well as Capital Asset Pricing Model (CAPM), Modified Earnings-Price Ratio (MEPR), and Market-to-Book Ratio (MTB) analyses to confirm and temper the results of the DCF analysis. Fourth, I comment on the pre-filed Direct Testimony of Company witness Dr. William Avera, pointing out the shortcomings contained therein. In addition, I comment on the testimony of Company witness Dukich regarding the Company's request for an additional 25 basis point increase to the allowed return on equity for management efficiency.

I have estimated the equity capital cost of combination gas and electric utility operations similar in risk to Avista to be in the range of 10.50% to 11.25%, with a mid-point of 10.875%. Utilizing that mid-point of return on equity range with Avista's recent average utility-only capital structure, which consists of 38.97% common equity capital, 2.52% preference stock, 7.93% trust preferred, 46.03% long-term debt and 4.55% short-

term debt, in combination with Avista's most recently available embedded cost rates, produces an overall cost of capital of 8.82%. Exhibit__(SGH-1), Schedule 12 shows that, allowed an 8.82% overall return, the Company will be afforded an opportunity to achieve a pre-tax interest coverage level of 3.00 times, which is similar to the coverage levels experienced by the company over the past five years. According to Moody's Investor Service's October 1999 utility credit report on Avista[1], the average pre-tax coverage of interest expense over the 1994-1998 period was 3.13 times. Also, the Company reports in its 1999 S.E.C. Form 10-K[2], p. 23, the level of pre-tax interest coverage was 1.61 times (due to losses in its energy trading business). Therefore, my recommended return on equity and the overall return it engenders should afford the Company the opportunity to maintain its credit and attract capital, as required by Hope and Bluefield.

Q. WHY SHOULD THE COST OF CAPITAL SERVE AS A BASIS FOR THE PROPER ALLOWED RATE OF RETURN FOR A REGULATED FIRM?

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

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

[1] Company Response to PC Data Request No. 36, p. 12 (Exhibit 126)
[2] Company Response to PC Data Request No. 33

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

I. ECONOMIC ENVIRONMENT

Q. WHY IS IT IMPORTANT TO REVIEW THE ECONOMIC ENVIRONMENT IN WHICH AN EQUITY COST ESTIMATE IS MADE?

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

Q. IN LIGHT OF THE CURRENT ECONOMIC ENVIRONMENT IN THE U.S., WHY DO YOU BELIEVE AN EQUITY RETURN OF 10.50% TO 11.25% IS REASONABLE FOR COMBINATION GAS AND ELECTRIC UTILITIES IN TODAY'S MARKET?

A. Although there was an upward movement in interest rate levels during 1999, that has abated recently and the overall level of fixed-income capital costs continues to remain relatively low by historical standards. Also, there are many examples in the marketplace

for equities that indicate that investor return requirements remain relatively low by historical standards.

For example, a recent A.G. Edwards report on the gas utility industry[3] indicates that market return expectations for gas utility stocks are well below historical earned returns. That investor service publication reports that, for a sample of 21 large and small gas distributors, the average total return expectation (dividend yield plus expected growth—a DCF-type calculation) is 9.0%. That investor service also reviews the estimated total return for a group of 9 "integrated" gas utilities[4]. Those firms, unlike Avista's gas and electric utility operations, have significant unregulated operations and, as a result, have a higher overall investment risk[5]. A.G. Edward's total market return expectation for that "integrated" group as a whole is 10.8%.

Of course, my own opinion, expressed in my recommended 10.50% to 11.25% cost of equity capital in this proceeding, is that investors, over the long term, require something substantially greater than a 9% return on their utility equity investments. Nevertheless, the above data represent information to which investors are exposed in the utility equity marketplace and underscore the fact that, currently, investor return requirements for a utility equity investment remain well below those of recent years.

Another indication of the reason investors are willing to buy and hold stocks that offer relatively low returns is shown in Exhibit__(SGH-1), Schedule 1, page 1, which depicts Moody's A-rated utility bond yields from 1984 through March, 2000. Page 1 of Schedule 1 shows that interest rates and capital costs, even with the recent yield increases, remain low relative to the interest rate levels that existed in the mid-1980s.

Long-term interest rates, even with their recent rise, continue to remain below the levels that existed during the interest rate lows of 1986 and 1987, the last significant

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[3] A.G. Edwards, "Gas Utilities Quarterly Review," September 30, 1999.

[4] Columbia Energy Group, Energen, Equitable Resources, Keyspan Energy, MCN Energy Group, MDU Resources, National Fuel Gas, ONEOK, Questar.

[5] Avista Corporation does have unregulated operations, which have higher operating risk than the Company's utility operations; but those operations are separate from the utility operations whose rates are at issue in this proceeding.

trough in interest rates. The Federal Reserve's (the Fed's) monetary policy—even after several moves over the past year to tighten the money supply—continues to be more accommodating than it was during that time period. For example, in 1986, the Federal Funds rate—the rate at which commercial banks trade funds for overnight use (a fundamental building block of capital costs in the U.S.)—was 6.5%. Today, that basic interest rate stands at roughly 5.75%, 75 basis points less (*The Wall Street Journal*, April 17, 2000, p. C23). Those federally-determined debt cost differentials between the 1986-87 time frame and the present indicate that the money supply is less restricted currently, allowing the continuation of low capital costs. In other words, the available returns on low-risk investments remain low by historical standards, supporting the reasonableness of an equity cost estimate for combination gas and electric utilities of 10.50% to 11.25%.

Finally, page 2 of Schedule 1 (Exhibit__(SGH-1)), which presents the year-average Moody's A-rated bond yields for each year over the past 30 years (1968-1999), shows that the last time debt cost rates were as low as they were during 1998 was roughly thirty years ago. In 1999, A-rated bond yields were higher than the average yield established in 1998 (approximately 7.6% versus 7% in 1998) but that level is still similar to average bond yield levels last seen in the U.S. in the late 1960s and early 1970s (prior to the 1974 oil embargo). Again, this information indicates that current capital costs remain low by historical standards.

The above data indicate that capital costs, even with the recent credit tightening by the Federal Reserve, remain at relatively low levels and generally support the efficacy of my range of equity capital costs. However, it is important to note here that equity capital cost rates and bond yields do not move in lock-step fashion over time. In fact, the variability of that return differential is a fundamental reason why risk premium type analyses—which attempt to quantify the additional return over bond yields required by equity investors—are not reliable as primary indicators of equity capital cost. Therefore, it is necessary to perform an independent cost of equity capital analysis, rather than to simply "index" the cost of capital to current interest rates.

Q. PLEASE BRIEFLY DESCRIBE THE INTEREST RATE CHANGES THAT HAVE OCCURRED IN THE U.S. ECONOMY OVER THE PAST FEW YEARS AND HOW THEY IMPACT CAPITAL COST RATE EXPECTATIONS FOR THE FUTURE.

A. The interest rate trough that existed in 1986 and early 1987, mentioned above, spurred increased economic activity in the U.S. The rate of growth in the U.S. Gross Domestic Product (GDP) increased rapidly by the end of 1987 and showed signs of continuing to gain strength. That increased economic activity, in turn, led to increased inflation expectations (a rapid rate of economic growth can create shortages in labor and materials, driving up the price of those factors of production which ultimately results in higher prices in all sectors of the economy). That expectation of increased inflation caused the Fed to act aggressively to slow down what was widely believed to be an overheating economy. The sharp interest rate rise that followed in late 1987 and 1988, shown on Exhibit__(SGH-1), page 1 of Schedule 1, succeeded in damping down the economy, reducing inflationary pressures, and allowing interest rates to fall again.

Since that time, the "cat and mouse" game between the Fed and nascent inflation has continued to be a primary influence in the U.S. macro-economy and the level of interest rates. Overall, as inflation has remained calm, interest rates have trended downward, but that general downward direction has been interrupted when investors (and/or the Fed) believed that falling interest rates would spur rapid economic growth. Rapid economic growth has, historically, created unwanted inflation. Therefore, investors, anticipating that higher inflation and interest rates might be the result of rapid economic expansion, have reacted to positive economic news (e.g., increasing GDP growth rates, lower unemployment) or negative inflation news (e.g., increasing commodity prices, factory capacity or labor shortages) by bidding down debt prices and driving up interest rates. That is precisely the economic situation that fueled the more recent interest rate peaks from 1994 through the 1999/2000 period (see Exhibit__(SGH-1), Schedule 1, page 1).

As I noted previously, single-A rated utility debt yielded about 7.6%, on average, in 1999, while, more recently, equivalently-rated debt has been priced to yield 8.2%. That cost rate increase is due, primarily, to investors' concerns regarding the continued strength of the U.S. economic expansion (now the longest peace-time expansion U.S. in history) and the potential for increased inflation caused by that rapid level of growth. As Value Line noted in its most recent Quarterly Review regarding economic growth, inflation and the interest rate environment, the current expectation is that the interest rate increases will slow the economy and preserve the favorable capital cost environment:

> "**Economic Growth**: As noted, growth really stepped up a notch in the final half of 1999, and it will likely stay strong in the opening quarter of this year with GDP probably increasing by around 4% [chart omitted]. Thereafter, the combination of higher long-term rates and the aforementioned tightening moves by the Federal Reserve Board should cause growth in the areas of housing, retail spending, industrial production, and employment to slow sufficiently for growth to average 3.5%-3.7% for the year as a whole [charts omitted]. A further diminution of growth, to around 3%, is then likely in 2001, which is about the level at which the Fed is comfortable. We project similar rates of growth through the first half decade of the new century. We caution that such projections are averages, and that within this longer period, on or two brief slowdowns probably will ensue.
>
> **Inflation**: Notwithstanding the strong rates of GDP growth cited above, we do not believe that inflation is about to heat up. The surge in oil prices is discomforting, as are the increases in labor costs. On the whole, though, the price indexes continue to behave well, with the latest data on produce and consumer prices being especially reassuring. Moreover, we do not expect things to change much over the balance of 2000, unless the aforementioned rise in oil prices has further to go or unexpected shortages on the labor front evolve. Overall, we forecast that the Producer Price Index will rise by 2.2% this year, and that the companion Consumer Price Index will increase by 2.5% [chart omitted].

> **Interest Rates**: Here, too, we expect comparative stability to prevail in the months ahead. At most, we envision two more rate increases by the Fed, if our GDP growth forecast proves on the mark. Thirty-year Treasury bond rates, which have declined by nearly three-quarters of a percentage point in recent weeks (and now yield about 6.10%), could well ease further in the months ahead if the pessimists' worst fears on inflation are not realized. As of this writing, we do not believe they will be realized. [Chart omitted]" (The Value Line Investment Survey, *Selection & Opinion*, March 3, 2000, p. 5040)

In that most recent Quarterly Economic Review, Value Line projects long-term Treasury bond rates of 6.0% by year-end 2000 and 5.8% each year through 2004. The recent six-week average 30-year T-bond yield is 6.04% (data from Value Line, *Selection & Opinion*, six weekly editions, March 3, through April 7, 1999), with the yield falling to 5.87% in the most recent week. Therefore, the indicated expectation with regard to interest rates is that they are likely to decline somewhat and will fluctuate within a relatively narrow range over the next few years. These data indicate that the current environment of relatively low capital costs is likely to continue into the near-term future.

Q. ARE THERE OTHER INDICATIONS IN THE CAPITAL MARKETS THAT EQUITY COSTS FOR PUBLICLY-TRADED GAS AND ELECTRIC UTILITIES ARE IN THE RANGE YOU HAVE ESTIMATED?

A. Yes. Another indication that an equity cost of 10.50% to 11.25% is representative of the equity capital cost of a utility operation similar in risk to Avista's combination gas and electric operations is the current ratio of market price per share to book value per share for combination gas and electric utility operations. The April 2000 edition of C.A. Turner's Utility Reports provides statistical data on 49 combination gas and electric utilities. For those companies that publication reports an average market-to-book ratio of 154% and an average current earned equity return of 12.1%. Further, for the electric

utility industry, Value Line (Ratings and Reports, April 7, 2000, p 701) reports an expected book equity return in 1999 and 2000 ranging from 12% to 12.5%.

The fact that investors are willing to provide a market price for combination gas and electric utility companies that substantially exceeds the book value of those companies indicates that the cost of equity capital—the investors' required return—for a combination gas and electric utility investment is less than the return on book value that investors expect those companies to earn. That is, it is reasonable to believe the market-based cost of capital for gas and electric utilities is below the 12%-12.5% range of book equity returns.

This is so because utility equity returns are allowed and earned on book value. Investors are aware of this fact and, thus, since they are willing to provide a market price which is considerably more than book value (approximately 50% more) for a stock that will earn 12% to 12.5% on book value, the investors' required return (the return on the market price and the cost of equity capital to the firm) is likely to be below that level of expected book return. Of course, there are differences in accounting methods between companies and some utilities have unregulated investments which are valued differently than utility property, therefore, these data offer only approximations of equity return ranges. However, a combination gas and electric utility equity cost in the range of 10.50% to 11.25% remains reasonable, perhaps even conservative, by this standard.

The Company's requested equity return of 12.25%, on the other hand, is shown by these market data to be unrepresentative of the cost of equity capital of a combination gas and electric utility operation. If investors actually required a 12.25% return for a risk-class of stock (combination gas and electric utilities) which were expected to earn a 12% to 12.5% return on book value, it is not reasonable to believe that they would be willing to provide a stock price that was substantially different from book value. If they are electing to provide a stock price 50% higher than book value (as the current market data indicate) investors' required return must be below the 12.25% equity return requested by

the Company. Therefore the available market data suggest that Avista's equity return request in this proceeding is overstated.

Q. PLEASE EXPLAIN IN MORE DETAIL WHY A UTILITY'S MARKET-TO-BOOK RATIO IS INDICATIVE OF THE RELATIONSHIP BETWEEN THE EXPECTED RETURN AND THE COST OF EQUITY CAPITAL.

A. A simple example will illustrate this important point. Assume that a utility has a book value of equity capital equal to $10 per share. Let's also assume, for simplicity of exposition, that this utility pays out all its earnings in dividends. If regulators allow the utility a 12% return on that equity, investors will expect the company to earn (and pay out) $1.20 per share. If investors require a 12% return on this investment, they will be willing to provide a market price of $10 per share for this stock ($1.20 dividends/$10 market price = 12% required return). In that case, the allowed/expected return (12%) is equal to the cost of capital (investors' required return, 12%), and the per share market price is equal to the book value (M=B, or M/B=1.0).

Conforming our example to the market situation that exists with combination gas and electric utilities today, let's assume that investors' required return (the utility's cost of equity capital) falls to only 10%, but the utility continues to be allowed a 12% return on the equity portion of its rate base investment. Investors would be drawn to a utility stock in a risk class for which they require a 10% return but which was expected to pay out a 12% return. This increased demand by investors would result in an increase in the market price of the stock until the total share yield equaled the investors' required return. In our example, that point would be $12 per share ($1.20 dividends/$12 market price = 10% required return). In that case, the allowed/expected return (12%) is greater than the required return (10% - the cost of equity capital) and the per share market price ($12/share) exceeds the book value ($10/share) producing a market-to-book ratio greater than one ($12/$10 = 1.20).

Therefore, the market-to-book / expected return relationship that actually exists today in the market for gas and electric utility stocks indicates that a) investors expect that those companies will earn a return on the book value of their equity which exceeds the cost of equity capital, b) Company witness Avera's equity cost estimate for Avista's utility operations (12.25%) is overstated and c) a 10.50%-11.25% equity cost estimate for combination gas and electric utility operation is reasonable.

Q. IS THE RELATIONSHIP BETWEEN A UTILITY'S MARKET-TO-BOOK RATIO, THE EXPECTED BOOK RETURN, AND THE COST OF EQUITY CAPITAL DOCUMENTED IN THE FINANCIAL LITERATURE?

A. Yes. The DCF model is often referred to as the "Gordon model" because of the definitive work Myron Gordon has done regarding the DCF model and the cost of equity capital of utilities. At pages 63 and 64 of Professor Gordon's 1974 book on utility cost of equity estimation (The Cost of Capital to a Public Utility, MSU Public Utility Studies, Lansing, Michigan), he points out that the market-to-book value ratio is greater than (equal to, less than) one when the ratio of the allowed (or expected) rate of return to the cost of capital is greater than (equal to, less than) one. Also, there is other support in the financial literature for the value of market-to-book ratios in regulation, the most recent of which was published last year in the National Regulatory Research Institute Quarterly Bulletin ("The Importance of Market-to-Book Ratios in Regulation," by Lawrence Booth, NRRI Quarterly Bulletin, Vol. 18, No. 4, Winter 1997, pp. 415-426).

Q. MR. HILL, ARE YOU RECOMMENDING THAT THIS COMMISSION USE MARKET-TO-BOOK RATIOS TO SET THE COST OF EQUITY CAPITAL FOR AVISTA's GAS AND ELECTRIC UTILITY OPERATIONS?

A. No. I have estimated the cost of equity capital for Avista's utility operations using a DCF analysis as well as three other cost of equity estimation techniques, and recommend this Commission consider all of them. As a result of undertaking those analyses, which will

be described in detail subsequently, I have determined the cost of equity capital for combination gas and electric utilities to be in the range of 10.50% to 11.25%. My reference to market-to-book ratios is simply to use reliable market data to support the reasonableness of my equity cost estimate and to underscore the exaggerated nature of the Company's requested 12.25% return on equity.

II. CAPITAL STRUCTURE

Q. IS THE COMPANY'S REQUESTED OVERALL RETURN BASED ON AVISTA'S ACTUAL CAPITAL STRUCTURE?

A. No. According to the testimony of Company witness Avera, Avista bases its requested overall return on a hypothetical capital structure derived from the average capital structure of a group of combination gas and electric distributors selected by Dr. Avera for the purposes of estimating the cost of equity capital (Tr., p. 775, ll. 13-16). The Company requests that its rates be set using a capital structure consisting of 47% common equity, 4% preferred stock, 2% preferred securities and 47% long-term debt (Avera Direct, Schedules WEA-1 and WEA-5). The Company includes no short-term debt in its requested ratemaking capital structure.

Q. PRIOR TO EXAMINING THE ACTUAL CAPITALIZATION AVISTA EMPLOYS, DOES THE CAPITAL STRUCTURE REQUESTED BY THE COMPANY REPRESENT THE CURRENT CAPITAL STRUCTURE OF THE COMPANIES SELECTED BY DR. AVERA?

A. No. The capital structure selected by Dr. Avera for ratemaking purposes in this proceeding does not include all investor-supplied capital and is based on year-end 1998 data. More current data which includes all investor-supplied capital, shown in Exhibit__(SGH-1), Schedule 2, page 1, indicates that the companies selected are

currently capitalized differently than the manner represented by Company witness Avera in his Direct Testimony.

First, even excluding consideration of short-term debt (the manner in which the capital structure is presented by Dr. Avera in his testimony), the most recent capital structure published in Value Line for the companies reviewed by Dr. Avera averages 43.2% common equity, not the 47% common equity presented in Dr. Avera's WEA-1, page 1. In other words, the average capital structure of the companies included in Dr. Avera's cost of capital study has apparently changed since he performed that study, and those companies are currently capitalized with considerably more debt and less equity that at year-end 1998.

Second, Exhibit__(SGH-1), Schedule 2, page 1 shows that when short-term debt is included in the capital structure, the average equity ratio for Dr. Avera's sample group is approximately 39%—eight full percentage points below the equity ratio requested by Avista in this proceeding. Those more recent capital structure data for Dr. Avera's companies shown on page 1 of Schedule 2 are published by both Value Line and C.A. Turner Utility Reports. It is important to note here that the average common equity portion of the capital structure of the companies selected by Dr. Avera (39%) is very similar to the common equity ratio with which Avista management has elected to capitalize its utility operations. These data also indicate that short-term debt is a significant part of the capital utilized by the combination gas and electric utility companies in Dr. Avera's similar-risk sample group.

Q. DOES AVISTA USE SHORT-TERM DEBT IN ITS CAPITALIZATION?

A. Yes. As I will show in more detail below, Avista consistently uses short-term debt to capitalize its operations.

Q. SHOULD SHORT-TERM DEBT BE INCLUDED IN A RATEMAKING CAPITAL STRUCTURE?

A. Yes, if short-term debt use by a regulated firm is consistent and on-going, its use should be considered in a ratemaking capital structure. Short-term debt is investor-supplied capital and is a quantifiable part of the capital mix utilized by utility operations. As shown on Exhibit__(SGH-1), Schedule 2, page 1, the average level of short-term debt used by the companies selected by Dr. Avera, approximately 11% of total capital, represents a substantial portion of the total capital employed by those firms. Also, Avista's actual use of short-term debt, while below industry average levels, is known and measurable and has been consistent over the past three years (see Exhibit__(SGH-1), Schedule 2, page 3). The use of a recent average amount of short-term debt in a ratemaking capital structure, then, recognizes the average capital mix employed by Avista management and more accurately represents the Company's actual cost of capital.

Bond rating agencies, in calculating the debt-to-capital and interest coverage ratios include short-term debt and the interest on short-term debt, respectively, in those calculations. It is reasonable to assume, then, that those data are important in estimating the financial health of a firm and are important to investors. Although the level of short-term debt fluctuates from time to time, it has been my experience that short-term debt is a permanent part of utility capital structures and should be considered for ratemaking purposes. Finally, because short-term debt carries a lower cost rate than other forms of capital, failure to consider the Company's use of that type of capital would result in an overstatement of the Company's overall cost of capital. The Company's requested overall return, which does not account for the amount of short-term debt used by Avista, is flawed in that manner, i.e., it overstates the Company's overall cost of capital[6].

[6] The overall return requested by the Company in this proceeding is overstated for other reasons as well (the requested equity return exceeds the cost of equity capital and the hypothetical capital structure is too equity-rich), but the failure to consider short-term debt also adds to the overstatement of the overall return.

Q. HOW HAS AVISTA BEEN CAPITALIZED OVER THE PAST FIVE QUARTERS?

A. Exhibit__(SGH-1), Schedule 2, page 2, is based on the Company's response to PC Data Request No. 25, balance sheets available on Avista's web site as well as the Company's 1999 S.E.C. Form 10-K[7]. That Schedule and shows both Avista's consolidated and utility-only capitalization over the past six quarters. Over that time frame the Company's consolidated equity ratio (which includes the Company's regulated and unregulated operations) has averaged about 45% of total capital. However, due to a stock repurchase program instituted by Avista management at mid-year 1999, the level of common equity has been reduced and, at year-end 1999, the Company's consolidated capital structure contained 43.2% common equity. Therefore, the Company's capital structure request, which contains 47% common equity is substantially different from even the consolidated capital structure currently employed by Avista management to capitalize both its unregulated and its utility operations.

Q. WHAT IS THE RATEMAKING RESULT OF AVISTA'S USE OF A HYPOTHETICAL CAPITAL STRUCTURE IN THIS PROCEEDING?

A. It is important to note that, because the Company is requesting that rates for Avista's utility operations be set using a capital structure which contains more equity capital than the Company is actually using to capitalize its consolidated operations, the use of Avista's requested hypothetical capitalization would effectively require Washington utility customers to shoulder some of the financial risks of the Company's riskier unregulated operations. The Company's utility operations carry lower operating risk and, as I discuss below, are appropriately capitalized with less equity and more debt that the operations of Avista as a whole, which include both regulated and unregulated operations and carry a higher overall level of risk. The Company's request that utility rates be based on a common equity ratio (47%) which exceeds that most recently employed by Avista to capitalize its consolidated operations (43.5%) calls for Washington ratepayers to provide

[7] Company Response to PC DR No. 33

an equity return on a level of equity capital which is greater than the level used to capitalize all Avista operations. If rates were based on the Company's requested capital structure the Company's utility ratepayers would be providing additional return dollars to cushion the operating risk of Avista's unregulated operations, which would constitute financial cross-subsidization of the unregulated operations by regulated ratepayers. Any such ratemaking action would, obviously, be unfair to the Company's Washington jurisdictional ratepayers and would unjustifiably enrich the Company's stockholders at ratepayer expense.

Q. HOW ARE AVISTA'S UTILITY OPERATIONS CAPITALIZED?

A. Avista's utility operations, which impart lower operating risk to the Company, are appropriately capitalized with less equity than the Company as a whole. The lower portion of Exhibit__(SGH-1), page 2 of Schedule 2, which removes the Company's net investment in non-utility property from the consolidated equity balances as well as the non-utility debt from Avista's consolidated debt balances, shows that Avista's utility operations have been capitalized, on average, over the past six quarters with approximately 39% common equity, 2.5% preferred stock, 8% preference securities, 46% long-term debt and 4.5% short-term debt. This utility-only capital structure contains considerably less equity than the Company's requested 47% equity ratio and is virtually identical to the current average equity ratio of the sample of companies selected by Dr. Avera in his cost of equity analysis as similar in risk to Avista.

Q. IS AVISTA'S UTILITY-ONLY CAPITAL STRUCTURE SIMILAR TO THAT OF THE COMBINATION GAS AND ELECTRIC UTILITY INDUSTRY?

A. Yes. As I noted above, the April 2000 edition of C.A. Turner's Utility Reports indicates that, for the 49 combination gas and electric utilities it follows, the average common equity ratio is 40% of total capital. That level of common equity is very similar to the

approximately 39% common equity ratio with which Avista has capitalized its utility operations over the past year and a half.

Q. YOU NOTED THAT AVISTA HAS USED SHORT-TERM DEBT IN ITS CAPITAL STRUCTURE. WHAT HAS BEEN THE COMPANY'S MONTHLY BALANCE OF SHORT-TERM DEBT OVER THE PAST FEW YEARS?

A. Exhibit__(SGH-1), Schedule 2, page 3 shows Avista's short-term debt usage, by month, over the past three years. The Company, in response to PC Data Request No. 29, provided those data. Over the past three years, the Company's average monthly balance of short-term debt has been approximately $63 Million, and has been relatively consistent during that time. However, that level of short-term debt usage has been increasing and reached approximately $71.5 Million average per month over the past year. Comparing that most recent year-average level of short-term debt ($71.5 MM) to the level of short-term debt shown on Exhibit__(SGH-1), page 2 of Schedule 2 (which shows the average capital levels over the past six quarters—$63 MM), we see that the Company's more recent short-term debt usage has been somewhat greater than indicated by the averages shown on Exhibit__(SGH-1), page 2 of Schedule 2. The use of an average level of short-term debt in a ratemaking capital structure, then, should be viewed as providing a conservative estimate of the Company's short-term debt capital costs.

Q. WOULD IT CONSTITUTE REASONABLE REGULATORY PRACTICE TO BASE RATES ON AVISTA'S UTILITY-ONLY CAPITAL STRUCTURE RATHER THAN THE COMPANY'S CONSOLIDATED CAPITALIZATION OR A HYPOTHETICAL CAPITAL STRUCTURE, SUCH AS THAT REQUESTED BY THE COMPANY?

A. Yes. First, while I have no theoretical concerns with the use of a hypothetical capital structure if it can be shown that the use of the regulated firm's actual capital structure is economically inefficient, would effectuate financial cross-subsidization of unregulated operations by the regulated operations, or can be shown to be abnormal for the industry;

such is not the case in the instant proceeding. The company has made no attempt to show that Avista's actual capital structure is economically inefficient, and the fact that the current average capital structure of the similar-risk companies selected by Dr. Avera is virtually identical to Avista's utility-only capital structure indicates that the Company's capitalization is reasonable by industry standards. Therefore, there seems to be no compelling reason to warrant the use of a hypothetical capitalization in this proceeding and the Company, in its testimony, has provided none.

Second, in a 1999 rate proceeding in Idaho the Company requested that its rates be based on a utility-only capital structure which was similar to that shown on page 2 of Schedule 2 (Exhibit__(SGH-1)) attached to my testimony. In his testimony in Idaho Public Utility Commission Case No. WWP-E-988-11 on behalf of Avista, Dr. Avera recommended that rates be set using Avista's utility-only capital structure. As shown on Exhibit__(SGH-1), Schedule 2, page 4 attached to my testimony, the utility–only capitalization recommended by Dr. Avera in Idaho last year consisted of approximately 37.4% common equity, 8.03% preferred securities, 2.5% preferred stock and 52% total (long- and short-term) debt[8]. That capital structure contains less equity, but is generally similar to the average utility-only capital structure for Avista shown on page 2 of Schedule 2, which contains approximately 39% common equity. The Company's utility-only capital structure that Dr. Avera recommended for ratesetting purposes in Idaho last year, however, is very different from the Company's current hypothetical capital structure request.

Third, Exhibit__(SGH-1), Schedule 2, page 4 shows that the overall return requested by Avista in Idaho last year is substantially lower than that requested in the instant case. Moreover, that difference in requested overall return between Idaho (last year) and Washington (this year) is due primarily to the difference in the requested capital structures. Because the cost rate of the individual components of the capital structures are very similar, it can be seen that the lower overall return requested in Idaho is a product,

[8] Tr., pp. 784-785.

primarily, of the Company's choice to base its Idaho rate request on its own actual utility-only capital structure rather than the hypothetical capitalization it has elected to use here in Washington.

Q. IF THE COST RATES OF EACH CAPITAL COMPONENT WERE EQUAL TO WHAT THE COMPANY REQUESTS IN THIS PROCEEDING, WHAT WOULD BE THE APPROXIMATE ANNUAL RATE IMPACT CAUSED BY AVISTA'S RATEMAKING CAPITAL STRUCTURE DIFFERENCES?

A. The rate impact of using the Company's proposed hypothetical capital structure as opposed to the capital structure it used in last year's rate proceeding in Idaho is derived on page 5 of Schedule 2 (Exhibit__(SGH-1)). At the top of page 5 of Schedule 2 is shown the Company's requested capital structure and cost rates, taken from Dr. Avera's Schedule WEA-5 in this proceeding. In addition I have shown, using the assumption of a 35% marginal Federal tax rate, the pre-tax weighted-average cost rate afforded by the Company's requested capitalization. That pre-tax overall cost rate is 13.20%.

Using the same capital costs requested by the Company in this proceeding and applying them to the capital structure Avista requested in Idaho last year (under the same tax assumptions) produces a pre-tax overall return of 12.10%—110 basis points lower than the pre-tax overall cost of capital produced by the Company's requested capitalization. Applying that 110 basis point difference to Avista's requested gas and electric total rate base of $783.339 Million (Avista Cost of Service Study, Parts 3 and 4, p. 1), indicates an annual rate impact of approximately $8.6 Million [1.10% x $783.339 Million]. This analysis indicates that setting rates in Washington with the Company's requested hypothetical capitalization rather than the utility-only capital structure the Company requested recently in Idaho would increase capital costs to its Washington

ratepayers roughly $8.6 Million every year the rates set in this proceeding remain in effect.[9]

While Dr. Avera was not clear during cross-examination regarding whether it was he or Avista management that elected to request rates based on one capital structure in Idaho and a different one in Washington, the result of the decision is clear. The result of the Company's choice to use a hypothetical capital structure in this jurisdiction is to require Washington ratepayers to provide substantially higher capital costs than the Company's Idaho ratepayers for the same utility operation, with no substantial change in the manner in which the Company is capitalized.

Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND THE COMMISSION UTILIZE TO DETERMINE AVISTA's OVERALL CAPITAL COSTS IN THIS PROCEEDING?

A. Because Avista's recent average capitalization is similar to that utilized in combination gas and electric utility industry, and because it represents the actual mix of capital Avista management is utilizing to capitalize its operations and, therefore, the actual capital costs the Company will incur, I recommend that Avista's recent average capitalization be utilized to set rates in this proceeding. However, it is important to remember, as shown on Exhibit__(SGH-1), page 2 of Schedule 2, due to Avista's decision to reduce equity levels, the most recent capital structure (year-end 1999), contains less equity capital than the six-quarter average. Therefore, the use of a recent average capital structure should be viewed as conservative.

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[9] During cross-examination of Dr. Avera (Tr. pp. 790-792), Public Counsel also compared Dr. Avera's Idaho Avista capital structure recommendation with that which he recommends in Washington. However, the purpose of that comparison was somewhat different than the derivation of the annual revenue impact described above. During cross, using Exhibit 121, Public Counsel pointed out that the 8.98% overall return allowed Avista in Idaho (based on Dr. Avera's requested 37.4% equity ratio and a 10.75% allowed equity return), when applied to the capital structure requested by Avista in the instant case implies an equity return of 10.23%. That equity return is well below the 10.75% recently awarded the company in Idaho and substantially below the 12.25% requested by Avista in this proceeding.

In sum, the hypothetical capital structure requested by the Company is not warranted for financial safety purposes. The capital costs imparted by the use of that capitalization would not represent those actually incurred by the Company. The hypothetical capital structure is not representative of the manner in which combination gas and electric utilities are currently capitalized. Finally, the use of the Company's requested capitalization would unnecessarily burden the Company's ratepayers with capital costs the Company will not incur.

As shown on Exhibit__(SGH-1), page 2 of Schedule 2, the Company has been capitalized, on average over the past six quarters, with 38.97% common equity, 2.52% preferred stock, 7.93% preferred securities, 46.03% long-term debt and 4.55% short-term debt. In my view, that capital structure is reasonable for ratesetting purposes.

For purposes of visual comparison, in Table I, below, I show Public Counsel's recommended ratemaking capital structure in this proceeding (based on Avista's actual utility-only capital structure), along with Avista's ratemaking capital structure requests in Idaho and Washington.

Table I

Comparative Capital Structures

	Public Counsel	Avista Idaho	Avista Washington
Common Equity	38.97%	37.42%	47.00%
Preferred Stock	2.52%	2.56%	4.00%
Preference Securities	7.93%	8.03%	2.00%
Total Debt	50.58%	51.99%	47.00%

Q. WHAT EMBEDDED COST RATES DO YOU RECOMMEND BE UTILIZED FOR RATESETTING PURPOSES?

A. Exhibit__(SGH-1), page 6 of Schedule 2 shows the ratemaking capital structure I recommend along with the embedded cost rates of each form of fixed-income capital. Those embedded cost rates are the most recent available and were provided by the Company in response to PC Data Requests 25 and 29.

III. METHODS OF EQUITY COST EVALUATION

A. DISCOUNTED CASH FLOW MODEL

Q. PLEASE DESCRIBE THE DISCOUNTED CASH FLOW (DCF) MODEL YOU USED TO ARRIVE AT AN ESTIMATE OF THE COST RATE OF COMMON EQUITY CAPITAL FOR THE UTILITY OPERATIONS OF AVISTA CORPORATION IN THIS PROCEEDING.

A. The DCF model relies on the equivalence of the market price of the stock (P) with the present value of the cash flows investors expect from the stock, providing the discount rate equals the cost of capital. The total return to the investor, which equals the required return according to this theory, is the sum of the dividend yield and the expected growth rate in the dividend.

The theory is represented by the equation,

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

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

Q. WHAT GROWTH RATE (g) DID YOU ADOPT IN DEVELOPING YOUR DCF COST OF COMMON EQUITY FOR THE COMBINED GAS AND ELECTRIC UTILITIES?

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

Q. CAN YOU PROVIDE AN EXAMPLE TO ILLUSTRATE THE DETERMINANTS OF LONG-RUN EXPECTED DIVIDEND GROWTH?

A. Yes, in Appendix B (Exhibit__(SGH-3)) I provide an example of the determinants of a sustainable growth rate on which to base a reliable DCF estimate. In addition, in Appendix B, I show how reliance on earnings or dividend growth rates alone, absent an examination of the underlying determinants of long-run dividend growth, can produce inaccurate DCF results.

Q. DID YOU USE A SUSTAINABLE GROWTH RATE APPROACH TO DEVELOP AN ESTIMATE OF THE EXPECTED GROWTH RATE FOR THE DCF MODEL IN THIS PROCEEDING?

A. Yes, I have calculated the sustainable growth rate for a sample of combination gas and

electric utilities. In addition to that fundamental analysis, I review both historical and projected growth rates in earnings, dividends and book value for the companies under study.

Q. WHY HAVE YOU USED THE TECHNIQUE OF ANALYZING THE MARKET DATA OF SEVERAL COMPANIES?

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

Q. HOW WERE THE FIRMS SELECTED FOR YOUR ANALYSIS?

A. In selecting a sample of combination gas and electric firms to analyze, I screened all the combination gas and electric firms listed by C.A. Turner Utility Reports and The Value Line Investment Survey. I selected companies from that group that had at least 50% of

revenues generated by electric utility operations[10], did not undergo a recent dividend cut, were not in the process of merging, and had investment-grade bond ratings which bracket those of Avista, ranging from "BBB" to "AA". Avista's senior secured bonds are rated "A" by Standard and Poor's and "A3" by Moody's. In addition, in order to eliminate from consideration companies that were undergoing restructuring or transition away from traditional utility operations (e.g., selling generation assets) I eliminated companies that had recently experienced or were projected to experience shifts in book value. The universe of firms, from which the sample group was selected, and the firms selected from that group are shown on Exhibit__(SGH-1), Schedule 3 attached to this testimony.

The companies included in the similar-risk sample group in this proceeding are Alliant Energy (LNT), Ameren Corporation (AEE), CH Energy (CHG), Cinergy, Inc. (CIN), Constellation Energy (CEG), Puget Sound Energy (PSD), RGS Energy Group (RGS), and TECO Energy (TE). [Note: In the Schedules accompanying this testimony, the sample group companies are referred to by their stock ticker symbols.]

It is important to note that Avista is not included in the sample group because the parent company has significant unregulated operations (e.g., high-tech research and development, telecommunications, energy marketing operations), and its risk profile is higher than that of its regulated utility operations. Therefore, the market-based cost of equity capital for Avista would not provide an indication of the cost of capital of operations similar in risk to the Company's Washington utility operations. Company witness Avera also excludes Avista in selecting a sample group of companies to estimate Avista's cost of equity capital[11].

[10] Because the companies in the sample selection universe are combination gas and electric companies, a threshold of 50% of revenues from electric operations ensured that a majority of revenues would be from total utility (gas and electric) operations.

[11] Five of the eight companies selected for purposes of analysis in my testimony were also selected by Company witness Avera. Three companies selected by Dr. Avera (Conectiv, SEMPRA and Sierra Pacific) were eliminated from my sample due to recent dividend reductions. Two companies (Consolidated Edison, PECO Energy) also selected by Dr. Avera were eliminated from consideration due to pending mergers.

Q. HOW HAVE YOU CALCULATED THE DCF GROWTH RATES FOR THE SAMPLE OF COMPARABLE COMPANIES?

A. Exhibit__(SGH-1), Schedule 4 pages 1 through 3, shows the retention ratios, equity returns, sustainable growth rates, book values per share and number of shares outstanding for the comparable companies for the past five years. Also included in the information presented in Exhibit__(SGH-1), Schedule 4, are Value Line's projected 2000, 2001 and 2003-2005 values for equity return, retention ratio, book value growth rates and number of shares outstanding[12].

In evaluating these data, I first calculate the five-year average sustainable growth rate, which is the product of the earned return on equity (r) and the ratio of earnings retained within the firm (b). For example, Exhibit__(SGH-1), Schedule 4, page 1, shows that the five-year average sustainable growth rate for CH Energy Group (CHG) is 2.78%. The simple five-year average sustainable growth value is used as a benchmark against which I measure the company's most recent growth rate trends. Recent growth rate trends are more investor-influencing than are simple historical averages. Continuing to focus on CHG, we see that sustainable growth in 1998 and 1999 averaged about 2.5%—somewhat below the average growth for the five-year period, indicating a declining growth trend. However, Value Line projects that sustainable growth rate trends will reverse by the 2000-2005 period will rise to 3.0%, a level above the recent five-year average. These data would indicate that investors expect CHG to grow at a rate in the future slightly above that, which has existed, on average, over the past five years.

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

[12] The data available for Puget Sound Energy published the February 18, 2000 edition of Value Line (the most recent available edition for that company) ranges form 1984 through 1998, with projections for 1999, 2000 and 2002-2004.

necessarily present in estimates of the future:

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

Another factor to consider is that CHG's book value growth is expected to remain stable at a 3% level, after increasing at a 3% rate historically. However, that company's dividend growth rate, which was 1.5% historically, is expected to decline to 0.5% in the future. As shown on Exhibit__(SGH-1), Schedule 5, page 2, Value Line projects CHG's dividend growth rate to be below the sustainable growth rate projections. That information would tend to moderate investor expectations regarding increased growth in the future. Also, earnings growth rate data available from Value Line indicates that investors can expect a slightly lower growth rate in the future (1.5%) than has existed over the past five years (3%). Zack's (an investor advisory service that polls institutional analysts for growth earnings rate projections) projects similar earnings growth rate for CHG—1%—over the next five years.

CHG's projected sustainable growth, as well as Zack's and Value Line's projected earnings growth indicates that investors can expect lower growth than has occurred, on average, in the past. However, sustainable growth rate indications as well as book value growth indicate a relatively steady growth pattern. A long-term sustainable growth rate of 3.0% is a reasonable expectation for CHG.

Q. IS THE INTERNAL (b x r) GROWTH RATE THE FINAL GROWTH RATE YOU USE IN YOUR DCF ANALYSIS?

A. No. An investor's sustainable growth rate analysis does not end upon the determination of an internal growth rate from earnings retention. Investor expectations regarding growth from external sources (sales of stock) must also be considered and examined. For CHG,

Exhibit__(SGH-1), page 1 of Schedule 4 shows that the number of outstanding shares declined at approximately a 1% rate over the most recent five-year period due to a share reduction in 1998. Value Line expects the number of shares outstanding to remain constant through the 2000-2005 period. An expectation of share growth of 0% is reasonable for this company.

Because a goal of regulation is to allow a utility to recover no more than its cost of capital, it is also reasonable to assume that investors would expect the market price/book value ratio to have a tendency toward unity. However, the price/book ratio is unlikely to reach 1.0 overnight and, on average, utilities will continue to issue stock at prices above book value. I believe that a reasonable estimate of investors' expectations for utility price/book ratios is that it will range between current levels and 1.0. I have used the average as an estimate of investors' expectations for the future. At the time of this analysis (April 2000), CHG's market price is approximately equal to its year-end book value (M/B = 0.97). Because CHG's market price approximates its book value an increase or decrease in the number of shares outstanding would have no impact on investors' expectations regarding future growth. The result of combining expected internal (b x r = 3.0%) and external growth rates (0%) yields an investor-expected long-term growth rate of 3.0% (see Exhibit__(SGH-1), Schedule 5, page 1 of 2).

I have included the details of my growth rate analyses for CHG 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 Appendix C (Exhibit__(SGH-4)). Schedule 5, page 1, of Exhibit__(SGH-1), attached to this testimony shows the internal, external and resultant overall growth rates for each of the companies analyzed.

Q. HAVE YOU CHECKED THE REASONABLENESS OF YOUR GROWTH RATE ESTIMATES AGAINST OTHER, PUBLICLY AVAILABLE, GROWTH RATE DATA?

A. Yes. Exhibit__(SGH-1), page 2 of Schedule 5 shows the results of my DCF sustainable growth rate analysis as well as 5-year historic and projected earnings, dividends and book value growth rates from Value Line, earnings growth rate projections from Zack's, the average of Value Line and Zack's growth rates and the 5-year historical compound growth rates for earnings, dividends and book value for each company under study.

The average sustainable growth rate estimate for all the combination gas and electric companies included in my analysis is 3.24%. This figure is higher than Value Line's projected average growth rate in earnings, dividends and book value for those same companies (3.19%) and is well above the five-year historical average earnings, dividend and book value growth rate reported by Value Line for those companies (1.67%). My growth rate estimate for the companies under review is somewhat below Zack's earnings growth projection for those companies (3.73%). However, as I discuss in detail in Appendix B (Exhibit__(SGH-3)), earnings growth alone is not necessarily a reliable indicator of investor growth rate expectations; my sustainable growth rate estimate is quite similar to the average projected growth rate in dividends, earnings and book value for the companies under study. The growth rate projections published by investor services indicate that investors expect increased growth in the future from these companies. Those data also confirm the reasonableness of my growth rate estimate for the sample of combination gas and electric utilities.

Q. DOES THIS CONCLUDE THE GROWTH RATE PORTION OF YOUR DCF ANALYSIS?

A. Yes, it does.

Q. HOW HAVE YOU CALCULATED THE DIVIDEND YIELDS?

A. I have estimated the next quarterly dividend payment of each firm analyzed and annualized them for use in determining the dividend yield. If the quarterly dividend of any company were expected to be raised in the quarter following that in which the most recent dividend was declared, I increased the current quarterly dividend by (1+g). The following companies required such a dividend adjustment: Constellation Energy (CEG) and TECO Energy (TE).

The next quarter annualized dividends were divided by a recent six-week daily closing average stock price to obtain the DCF dividend yields. I use the most recent six-week period to determine an average stock price in a DCF cost of equity determination because I believe that period of time is long enough to avoid daily fluctuations and recent enough so that the stock price captured during the study period is representative of current investor expectations. Exhibit__(SGH-1), Schedule 5 contains the market prices, annualized dividends and dividend yields of the combination gas and electric companies under study. Exhibit__(SGH-1), Schedule 6 indicates that the average dividend yield for the sample group of gas and electric companies is 7.83%[13].

Q. WHAT IS YOUR COST OF EQUITY CAPITAL ESTIMATE FOR COMBINATION GAS AND ELECTRIC UTILITIES, UTILIZING THE DCF MODEL?

A. Exhibit__(SGH-1), Schedule 7 shows that the average DCF cost of equity capital for the entire group of combination gas and electric utilities studied is 11.08%.

[13] The dividend yield for the sample group, calculated on a generic basis, using the formula k = d(1+0.5g)/P + g, produces an average dividend yield of 7.89%—six basis points higher. However, Value Line's projected year-ahead dividend yield for the sample group averages 7.61% (Value Line *Summary & Index*, April 7, 2000). Value Line's projected data indicate that the dividend yield for these companies will fall from current levels, implying that current DCF estimates may overstate the cost of equity.

B. CAPITAL ASSET PRICING MODEL

Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL (CAPM) YOU USED TO ARRIVE AT AN ESTIMATE FOR THE COST RATE OF THE COMPANY'S EQUITY CAPITAL.

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

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

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

Q. CAN YOU EXPLAIN WHY YOU APPLY THE CAPM ANALYSIS WITH CAUTION?

A. Yes. The reasons why the CAPM should be used in cost of capital analysis with caution (i.e., as a corroborative methodology, not as a primary determinant of the cost of capital) are detailed in Appendix D (Exhibit__(SGH-5)). It is important to understand that my caution with regard to the use of CAPM results in cost of equity capital analysis does not

indicate that the model is not a useful description of the capital markets. Rather, it recognizes that in the practical application of the CAPM to cost of capital analysis there are many problems that cause the results of that type of analysis to be less reliable than other, more widely accepted models such as the DCF.

Q. WHAT VALUE HAVE YOU CHOSEN FOR A RISK-FREE RATE OF RETURN IN YOUR CAPM ANALYSIS?

A. As the CAPM is designed, the risk-free rate is that short-term rate of return investors can realize with certainty. The nearest analog in the investment spectrum is the 13-week U. S. Treasury Bill.

In early 1996 and 1997, T-Bill rates moved upward in response to investor concerns regarding the possible recurrence of higher levels of inflation. When that inflation did not occur, T-Bill rates receded in 1998. However, as I noted in my previous discussion of the macro-economy, although there is a current expectation that inflation may increase in the future, very little inflation currently exists and interest rates have increased from the very low interest rate levels established in 1998. Over the most recent six-week period, T-Bills have produced an average yield of 5.84% (data from Value Line *Selection & Opinion*, six most recent weekly editions[14]). In the CAPM analysis, I average T-Bill futures rates with the current 13-week T-Bill rate to arrive at a time-adjusted risk-free rate. Currently, T-Bill futures dated June 2000 are trading at a price that produces a yield of 5.90% (*Wall Street Journal*, April 17, 2000, p. C18). For purposes of analysis in this proceeding, 5.87% represents a reasonable estimate of the risk-free rate for use in a CAPM equity cost estimate [5.84% current average T-Bill yield + 5.90% T-Bill futures yield / 2 = 5.87%].

[14] March 3 through April 7, 2000, inclusive.

Q. DO YOU BELIEVE THE USE OF A LONG-TERM TREASURY BOND RATE IS APPROPRIATE IN THE CAPM?

A. No. Although the selection of a long- or short-term Treasury security as the risk free rate of return to be used in the CAPM is one of the areas of contention in applying the model in cost of capital analysis, the use of a normalized short-term T-Bill rate is the more theoretically correct parameter.

First, the long-term T-Bond does not represent the lowest-risk security available in the market today. The reason why long-term Treasuries most often have yields higher than shorter-term U.S. Government instruments is maturity risk, an element of risk investors do not face with the purchase of T-Bills. When investors tie up their money for longer periods of time, as they do when purchasing a long-term Treasury, they must be compensated for future investment opportunities forgone as well as the potential for future changes in inflation. Investors are compensated for this increased investment risk by receiving a higher yield on T-Bonds. Thus, maturity risk causes T-Bonds to carry a level of risk that is necessarily higher than that of T-Bills, which represent a better approximation of the risk-free rate called for in the CAPM.

Second, the use of a long-term T-Bond yield as the risk-free rate violates one of the fundamental tenets of the CAPM -- its exclusive reliance on systematic risk. As noted above, the only risk of concern to investors in the CAPM paradigm is risk that cannot be diversified away. That risk is called systematic risk. The degree of systematic risk inherent in any stock or portfolio investment is captured (again, according to the CAPM theory) by beta. One risk that contributes to the overall systematic risk of investing, and which cannot be diversified away, is the risk of unexpected changes in the long-term inflation rate. According to the CAPM, then, that risk is captured by (is included in) beta. Therefore, if one utilizes a long-term T-Bond yield in the CAPM analysis, an interest rate measure which, as I noted above, impounds investors' return requirements for unexpected changes in the long-term inflation rate, then that risk is accounted for twice -- once with beta and once with the long-term T-Bond yield. The use of a long-term T-Bond in the

CAPM improperly double-counts investors' return requirement for long-term inflation and, thus, produces overstated results.

Q. WHAT HAVE YOU CHOSEN AS THE MARKET RISK PREMIUM FOR THE CAPM ANALYSIS?

A. In their 1999 edition of Stocks, Bonds, Bills and Inflation, R.G. Ibbotson Associates indicates that the average market risk premium between stocks and T-Bills over the 1926–1998 time period is 9.4% (based on an arithmetic average), and 7.4% (based on a geometric average). I have used these values to estimate the market risk premium in the CAPM analysis. The geometric mean is based on compound returns over time and the arithmetic mean is based on the average of single-period returns.

Q. CAN YOU EXPLAIN THE DIFFERENCE BETWEEN ARITHMETIC AND GEOMETRIC MEANS IN COST OF CAPITAL ANALYSIS?

A. Yes. The geometric mean is based on compound returns over time and the arithmetic mean is based on an average of single-period returns. A numerical example will simplify the explanation. Suppose, for example, in a world of no inflation, an investor purchased for $50 a security which paid no dividend. During the first year after the purchase, the price of the security rises to $100 (a gain of 100%), but during the second year, the price falls back to $50 (a decrease of 50%).

A geometric (compound) average measure of the investors' return would divide the ending value by the beginning value ($50/$50 = 1) and take the *n*th root of that quotient. In this case there are two periods, so $n = 2$. Subtracting 1 from the result we find, what the investor knew intuitively, he made no money. He started out with $50, and wound up with $50. His investment had shown a return of 0% per year over the period.

Under arithmetic averaging, we find a 100% return in the first period ($50 rises to $100) and a -50% return in the second period ($100 falls to $50), for an arithmetic average return over the two periods of 25% (100%+(-50%)/2). It would be most difficult

to convince our investor, with $50 in hand at the end of two years when $50 was invested at the beginning of that period, that the return over that period was 25%, according to an arithmetic average.

In addition, the arithmetic average of an historical return series assumes that the investment is bought and sold every period (without transaction costs) while the geometric average assumes that investors buy and hold their investments. While the periodic selling and re-buying of investments characterizes the investment behavior of a portion of the market, I believe it is unreasonable to assume that sort of investment pattern is apropos for all investors. Therefore, consideration of both the arithmetic and geometric averages provides a more rational approximation of investor expectations than consideration of only the arithmetic mean in a CAPM analysis.

Nevertheless, some rate of return practitioners elect to rely only on an arithmetic market risk premium in a CAPM analysis, ignoring a historical geometric market risk premium which is roughly 200 basis points lower. Also, because geometric mean return data is published by the same source (i.e., Ibbotson Associates), on the same page as the arithmetic mean, investors have access to both and, it is reasonable to assume, make use of both in determining their return requirements.

Q. IS THERE SUPPORT IN THE LITERATURE OF FINANCIAL ECONOMICS FOR THE USE OF GEOMETRIC AVERAGES OF HISTORICAL RETURNS AS THE BEST REPRESENTATION OF THE MARKET RISK PREMIUM IN THE CAPM?

A. Yes.

> "**Determining the market risk premium** The market risk premium (the price of risk) is the difference between the expected rate of return on the market portfolio and the risk free rate, $E(r_m) - r_f$. We recommend using a 5 to 6 percent market risk premium for U.S. companies. This is based on the long-run geometric average risk premium for the return on the S&P 500 versus the return on long-term government

> bonds from 1926 to 1992 [footnote omitted]....
>
> • We use a geometric average of rates of return because arithmetic averages are biased by the measurement period. An arithmetic average estimates the rates of return by taking a simple average of the single period rates of return.... We believe that the geometric average represents a better estimate of investors' expected returns over long periods of time....
>
> Also, the arithmetic average depends on the interval chosen. for example, an average of monthly returns will be higher than an average of annual returns. The geometric average, being a single estimate for the entire time interval, is nonvariant to the choice of interval. (Copeland, T., Koller, T., Murrin, J., Valuation, Measuring and Managing the Value of Companies, 2nd Ed., Wiley & Sons, New York, 1994, pp. 260-1)

In addition, one of the financial publications on which investors and cost of capital analysts often rely, Value Line, advises its subscribers that the geometric mean provides an unbiased measure of historical growth while the arithmetic mean is biased upward:

> "The arithmetic average has an upward bias, though it is the simplest to calculate. The geometric average does not have any bias, and thus is best to use when compounding (over a number of years) is involved." (The Value Line Investment Survey, *Selection & Opinion*, May 9, 1997 p. 6844)

Therefore, both the arithmetic and the geometric mean are recognized in the financial literature as meaningful measures of historical returns. I recognize that there is merit to the position on the use of the arithmetic mean, and I, too, use the arithmetic average market risk premiums published by Ibbotson Associates. However, I also use the geometric mean and, in so doing, recognize that both are available to investors and both have theoretical merit.

Q. WHAT VALUES HAVE YOU CHOSEN FOR THE BETA COEFFICIENTS IN THE CAPM ANALYSIS?

A. Value Line reports beta coefficients for all the stocks it follows. Value Line's beta is derived from a regression analysis between weekly percentage changes in the market price of a stock and weekly percentage changes in the New York Stock Exchange Composite Index over a period of five years. The average beta coefficient of my sample group of combination gas and electric companies is 0.51.

Q. WHAT IS YOUR COST OF EQUITY CAPITAL ESTIMATE FOR THE SAMPLE OF GAS AND ELECTRIC UTILITY COMPANIES USING THE CAPITAL ASSET PRICING MODEL ANALYSIS?

A. Exhibit__(SGH-1), Schedule 8 shows that the average Value Line beta coefficient for the group of gas and electric firms under study is 0.51. The overall arithmetic average market risk premium of 9.4% would, upon the adoption of a 0.51 beta, become a sample group premium of 4.83% (0.51 x 9.4%). That non-specific risk premium added to the adjusted risk-free rate of 5.87%, previously derived, yields a common equity cost rate estimate of 10.70%. Using a geometric mean market risk premium of 7.4% produces a CAPM equity cost estimate of 9.68%. The mid-point of those CAPM results is 10.19%. This result indicates that my DCF estimate of the Company's equity cost rate may be overstated.

C. MODIFIED EARNINGS-PRICE RATIO ANALYSIS

Q. PLEASE DESCRIBE THE MODIFIED EARNINGS-PRICE RATIO (MEPR) ANALYSIS OF THE COST OF COMMON EQUITY CAPITAL.

A. The earnings-price ratio is calculated simply as the expected earnings per share divided by the current market price. In cost of capital analysis, the earnings-price ratio (which is one portion of this analysis) can be useful in a corroborative sense, since it can be a good indicator of the proper range of equity costs when the market price of a stock is near its

book value. When the market price of a stock is *below* its book value, the earnings-price ratio *overstates* the cost of equity capital. Exhibit__(SGH-1), Schedule 9 contains mathematical support for this concept. The opposite is also true, i.e.; the earnings-price ratio *understates* the cost of equity capital when the market price of a stock is *above* book value.

Under current market conditions, the gas and electric firms under study have an average market-to-book ratio of 1.23 and, therefore, the average earnings-price ratio alone would understate the cost of equity for the sample group. However, it is important to emphasize that I do not use the earnings-price ratio alone as an indicator of equity capital cost rates. Because of the relationship among the earnings-price ratio, the market-to-book ratio and the investor-expected return on equity, I have modified the standard earnings-price ratio analysis by including expected returns on equity for the companies under study. It is that modified analysis, the MEPR analysis, that I will use to assist in estimating an appropriate range of equity capital costs in this proceeding.

Q. PLEASE EXPLAIN THE RELATIONSHIP AMONG THE EARNINGS-PRICE RATIO, THE EXPECTED RETURN ON EQUITY AND THE MARKET-TO-BOOK RATIO.

A. When the investor-expected return on equity for a company exceeds the investor-required return (the cost of equity capital), the market price of the firm will tend to exceed its book value. As explained above, when the market price exceeds book value, the earnings-price ratio understates the cost of equity capital. Therefore, when the expected equity return exceeds the cost of equity capital, the earnings-price ratio will understate that cost rate.

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

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

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

Q. WHAT ARE THE RESULTS OF YOUR EARNINGS-PRICE RATIO ANALYSIS OF THE COST OF EQUITY FOR THE SAMPLE GROUP?

A. Exhibit__(SGH-1), Schedule 10 shows the Zack's projected 2000 per share earnings for each of the firms in the sample group. Recent average market prices (the same market prices used in my DCF analysis); Value Line's projected 2000 return on equity and 2003-2005 equity returns for each gas and electric company are also shown.

The earnings-price ratio for the entire group, 10.11%, is somewhat below the cost of equity for those companies due to the fact that their average market-to-book ratio is currently above unity. The companies' 2000 expected book equity return averages 12.06%. For the entire sample group, then, the mid-point of the earnings-price ratio and the current equity return is 11.09%. Exhibit__(SGH-1), Schedule 10 also shows that, for the entire group of companies studied, the average expected book equity return over the

next three- to five-year period is 12.63%. The midpoint of these two boundaries of equity capital cost for the whole group, i.e., the long-term projected return on book equity (12.63%) and the current earnings-price ratio (10.11%), 11.37%, provides a another forward-looking estimate of the equity capital cost rate of a gas and electric firm. The results of this MEPR analysis tend to confirm the reasonableness of my DCF equity cost estimate.

D. MARKET-TO-BOOK RATIO ANALYSIS

Q. PLEASE DESCRIBE YOUR MARKET-TO-BOOK (MTB) ANALYSIS OF THE COST OF COMMON EQUITY CAPITAL FOR THE SAMPLE GROUP.

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

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

$$P = D/(k-g). \qquad (3)$$

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

$$D = E(1-b). \qquad (4)$$

Substituting Equation (4) into Equation (3), we have

$$P = \frac{E(1-b)}{k-g} \ . \qquad (5)$$

The earnings (E) are equal to the return on equity (r) times the book value of that equity (B). Making that substitution into Equation (5), we have

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

Dividing both sides of Equation (6) by the book value (B) and noting from Equation (iii) in Appendix B (Exhibit__(SGH-3)) that g = br+sv,

$$\frac{P}{B} = \frac{r(1-b)}{k-br-sv} \ . \qquad (7)$$

Finally, solving Equation (7) for the cost of equity capital (k) yields the MTB formula:

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

Equation (8) indicates that the cost of equity capital equals the expected return on equity multiplied by the payout ratio, divided by the market-to-book ratio plus growth. Exhibit__(SGH-1), Schedule 11 shows the results of applying Equation (8) to the defined parameters for the combination gas and electric firms in the comparable sample. Page 1 of Schedule 11 utilizes current year (2000) projections for the MTB analysis while Page 2 of Schedule 11 utilizes Value Line's 2003-2005 projections.

The MTB cost of equity for the entire sample of gas and electric firms, adjusted for a current average market-to-book ratio of 1.23 is 11.05% using the current year data and 10.49% using projected three- to five-year data. It is interesting to note that the current-year MTB analysis tends to corroborate my DCF findings, but the projected MTB analysis indicates that when projected data are considered my DCF analysis may overstate the cost of equity capital.

E. SUMMARY

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR EQUITY CAPITAL COST ANALYSES FOR THE SAMPLE GROUP OF COMBINATION GAS AND ELECTRIC UTILITY COMPANIES.

A. My analysis of the cost of common equity capital for the sample group of combination gas and electric companies is summarized in the table below.

METHOD	COST OF EQUITY
DCF	11.08%
CAPM	9.68% to 10.70%
MEPR	11.09% to11.37%
MTB	11.05% to10.49%

The DCF result noted above is 11.08%. Averaging the results of all the corroborative analyses (MEPR, MTB, and CAPM) produces an equity cost rate range of 10.60% to 10.85%—a range entirely below the DCF result. Therefore, weighing all the evidence presented herein, my best estimate of the cost of equity capital for a company facing similar risks as this group of gas and electric companies, ranges from 10.50% to 11.25%, with a mid-point estimate of 10.875%.

F. FLOTATION COSTS AND OTHER ADJUSTMENTS TO THE COST OF EQUITY

Q. DOES YOUR 10.875% EQUITY COST ESTIMATE INCLUDE AN INCREMENT FOR FLOTATION COSTS?

A. No, an explicit adjustment to "account for" flotation costs is unnecessary for several reasons. First, such adjustments are usually predicated on the prevention of the dilution of stockholder investment. However, the reduction of the book value of stockholder investment due to issuance expenses can occur only when the utility's stock is selling at a market price equivalent to or below its book value. In the current market environment, with Avista common stock selling at roughly a 180% premium to its book value[15], every time a new share of stock is sold, all shareholders realize an increase in the per share book value of their investment. In other words, the stockholders' investment value is increased when new stock is issued, not decreased, and there is no need to "compensate" stockholders for a hypothetical dilution of book value that does not exist.

Second, as confirmed by Company witness Avera in response to Public Counsel Data Request No. 43b (Exhibit 124), Avista has presented no evidence in this proceeding regarding any intention to issue common stock in the near-term future. There is no evidence in this proceeding, then that Avista will incur issuance costs. Moreover, as evidenced by the reduction in Avista's common equity balances over the past two quarters shown on Exhibit__(SGH-1), page 2 of Schedule 2, and as reported in the Company's 1999 S.E.C. Form 10-K filing, Company management has elected to actively *reduce* common equity balances through a stock repurchase program:

> "In May 1999, the Company's Board of Directors authorized a common stock repurchase program in which the Company may repurchase in the open market or through privately negotiated transactions up to an aggregate of 10 percent of

[15] Avista's most recent Value Line report (February 18, 2000) indicates a stock price of $28 and a 1999 book value of $9.90 per share. Those data imply a market-to-book ratio of 282% ($28/$9.9=2.82).

> its common stock and common stock equivalents over the next two years. The repurchased shares will return to the status of authorized but unissued shares. As of December 31, 1999, the Company had repurchased approximately 4.8 million common shares and 322,500 shares of RECONS (which is equivalent to 32,250 shares of Convertible Preferred Stock, Series L). The combined repurchases of these two securities represent 9% of outstanding common stock and common stock equivalents." (Avista 1999 10-K,[16] p. 30)

If, as the Company asserts, an explicit upward adjustment to the required return is necessary for issuing stock (which they do not intend to do), the same logic would require a downward adjustment to account for a repurchase of stock. The Company is silent on this issue.

Moreover, as indicted in Dr. Avera's response to Public Counsel Data Request No. 43c, his 25 basis point flotation cost addition to the Company's recommended cost of equity would raise Avista's jurisdictional revenue requirements by about $1.25 Million *annually*. In light of the fact that the Company has stated no intent to issue common equity in the future and is, in fact, engaged in a common stock buy-back (a reverse stock issuance, in effect), the Company's request that Washington ratepayers provide $1.25 Million every year for expenses they will not incur is, in my view, most unpersuasive.

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

[16] Company Response to PC DR No. 33

displayed on the front page of every stock offering prospectus and, as a result, the investors who participate in those offerings are quite aware that a portion of the price they pay does not go to the company but goes, instead, to the underwriters. By electing to buy the stock with that knowledge, the investor has effectively accounted for those issuance costs in his or her risk-return framework by paying the offering price. Those investors do not need any additional adjustments to the allowed return of the regulated firm to "account" for those costs.

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

Fifth, research[17] has shown that a specific adjustment for issuance expenses is unnecessary. There are other transaction costs which, when properly considered, eliminate the need for an explicit issuance expense adjustment to equity capital costs. The transaction cost that is improperly ignored by the advocates of issuance expense adjustments is brokerage fees. Issuance expenses occur with an initial issue of stock. Brokerage fees occur in the much larger secondary market where pre-existing shares are traded daily. Brokerage fees tend to increase the price of the stock to the investor to levels above that reported in the Wall Street Journal, for example. Therefore if those kinds of transaction costs were included in a DCF cost of capital estimate they would raise the effective market price, lower the dividend yield and lower the investors' required return. If one considers transaction costs which, supposedly, raise the required return (issuance expenses), then costs which lower the required return (brokerage fees) should also be considered. As shown by the research noted above, those transaction costs essentially offset each other and no specific equity capital cost adjustment is warranted.

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

Q. COMPANY WITNESS DUKICH PROVIDES TESTIMONY IN THIS PROCEEDING REGARDING AVISTA'S REQUEST FOR AN EQUITY COST ADDER OF 25 BASIS POINTS FOR MANAGEMENT EFFICIENCY. DO YOU BELIEVE THE COMPANY SHOULD BE AWARDED THAT ADDITIONAL RETURN ON EQUITY?

A. No. As I pointed out above, an additional 25 basis point increment above the cost of capital will cost Avista's Washington jurisdictional ratepayers approximately $1.25 Million every year that rates set in this proceeding are in effect. In order for ratepayers to be indifferent to the Company's requested equity return increment the Company's managerial acumen would have to account for similar savings to ratepayers. Mr. Dukich's testimony does not identify quantifiable savings to ratepayers that are the result of particular management actions, and for which stockholders should receive an annual bonus. Rather, his testimony focuses primarily on the fact that Avista has relatively low rates.

Q. ISN'T THE FACT THAT AVISTA HAS LOW ELECTRIC RATES EVIDENCE OF RATEPAYER SAVINGS AND PRIMA FACIE EVIDENCE OF THE EFFICIENCY OF CURRENT AVISTA MANAGEMENT?

A. No. While Avista's low rates are certainly beneficial to the Company's ratepayers, they are equally beneficial to the Company's stockholders in that they put Avista in an excellent position to thrive in the advent of a competitive marketplace for electricity. The Company indicates to investors in its 1999 S.E.C. Form 10-K[18], p. 4, that it faces minimal risk related to stranded generation costs in a de-regulated electricity market due to its low-cost portfolio of generation assets.

Moreover, as discussed in the testimony of Public Counsel witness Lazar, the Company's low rates are due primarily to its low-cost hydro generation assets which the Company has employed successfully for many, many years without any equity return

[18] Company Response to PC DR No. 33

adder. Mr. Lazar also points out that, absent its low-cost production, Avista's per customer operating costs are relatively high. In my view, the Company's low rates are, in effect, a birthright of the Company's current management—a product of being in the right place at the right time—rather than the product of exemplary management performance. In my view, the 25 basis point equity adder and the $1.25 Million of additional annual revenue it would generate is unwarranted.

Q. HAVE OTHER REGULATORY BODIES RECENTLY REVIEWED A SIMILAR REQUEST BY AVISTA AND RULED ON THE REASONABLENESS OF AN EQUITY COST ADDER?

A. Yes. The Idaho Public Utilities Commission in its July 1999 Order in Case No. WPP-E-98-11 (Exhibit 119) reviewed Avista's request for a 25 basis point increment to the allowed equity return, and declined to authorize it.

Q. ARE THERE OTHER FACTORS WHICH YOU HAVE CONSIDERED IN DETERMINING THE EQUITY RETURN WHICH SHOULD BE ALLOWED IN SETTING RATES FOR AVISTA'S GAS AND ELECTRIC OPERATIONS?

A. Yes. As I noted in Section II of my testimony in discussing Avista's utility-only capital structure, the common equity portion of the Company's capitalization is similar to that of the A-rated gas and electric companies selected by Company witness Avera for his cost of capital analysis as well as that of the industry, generally. The combination gas and electric companies selected for my analysis, on the other hand, have a higher common equity ratio than Avista (approximately 45%-sample v. 39%-Avista).

However, the total equity capital (common and preferred) employed by Avista to capitalize its utility operations is greater than that for my sample group of firms (48.5%-sample v. 49.5%-Avista). Because the total equity to total capital ratios are relatively similar for these firms, the inverse of that capital structure measurement—the total debt to total capital ratios—is also similar. The ratio used by bond rating agencies to measure of

financial risk is the total debt to total capital ratio. Therefore, these data indicate there is little financial risk difference between the sample group and the applicant utility in this proceeding. In my view, due to the differences in the common equity ratio between Avista and my sample group of firms, the Company could be said to carry somewhat higher financial risk.

With regard to operational risk factors related to the electric utility portion of the Company's operations, Avista's customer mix is generally similar to that of the sample group, although Avista serves a larger portion of residential and commercial customers, which would impart relatively lower risk. Also, the companies in my sample group rely much more heavily on fossil generation than Avista and utilize nuclear generation, on average, for approximately 16% of their energy requirements. The Company's cost of capital witness, Dr. Avera, points out in his Direct Testimony in this proceeding that those operational differences indicate that Avista is less risky than the companies in my sample group:

> "The industry continues to face the risks inherent in operating electric utility systems. Electric utilities are confronting increased environmental pressures, such as the Environmental Protection Agency's efforts to force reductions of nitrous oxides to address ozone problems in the Northeastern U.S. and lower carbon dioxide emissions which might be mandated in response to the issue of 'global warming'. These programs could impose significant costs on utilities that rely on coal as a boiler fuel. Nuclear risk persists for those utilities involved in nuclear plants, although the exposure has largely shifted from construction to operating and decommissioning uncertainties." (Avera Direct, p. 17, ll. 1-8)

Also, with regard to power generation facilities and the risk, in particular, of operating fossil plants, earlier this year this Commission authorized Avista to sell its ownership portion of the Centralia generation facility. According to the owner

companies, the sale of that facility would lower operating risks (i.e., the investment risk of installing scrubbers, mine reclamation costs, plant closure)[19].

Finally, with regard to the issue of a power clause adjustment mechanism, the majority of the companies in my sample group either do not have such mechanisms or will be eliminating them within the year[20]. For the Companies that do have power adjustment clauses, those adjustments are not "automatic." For example, for TECO Energy, the power adjustment review includes generation performance targets that must be met in order to qualify for any rate adjustment to account for power cost changes. Therefore, while there may be some risk-reducing aspect related to the fact that a few of the firms included in my sample group do have power adjustment clauses, it is not clear that that operational risk difference would noticeably impact the cost of equity capital.

Reviewing all the aspects of operational and financial risk discussed above, in my view, the overall investment risk of Avista's combination gas and electric utility operations is similar to that of my sample group of companies. Therefore, the mid-point of a reasonable range of equity capital costs for this risk-class of companies, 10.875%, is an appropriate level of profitability for the Company's utility operations.

Q. WHAT IS THE OVERALL COST OF CAPITAL FOR AVISTA's UTILITY OPERATIONS, BASED ON AN ALLOWED EQUITY RETURN OF 10.875%?

A. Exhibit__(SGH-1), Schedule 12 shows that an equity return of 10.875%, operating through an appropriate ratemaking capital structure and Avista's recent embedded capital costs, produces an overall return of 8.82%. Exhibit__(SGH-1), Schedule 12 also shows that, assuming the Company experiences, prospectively, a 35% combined Federal income tax rate, that the overall return will afford the Company an opportunity to achieve a pre-tax interest coverage of 3.00 times. That level of pretax coverage of long-term debt costs

[19] *In the Matter of the Application of Avista Corporation for Authority to Sell Its Interest in the Coal-fired Centralia Plant [remaining caption omitted]*, WUTC Docket Nos. UE-991255, UE-991262 and UE-991409, Second Supplemental Order ¶15, page 6.

[20] Ameren, Cinergy, Constellation Energy, Puget, and RGS Energy. Data regarding power adjustment clauses obtained from state public service commission personnel in which each company operates.

is similar to the level of interest coverage that the Company experienced over 1994-1998 period (3.13x, according to Moody's Investor Service's October 1999 utility credit report on Avista[21]), and well above the interest coverage achieved in 1999. Therefore, the equity return I recommend allows the Company's combination gas and electric utility operations a level of interest coverage which is similar to that realized by Avista historically, and, therefore, affords the Company an opportunity to maintain its financial integrity and continue to attract capital. Of course, these prospective coverage calculations consider only the Company's utility operations, if Avista's unregulated operations are operated profitably, its interest coverages should exceed the levels projected in Exhibit__(SGH-1), Schedule 12.

IV. COMMENTS ON COMPANY COST OF CAPITAL TESTIMONY

Q. HOW HAS COMPANY WITNESS AVERA ESTIMATED THE COST OF EQUITY CAPITAL IN THIS PROCEEDING?

A. Company witness Avera has analyzed the cost of equity capital for Avista using a multi-stage DCF model as well as several risk premium analyses. As I will explain in detail below, both Dr. Avera's DCF and Risk Premium analyses are flawed and produce equity cost estimates that are biased upward.

Q. PRIOR TO DISCUSSING ANY INFIRMITIES THAT EXIST IN DR. AVERA'S COST OF EQUITY ANALYSIS, DO YOU HAVE ANY GENERAL COMMENTS REGARDING HIS TESTIMONY?

A. Yes. Dr. Avera testifies that a multi-stage DCF analysis and risk premium analyses should be the basis on which this Commission relies to estimate the cost of equity capital. In fact, in this proceeding, Dr. Avera elects not to even offer a standard DCF analysis,

[21] Company response to PC Data Request # 36, p. 12.

even though he did provide one in his testimony on behalf of Avista last year in Idaho[22]. I have testified in several proceedings with Dr. Avera and am familiar with the equity cost estimation methods he has used over time. Dr. Avera began, in the early 1990s, to adopt the position that the standard DCF could not accurately estimate the cost of equity, although his reasons for reaching that conclusion have changed.

When he first began to discuss the "unreliability" of the standard DCF analysis, Dr. Avera's rationale was that the volatility of stock prices in the late 1980s and early 1990s made standard DCF equity cost estimates unreliable. His current rationale is that the changing nature of electric regulation has made the standard DCF unreliable. Regardless of the reasons he has provided over the years for ignoring the results of a standard DCF analysis, the results of that action have been consistent—higher equity cost estimates. In other words, no matter what the cause—stock price volatility or restructuring—the standard DCF, in Dr. Avera's view, produced results that were too low. Both Dr. Avera's multi-stage DCF and the risk premium produce a substantially higher equity cost result than the standard DCF that he elects to eschew in this proceeding.

Q. HAS THE "RELIABILITY" OF DCF EQUITY COST ESTIMATES BEEN QUESTIONED BY UTILITY-SPONSORED RATE OF RETURN WITNESSES IN OTHER REGULATORY PROCEEDINGS?

A. Yes. As capital costs have declined during the last decade and the DCF has (appropriately) produced lower equity cost estimates, it has become the norm, in my experience, that utility-sponsored rate of return witnesses attempt to convince regulators that standard-DCF results are unacceptably low for one reason or another.

[22] See response to PC Data Request No. 45, Avera Direct, IPUC Docket NO. WWP-E-98-11, Exhibit NO. 5, Schedule WEA-4, p. 1 of 1; DCF cost of equity = 9%.

Q. HAVE THOSE WITNESSES BEEN SUCCESSFUL IN THEIR ENDEAVOR TO PERSUADE COMMISSIONS TO REDUCE THEIR USE OF THE DCF IN REGULATION?

A. No, in my experience, they have not, even though those efforts have been on-going for more than a decade and the standard DCF continues to be the most widely used equity cost estimation methodology used in regulation. That experience is confirmed by an article appearing in the mid-1990s in Public Utility Reports, entitled "Cost of Equity Determinations—State Regulators Turn Back Challenges to the DCF Model:"

> "The discounted cash flow (DCF) model, the methodology most frequently relied upon to establish authorized ROE, has often engendered spirited debate over the technical aspects of its application. Of late, however, some utilities have shifted the focus of the debate, urging that the DCF model no longer produces reasonable results....
>
> Despite utility claims in numerous rate proceedings that the DCF model is producing unreasonably low estimates of investor-expected return on investment in utility equity, state regulators have not reduced their reliance on the model as the primary tool in setting rate of return. In fact the opposite may be true." (148 P.U.R. 4th, Advance Sheets, p. i, iii (March 4, 1994)).

The article concludes by listing states in which regulators have stated their intent to continue to rely on the DCF: Arizona, California, Colorado, Connecticut, District of Columbia, Florida, Illinois, Maryland, Massachusetts, Minnesota, Pennsylvania, Rhode Island and Utah.

Q. YOU MENTIONED THAT DR. AVERA PERFORMED A STANDARD DCF ANALYSIS IN HIS TESTIMONY ON BEHALF OF AVISTA LAST YEAR IN IDAHO. DID HE RELY ON THE RESULTS OF THAT ANALYSIS IN DETERMINING HIS EQUITY COST ESTIMATE FOR AVISTA IN THAT PROCEEDING?

A. No.

Q. WHAT RATIONALE DID DR. AVERA OFFER FOR HIS EXCLUSION THE STANDARD DCF RESULTS IN HIS IDAHO TESTIMONY?

A. At page 41, lines 6 –9 of his Direct Testimony in Avista's 1999 rate proceeding in Idaho, Dr. Avera states that it is "inconceivable" that the cost of equity he derived for Avista could be in the 9% range because that would imply too small a risk premium above public utility bonds. Dr. Avera also noted that single-A utility bonds were yielding approximately 7% at the time of his testimony in Idaho, implying a risk premium of approximately 200 basis points.

However, Table 2 attached to Dr. Avera's Appendix C in this proceeding ("Application of Risk Premium Approach," which I will discuss in more detail subsequently) shows that over the past 25 years, regulators have allowed equity returns which averaged 304 basis points above bond yields, with a standard deviation of 128 basis points. Those statistics indicate that in some years the difference between the allowed equity return and bond yields was well below that average 304 basis point level. In fact, the 200 basis points premium implied by Dr. Avera's standard DCF results fall well within one standard deviation from the mean, and is very much in line with that data. Therefore, not only is such a differential between investors' required return on equity and utility bond yields *not* "inconceivable," as Dr. Avera claimed last year, the Company witness provides evidence in his testimony that an equity cost estimate 200 basis points above utility bond yields is well within the norm established by regulatory precedent.

In sum, Dr. Avera's rationale upon which he bases his exclusion of standard DCF

estimates that he feels are not "meaningful," i.e., too low, is not logical. While the standard DCF results Dr. Avera obtained on behalf of Avista last year in Idaho were, indeed, low by historical standards[23], they were within the range of risk premiums established historically by regulators. Therefore, Dr. Avera's rejection of standard DCF equity cost estimates conflicts with other factual testimony he presents and, therefore, does not provide a rational basis on which to exclude standard DCF results.

Q. WHAT ARE YOUR COMMENTS ON DR. AVERA'S MULTI-STAGE DCF ANALYSIS?

A. At page 39 of his Direct Testimony in this proceeding, Dr. Avera shows the general periodic discounted cash flow formula from which the standard DCF is derived. He correctly notes that, mathematically, in order to produce the familiar "k = D/P = g" formula that we know as the DCF, certain assumptions must be made[24]. Primary among them, as I noted previously in this testimony, is that the model assumes the company whose equity cost is to be measured exists in a steady state environment, i.e., the payout ratio and the expected return are constant and the earnings, dividends, book value and stock price all grow at the same rate, forever. This type of "steady state" assumption is common in mathematical modeling, and, as I pointed out previously in my testimony, those assumptions must be taken into account in order to be able to produce an accurate equity cost estimate using the DCF.

At that same page of his testimony, the Company witness indicates that the "general form" of the DCF (i.e., the multi-stage model) has not been customarily used to estimate the cost of capital in rate cases. The reason he provides for that is telling. Dr. Avera states that the standard DCF was derived from the "general form" of the DCF

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[23] Dr. Avera's standard DCF methodology is mechanistic and does not consider the growth rate trends underlying investor expectations—a factor which could have caused his estimate to misstate the actual cost of equity capital.

[24] However, Dr. Avera is incorrect to note that the DCF assumes no sales of stock at prices above or below book value. As I show in my testimony, there are means by which those factors are taken into account and included in the model (e.g., the "sv" term in the sustainable growth rate).

"...[i]n an effort to reduce the number of required estimates and computational difficulties...". In his use of a multi-stage DCF rather than a standard DCF, then, Dr. Avera, according to his own testimony, has elected to use a DCF model which increases the number of assumptions that must be made as well as the computational difficulty. In other words, instead of using a model in which data are reviewed to enable the investor/analyst to estimate a long-term sustainable growth rate, Dr. Avera elects to use a more complicated model which makes several very specific assumptions which need to occur at specific points in the future in order for his equity cost estimates to be accurate.

Here we have the Company witness testifying that the standard DCF is not reliable because its assumptions are too restrictive and, in order to alleviate that problem, he elects to utilize a model that requires even more assumptions which are tied to definite points in the future. In my view, Dr. Avera is moving from a model which requires general assumptions relative to investor expectations about the future (the standard DCF) to one which requires very time-specific assumptions (the multi-stage DCF) and which produces less reliable results because of that fact.

Q. HOW HAS DR. AVERA ELECTED TO CALCULATE THE MULTI-STAGE DCF GROWTH RATE IN THIS PROCEEDING?

A. Dr. Avera attempts to calculate the cash flow (dividends) in every year through 2008 for each company in his sample as well as a stock price for each company in 2008, and then find, through trial-and-error, the discount rate that equates those cash flows to the current stock price. In order to do that Dr. Avera uses Value Line published data for each company. At the time he did his analysis, Value Line published projected dividend and earnings per share data for Dr. Avera's companies for 1998, 1999 and the 2000-2002 period. He assumes the 2000-2002 projections will occur in 2003.

Next, for determining the dividends for each year from 2004 through 2008 for every company, Dr. Avera assumes that, beginning in 2002, the growth in the earnings for each of those companies will began to increase to 6.95%—the earnings growth rate of

all the companies in 2008. In order to reach that assumption, Dr. Avera assumes the 2008 growth rate of each company will fall exactly between the growth rate for the electric industry (3.5%) and the growth rate for unregulated industrial firms (10.4%)[25]. During the same time period, Dr. Avera assumes that the dividend payout ratio (the ratio of dividends to earnings) will decline from whatever it happened to be projected to be in 2002 to 60%. That 60% payout ratio is, in turn, based on the assumption that the payout ratio in 2008 for each of these companies will equal the average of the current payout ratios for utilities and unregulated firms.

Then, once the dividend for each year for each company has been estimated in this multi-stage DCF model, Dr. Avera determines the market price in 2008 using a single-stage DCF assumption. That is, he estimates that the stock price in 2008 for each company will equal the dividend in 2008 times one plus the earnings growth rate, divided by the discount rate (the cost of equity capital) minus the assumed earnings growth rate (which is, again, assumed to be a hybrid utility/industrial growth rate). Finally, solving this algebraic puzzle through an iterative process in which Dr. Avera selects an equity cost rate and compares the calculated present value to the current stock price, narrowing the difference by re-selecting the cost rate until the difference between the present value of the future cash flows of each company equal the current stock price, produces his multi-stage DCF equity cost estimate.

I have taken care to explain Dr. Avera's multi-stage DCF calculations (which he only summarizes in his testimony) in order to underscore the detailed, time-specific assumptions that are necessary to reach a result in that process. If any of the assumptions made in that analysis are not realized the results would not be accurate. As I noted above, and as Dr. Avera, himself notes in his testimony, the single-stage DCF was derived from the "general" or multi-stage DCF in order to *reduce the number of required assumptions*

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[25] Dr. Avera's growth rate target for 2008 is an average of 1999 5-year earnings growth rate projections by Value Line (for its Value Line Industrial Composite = 7.5%) and Standard & Poor's (for its S&P 500 = 13.3%).If Dr. Avera had relied only on Value Line's earnings growth projections, as he did for his utility companies, his DCF results would have been lower.

and minimize the computational difficulties. Clearly, Dr. Avera has taken a step backward in his application of this particular DCF model and has added, I believe, considerably more uncertainty in the process of estimating the cost of equity than is entailed in the use of a standard DCF analysis, and, in so doing, has diminished the reliability of those results.

Finally, the delicate nature of the myriad time-specific assumptions contained in Dr. Avera's DCF analysis and the problems created by them are underscored by the fact that, since the preparation of his testimony, three of the firms in his sample group (Connectiv, SEMPRA and Sierra Pacific) have cut their dividend. Dr. Avera's DCF analysis calculates, through many assumptions, the specific annual dividend for each year through 2008. The yearly dividends set out for each of those firms that have reduced their dividends are clearly incorrect, and Dr. Avera's DCF analysis does not represent the current cost of equity for those firms.

Q. HAS DR. AVERA USED A MULTI-STAGE DCF ANALYSIS IN PREVIOUS PROCEEDINGS IN WHICH YOU AND HE HAVE BEEN WITNESSES?

A. Yes. In a 1994 combined rate proceeding in West Virginia involving Monongahela Power Company and the Potomac Edison Company (W.V.P.S.C. Case Nos. 94-0035-E-42T and 94-0027-E-42T), Dr. Avera appeared as a cost of capital witness on behalf of those companies. In that proceeding, Dr. Avera used a multi-stage DCF analysis to estimate the cost of equity capital.

Q. WAS THE MULTI-STAGE DCF HE USED IN THAT 1994 WEST VIRGINIA PROCEEDING THE SAME AS HE IS USING IN THIS PROCEEDING?

A. No. In that West Virginia proceeding, Dr. Avera used the IBES 5-year earnings growth rate projection for the companies in his sample group as the first stage of his multi-stage DCF analysis. Then for the second stage, Dr. Avera assumed all the companies would grow at a rate equal to the GDP (Gross Domestic Product) over the next twenty years.

Given the fact that the GDP growth rate is projected to be on the order of 5% rather than the 10.4% Dr. Avera now uses for the steady-state portion of his multi-stage DCF analysis, it is reasonable to assume that if the Company witness had adhered to that prior multi-stage DCF analysis, his results would have been lower.

Q. IN SUPPORT OF HIS USE OF A MULTI-STAGE DCF ANALYSIS, DR. AVERA REFERS TO THE FEDERAL ENERGY REGULATORY COMMISSION'S USE OF THAT TYPE OF ANALYSIS. WHAT ARE YOUR COMMENTS?

A. While Dr. Avera is correct to state that the FERC has relied on the results of multi-stage DCF analyses in recent years, their results are quite different from those presented by Dr. Avera. About the same time during which Dr. Avera prepared his testimony on behalf of Avista in Idaho (late 1998), I participated in an electric rate proceeding at FERC on behalf of the Montana Consumer Counsel.

The FERC Staff rate of return witness in that proceeding did use a multi-stage DCF analysis to estimate the cost of equity capital. That analysis was much different and far less time-period specific than that employed by Dr. Avera in this proceeding. For Montana Power, a "BBB+"-rated electric utility, the FERC Staff, in testimony filed in December 1998, recommended a return on equity of 9.37%[26]. Contemporaneously in Idaho, Dr. Avera's multi-stage DCF produced an average cost of equity estimate of 11.5%—more than 200 basis points higher.

Dr. Avera has elected to point to the Federal Energy Regulatory Commission as authority to support his choice of DCF models, and he is correct to note that the FERC analysts do currently utilize a multi-stage DCF. However, a comparison of the DCF models underscores the fact that the assumptions made in constructing a multi-stage DCF add complexity and additional uncertainty to the model and can substantially impact the results.

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[26] FERC Docket No. ER98-2382-000, The Montana Power Company, Direct Testimony of FERC Staff rate of return witness David R. Penkrot, p. 2, l. 12, filed December 15, 1998.

Q. HAVE OTHER REGULATORY BODIES RECENTLY RULED ON THE RELIABILITY OF DR. AVERA'S MULTI-STAGE DCF ANALYSIS?

A. Yes. As I noted above, Dr. Avera presented the same multi-stage DCF analysis of Avista's cost of equity capital in Idaho last year. Although the numbers contained in that analysis were slightly different the methodology was the same as in the instant proceeding. The Idaho Commission did not accept Dr. Avera's multi-stage DCF methodology because, in their opinion, it "put too much weight on deregulated operations without assuring that regulated operations are not paying an excessive share of investor growth expectations for deregulated operations."(IPUC Order No. 28097. P. 23)(Exhibit 119).

Q. DO YOU BELIEVE THE IDAHO COMMISSION'S CONCERN THAT DR. AVERA'S ANALYSIS GAVE TOO MUCH WEIGHT TO UNREGULATED OPERATIONS IS WARRANTED?

A. Yes, Dr. Avera's DCF growth rate equally weighs projected growth for utilities with projected growth for unregulated stocks. Because the question at issue is the profitability to be allowed the Company's utility operations—not its consolidated utility/unregulated operations—Dr. Avera's use of non-regulated earnings growth rates would tend to overstate the growth investors expect from utility operations.

For example, at page 45 of his direct testimony, Dr. Avera implies that a "traditional" growth rate for an electric utility operation has averaged about 3.5%. Avista, in its 1999 10-K report to investors confirms that its future growth expectations are quite similar to that "traditional" utility growth rate:

> "Avista Utilities anticipates residential and commercial electric load growth to average approximately 2.8% annually for the next five years primarily due to increases in both population and the number of businesses in its service territory. The number of electric customers is expected to increase and the average annual usage by

> residential customers is expected to remain steady on a weather-adjusted basis....
>
> Avista Utilities anticipates natural gas load growth, including transportation volumes, in its Washington and Idaho service area to average approximately 2.4% annually for the next five years. The Oregon and South Lake Tahoe, California service areas are anticipated to realize 3.6% growth annually during that same period. The anticipated natural gas load growth is primarily due to expected conversions from electric space and water heating to natural gas, and increases in both population and the number of businesses in its service territory." (Avista 1999 S.E.C. Form 10-K,[27] p. 36)

Therefore, because our task in this proceeding is to set rates for Avista's utility operations which a based on the costs of those operations, including capital costs, it is not appropriate to calculate those capital costs giving substantial weight to the possible future growth rate of unregulated operations. Dr. Avera's DCF methodology assumes that Avista's growth rate will be nearly double that of a "traditional" utility by giving 50% weight to projected growth in unregulated operations. His growth rate assumption is at odds with Avista's own report to investors, cited above and, as a result, produces an cost of equity estimate which overstates the cost of that type of capital for the Company's utility operations.

Q. DOES THIS CONCLUDE YOUR COMMENTS ON THE COMPANY'S MULTI-STAGE DCF ANALYSIS?

A. Yes.

[27] Company Response to PC DR No. 33

Q. WHAT OTHER EQUITY COST ESTIMATION ANALYSES DOES DR. AVERA PRESENT IN HIS TESTIMONY IN THIS PROCEEDING?

A. Dr. Avera utilizes three kinds of risk premium analyses in his Direct Testimony in this case: 1) mechanistic estimates of the cost of equity, 2) investor surveys and 3) historical realized rates of return.

Q. HAS DR. AVERA CONSISTENTLY TESTIFIED IN FAVOR OF USING RISK PREMIUM ANALYSES TO ESTIMATE THE COST OF EQUITY?

A. No. In a testimony on behalf of Southwest Bell Telephone before the Federal Communications Commission (FCC; CC Docket No. 84-800, provided in response to PC Data Request 54b), in a proceeding in which the FCC was seeking comments as to whether or not an equity cost represcription process using the risk premium would be advisable, Dr. Avera testified against the use of the risk premium. His testimony recommending that the FCC *not* rely on risk premium analyses was predicated on the studies on which he would now have this Commission rely.

In the executive summary of his testimony before the FCC, Dr. Avera presented the overall conclusion of his research on the risk premium:

> "Based on a review of other empirical studies and our independent research, we concluded that a formula predicated upon the bond-yield-plus-risk-premium methodology would not provide an adequate measure of the changes in the cost of equity during the time intervals between prescriptions since there would be no confidence that the resulting interim cost of equity would be reasonably accurate over a particular time period." (Ibid., p.2)

In his testimony on the risk premium in the instant case (see Avera Direct, Appendix C), Dr. Avera reviewed three studies that measure the risk premium as the difference between a forward-looking equity model (usually the DCF) and bond yields. One of those risk premium studies (Brigham, Shome and Vinson; referenced by Dr.

Avera in his Appendix C as "BSV") is the same study reviewed by Dr. Avera in his FCC testimony. Reviewing that study in 1984, Dr. Avera testified before the FCC as follows:

> "The studies of equity risk premium behavior that employ forward-looking estimates of the cost of equity have obvious advantages over the use of historical realized rates of return. Nonetheless, the results must be interpreted carefully. The cost of equity estimation models and associated growth projection inputs are necessarily applied in a mechanistic fashion. Estimating the cost of equity at any particular point in time is clearly a difficult exercise; accordingly, utilizing a single formula with mechanistically derived inputs over a number of periods to generate forward-looking cost of equity estimates is fraught with potential inaccuracies." (Ibid., p. 12)

Another of the expectational risk premium studies on which Dr. Avera relies in this proceeding is "Inflation Risk and Regulatory Lag" by Carleton, Chambers and Lakonishok (CC&L). Dr. Avera notes at page C-6 of his Appendix C that CC&L studied the relationship between interest rate levels and risk premiums and "concluded that no 'significant' relationship existed between these variables." I mention this study because, Dr. Avera makes much about the supposed relationship between interest rates levels and the absolute value of risk premiums, i.e., that risk premiums increase when interest rates decline. As I will show subsequently, and as apparently confirmed by CC&L, the inverse relationship between interest rates and risk premiums is not reliable for equity cost estimation purposes.

Q. WHAT ARE YOUR COMMENTS ON DR. AVERA'S DISCUSSION OF INVESTOR SURVEY RISK PREMIUM ANALYSES?

A. The second risk premium methodology presented by Dr. Avera in this proceeding is one based on investor surveys. In his testimony in this case regarding the investor survey methodology of estimating risk premiums, Dr. Avera relies on the investor surveys performed by Charles Benore of the investment firm Paine Webber in the late 1970s and

early 1980s. In his FCC testimony referenced above, Dr. Avera also reviewed the Benore surveys and commented on that type of study as follows:

> "This method is inherently forward-looking and does not depend upon the specification or application of a particular cost of equity model; however, it is subject to the limitations of any survey technique regarding the representativeness of the sample, etc." (Ibid., p. 12)

In addition, the Brigham, Shome and Vinson (BSV) study (on which Dr. Avera relies in his testimony in this case) expounds on the drawbacks of the Benore survey:

> "The survey approach is conceptually sound in that it attempts to measure investors' expectations regarding risk premiums, and the Benore data also seem to be carefully collected and processed. Therefore, the Benore studies provide one useful basis for estimating risk premium. However, as with most survey results, the possibility of biased responses and/or biased sampling always exists. For example, if the responding institutions are owners of utility stock (and many of them are), and if the respondents think that the survey might be used in a rate case, then they might bias upward their responses to help utilities obtain higher authorized returns. Also, Benore surveys large institutional investors, whereas a high percentage of utility stocks are owned by individuals rather than institutions, so there is a question as to whether his risk reported premiums are really based on the expectations of the 'representative' investor." ("The Risk Premium Approach to Measuring a Utility's Cost of Equity," Brigham, Shome and Vinson, Financial Management, Spring 1985, p. 35)

One final interesting point about the Benore risk premium surveys should be mentioned. The same Mr. Benore who performed the studies on which Dr. Avera now elects to rely was the cost of capital witness for Allegheny Energy's operating companies in 1990 and 1991 rate proceedings in West Virginia (Monongahela Power, W.V.P.S.C. Case No.90-504-E-42T) and Pennsylvania (West Penn Power, Pa.P.U.C. Docket No. R-901609) . I was also involved in those cases, and one of the methodologies witness Benore *did not*

use in his cost of capital analysis in those cases was his own risk premium survey studies. If the individual who is responsible for the studies does not believe they are valuable enough to use in his own cost of capital testimony, this Commission should give them equal consideration—none.

In his discussion of survey-type risk premiums, Dr. Avera includes a historical review of commission-authorized returns compared to bond yields. That analysis is summarized in Table 2 in his Appendix C. This methodology is more akin to his next category of risk premium analysis which compares historical returns to bond yields than it is to Benore's investor survey methodology. As noted above, I will discuss the risk premium results shown in Table 2 separately and show that the relationship between risk premiums and bond yields that Dr. Avera represents as fact, is not statistically reliable.

Q. WHAT IS THE THIRD TYPE OF RISK PREMIUM ANALYSIS REVIEWED BY DR. AVERA?

A. The final type of risk premium utilized by Dr. Avera in this case is termed "Historical Realized Rates of Return." In this case he relies on the Ibbotson and Sinquefield studies. Before the FCC in the case cited above, Company witness Avera's comments on the same kind of historical risk premium study by Ibbotson and Sinquefield were less complementary:

> "While the results of empirical analyses based on average realized rates of return may be indicative of return relationships over a long historical horizon, such studies are of little value in assessing the behavior of equity risk premiums over time. Even as a measure of equity risk premiums at a particular point in time, the use of historical average realized rates of return has been criticized on a number of grounds (e.g., the estimated premiums vary significantly depending upon the method of averaging and the time intervals employed). Perhaps of more concern for present purposes is the fundamental assumption upon which studies using the historical realized rates of return

> approach rests. Realized rates of return for common stocks over any particular holding period will inevitably be different from what investors actually expected; indeed, such deviations of realized return versus expected rates of return are what cause holding common stock to be risky." (Ibid., p. 9)

Brigham, et. al, also note the drawbacks of risk premiums based on historical realized rates of return:

> "There are both conceptual and measurement problems with using I&S [Ibbotson and Sinquefield] data for purposes of estimating the cost of capital. Conceptually, there is no compelling reason to think that investors expect the same relative returns that were earned in the past. Indeed, evidence presented in the following sections indicates that relative expected returns should, and do, vary significantly over time. Empirically, the measured historic premium is sensitive both to the choice of estimation horizon and to the end points. These choices are essentially arbitrary, yet they can result in significant differences in the final outcome." ("The Risk Premium Approach to Measuring a Utility's Cost of Equity," Brigham, Shome and Vinson, Financial Management, Spring 1985, p. 34)

This Commission, to my knowledge, has not relied on a risk premium analysis as a primary indicator of equity capital costs, and has, instead relied primarily on the DCF. Dr. Avera's testimony on the subject of risk premium fails to provide the Commission with any new evidence to justify a change from that position. Moreover, his prior testimony before the FCC provides evidence that the risk premium studies on which Dr. Avera relies in this proceeding "would not provide an adequate measure of... the cost of equity" (Avera Testimony, FCC Docket. 84-800, p. 2).

Q. YOU NOTED PREVIOUSLY IN YOUR TESTIMONY THAT DR. AVERA PLACES A HEAVY EMPHASIS ON A NEGATIVE CORRELATION BETWEEN INTEREST RATES AND RISK PREMIUMS IN REACHING HIS EQUITY COST ESTIMATE. WOULD YOU PLEASE COMMENT ON THIS ISSUE?

A. In Table 2 contained in his Appendix C, Dr. Avera subtracts average bond yields for utilities from the equity returns allowed utility companies over the past 24 years. Then, through a regression analysis, the Company witness describes a relationship between bond yields and risk premiums and uses that relationship, with the current cost of debt to estimate the Company's cost of equity. Aside from the problems that exist generally with the Risk Premium approach to equity cost estimation, noted above, there are additional problems with this particular approach. Further, those problems illustrate that Dr. Avera's adjustments to historically-derived risk premiums (an adjustment he elects to make with every risk premium study he utilizes) are not reliable for equity cost estimation purposes.

First, because the object of the exercise is to estimate the current cost of equity capital, the Risk Premium procedure followed by Dr. Avera could produce an accurate estimate of that parameter for Avista's utility operations if, and only if, the equity return allowed each company were equal to the cost of equity and the risk of utility sample group were similar to that of Avista. For example, there existed substantial risk in the electric utility industry due to nuclear construction in the late 1970s and early 1980s that increased allowed returns and risk premiums during that portion of Dr. Avera's study period. However, that nuclear construction risk is non-existent in the industry today. Also, returns allowed in any one year could have been based on record evidence in prior years, depending on the particular circumstances, reducing the reliability of the comparison of average annual allowed returns and current bond yields as an indicator of the cost of equity capital. Even assuming that the allowed returns were equal to the sample companies' cost of equity, they would be useful as a measure of equity capital costs only if they were contemporaneously compared to bond yields.

In addition, utility market prices were below book value in the late 1970s and

early 1980s, and significantly above book value since the mid-1980s. These data indicate that the equity returns allowed during those periods were not equal to the utilities' cost of capital. For example, the –0.4% risk premium noted by Dr. Avera in 1981 was probably too low because the allowed returns at that time were resulting in market prices below book value for utility operations. Similarly, the risk premiums shown from 1985 to 1998 in Dr. Avera's Table 2 can be said to overstate the actual risk premium because the returns allowed were resulting in market prices for utility operations that were well above book value.

Although the above-mentioned factors raise concerns about the applicability of such a historically-oriented approach to cost of capital analysis, they are common to all such analyses. The second flaw evidenced in Table 2 is particular to this analysis.

Although Dr. Avera's regression analysis shows a strong correlation between risk premium and bond yields ($r^2 = 0.81$), that is not surprising because the resultant risk premium is a direct arithmetic result of the prevailing bond yield. A high correlation coefficient is not meaningful if the dependent and independent variables are said to be "auto-correlated."

If regression variables are auto-correlated, the differences between the actual values and the regression equation (the residuals) have a lagged correlation with their own past values (i.e., they are not independent of each other). Therefore, the regression equation will not necessarily serve as an accurate predictor of the relationship between the variables because the residual error will continue to increase over time. Unfortunately, Dr. Avera does not offer the Commission any information regarding whether or not his data are auto-correlated. However, because one of the variables, the risk premium, is an arithmetic function of the other (the bond yield) it is reasonable to believe (especially in the absence of any showing otherwise) that those data series are auto-correlated. Therefore, results of the risk premium regression analysis shown in Dr. Avera's Table 2 are not a reliable indicator of the cost of equity capital and should be given little weight by this Commission.

Q. ARE THERE OTHER, MORE RECENT, STUDIES WHICH EXAMINE THE RELATIONSHIP BETWEEN RISK PREMIUMS AND INTEREST RATE LEVELS?

A. Yes. Although Dr. Avera cites the Virginia Corporation Commission's acceptance of an inverse relationship between interest rates and risk premiums at page 4 of his Appendix C, he fails to point out that Virginia Commission Staff members had published a study of that relationship in 1995[28]. That paper is interesting in that it shows that within certain shorter-term sub-periods an inverse relationship appears to exist, but over the entire 1980 through 1993 study period—as interest rates declined from the very high levels of the early 1980s—absolute risk premium levels fell. Moreover, this study was based on electric utility market data and estimated rather than allowed equity cost rates.

Also, the cost of capital indications which result from the Virginia Commission Staff study tend to be substantially lower than those presented by Dr. Avera. The average risk premium between electric utility cost of equity and long-term Treasury bond yields averaged 3.21% over the 1980-1993 study period and the average T-bond yield was 9.77%. Given that the most recent six-week average T-Bond yield is 6.04%[29], the difference between the current T-Bond yield and that which existed, on average during the study period (9.77%), is 3.73%. Multiplying that yield difference by the relationship found in the Virginia Commission Staff study produces a current risk premium of 4.59% (3.73% x 0.37 = 1.38% + 3.21% = 4.59%). That "adjusted" risk premium, added to the current T-Bond rate (6.04%) produces a cost of capital indication of 10.63% (6.04% + 4.59%).

Therefore, if one elects to believe such data are reliable, there are studies of the relationship between interest rates and risk premiums in the literature which 1) show a declining trend in risk premiums over the 1980s and early 1990s, 2) are based on the cost of equity of electric utilities and 3) produce equity cost estimates which are substantially

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[28] Maddox, F., Pippert, D., and Sullivan, R., "An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry," Financial Management, Vol. 24, No. 3, Autumn 1995, pp. 89-95.

[29] Data from the six most recent weekly editions of Value Line Selection & Opinion (March 3 through April 7, 2000).

below those presented by Dr. Avera and tend to corroborate the 10.875% equity cost estimate I provide in this testimony.

Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING DR. AVERA'S RELIANCE ON WHAT APPEARS TO BE A NEGATIVE CORRELATION BETWEEN RISK PREMIUMS AND INTEREST RATES?

A. Yes. As Dr. Avera correctly notes (Avera Direct, p. 52), equity risk premiums are unobservable and must be estimated through various measures. However, other risk premiums are directly observable in the marketplace. Those observable risk premiums, e.g., yield differences between utility bonds of different ratings, do not comport with Dr. Avera's assumption of an inverse relationship between yield and risk premiums. The graph contained in Exhibit__(SGH-1), Schedule 13 attached to my testimony shows the yield difference between Moody's "A"-rated and "BBB"-rated utility bonds over a ten-year period, from 1988 through 1998. Also shown in that graph are Moody's "A"-rated bond yields.

The graph in Exhibit__(SGH-1), Schedule 13 shows that, as bond yields have steadily dropped since 1989 the risk premium between "A"-rated and "BBB"-rated utility debt has not shown any definitive trend. In fact, the yield differential fluctuated relatively evenly around the average risk premium (shown in the graph in Exhibit__(SGH-1), Schedule 13 as a horizontal line). Therefore, contrary to Dr. Avera's hypothesis, observable risk premiums do not move inversely with interest rates. In fact, as interest rates have steadily dropped, the yield differential between "A"-rated utility debt and "BBB"-rated utility debt, while changing, has shown no definitive trend toward increasing.

Q. PLEASE SUMMARIZE THE FLAWS IN DR. AVERA'S COST OF EQUITY CAPITAL ANALYSIS.

A. Dr. Avera's Risk Premium analyses of the cost of equity capital, 1) are based on studies

which, in prior testimony, he has rejected as being unreliable, 2) ignore more recent studies which indicate much lower risk premiums for electric utility operations, and 3) are based on a relationship between bond yields and risk premiums which he has not shown to be statistically reliable for unobservable equity risk premiums and which does not exist in readily observable risk premiums. I do not believe Dr. Avera's risk premium analyses provide information that would be useful to this Commission in its task of determining the cost of equity capital for Avista's gas and electric utility operations.

Q. DOES THIS CONCLUDE YOUR DISCUSSION OF DR. AVERA'S COST OF CAPITAL ANALYSIS IN THIS PROCEEDING?

A. Yes, it does.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.