Exhibit No. ___ (JWW-1T)

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,	)	
Complainant,	)	
v.	)	DOCKET NO. TO-011472
OLYMPIC PIPE LINE COMPANY, INC.,	)	
Respondent.	)	

Direct Testimony and Exhibits
of
Dr. John W. Wilson
on Behalf
of
The Commission Staff

May 24, 2002

J.W. Wilson & Associates, Inc.
Economic Counsel
1601 North Kent Street · Rosslyn Plaza C · Suite 1104 Arlington, VA 22209

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I. QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND ADDRESS.

A. My name is John W. Wilson. I am President of J.W. Wilson & Associates, Inc. Our offices are at 1601 North Kent Street, Suite 1104, Arlington, Virginia, 22209.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. My testimony in this case is sponsored by the Commission Staff.

Q. PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND.

A. I hold a B.S. degree with senior honors and a Masters Degree in Economics from the University of Wisconsin. I have also received a Ph.D. in Economics from Cornell University. My major fields of study were industrial organization and public regulation of business, and my doctoral dissertation was a study of utility pricing and regulation.

Q. HOW HAVE YOU BEEN EMPLOYED SINCE THAT TIME?

A. After completing my graduate education I was an assistant professor of economics at the United States Military Academy, West Point, New York. In that capacity, I taught courses in economics and government at the introductory and intermediate levels. While at West Point, I also served as an economic consultant to the Antitrust Division of the United States Department of Justice.

After leaving West Point, I was employed by the Federal Power Commission, first as a staff economist and then as Chief of FPC's Division of Economic Studies. In that capacity, I was involved in regulatory matters involving most phases of FPC regulation of electric utilities and the natural gas industry. Since 1973, I have been employed as an economic consultant by various clients including federal, state and local governments, private enterprise and nonprofit organizations. This work has pertained to a wide range of issues concerning public utility regulation, insurance rate regulation, antitrust matters and economic and financial analysis.

Q. WOULD YOU PLEASE DESCRIBE SOME OF YOUR ADDITIONAL PROFESSIONAL ACTIVITIES?

A. I have authored a variety of articles and monographs, including a number of studies dealing with utility regulation and cost of capital. I have consulted on regulatory, financial and competitive market matters with the Federal Communications Commission, the National Academy of Sciences, the Ford Foundation, the National Regulatory Research Institute, the Electric Power Research Institute, the U.S. Department of Justice, the Commerce Department, the Department of the Interior, the Federal Trade Commission, the Department of Energy, the Small Business Administration, the Department of Defense, the Tennessee Valley Authority, the Federal Energy Administration, and numerous state and provincial agencies and legislative bodies in the United States and Canada and the NAIC's Advisory Committee on Nuclear Risks.

Previously, I was a member of the Economics Committee of the U.S. Water Resources Council, the FPC Coordinating Representative for the Task Force on Future Financial Requirements for the National Power Survey, and the Advisory Committee to the National Association of Insurance Commissioners (NAIC) Task Force on Profitability and Investment Income.

In addition, I have testified on numerous occasions as an expert on financial and rate of return matters, and I have participated as a speaker, panelist, or moderator in many professional conferences and programs dealing with business regulation, financial issues, economic policy and antitrust matters. I am a member of the American Economic Association and an associate member of the American Bar Association and the ABA's Antitrust, Insurance and Regulatory Law Sections.

Q. HAVE YOU TESTIFIED PREVIOUSLY IN REGULATORY PROCEEDINGS DEALING WITH RATE OF RETURN REQUIREMENTS?

A. Yes. I have presented testimony on rate of return requirements on many occasions. I have testified in regulatory proceedings before this Commission and in most states as well as before federal agencies and in federal and state court proceedings. I have also testified before the U.S. Senate and House of Representatives on numerous occasions.

II. INTRODUCTION & SUMMARY

Q. WHAT IS THE SUBJECT OF YOUR TESTIMONY IN THIS CASE?

A. I have been asked by the Commission Staff to address the issue of estimating Olympic Pipe Line Company's cost of capital and an appropriate rate of return allowance in this case. Relatedly, I have been asked to direct particular attention and respond to the testimony and recommendations on this subject presented in this case by Olympic witness Dr. George R. Schink.

Q. PLEASE DESCRIBE THE APPROACH YOU HAVE USED TO ESTIMATE THE COST OF COMMON EQUITY CAPITAL FOR OLYMPIC.

A. My analysis focuses upon investor requirements, measured by means of traditional discounted cash flow ("DCF") and capital asset pricing models ("CAPM").

In general, the best estimate of the cost of common equity for a company is one based upon a direct evaluation of investor requirements. It is necessary to focus upon investor requirements because it is investors who, through their actions in the marketplace, determine the price of securities, or the present value of expected future returns. Therefore, it is investors who determine the cost of common equity for any particular enterprise. In this case, since Olympic is not a publicly held enterprise, but is a wholly-owned joint venture of several integrated petroleum companies, I have focused my analysis on firms in comparable

industries. These include several oil pipeline limited partnerships as well as natural gas pipeline companies and integrated petroleum enterprises, including the owners of Olympic.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION CONCERNING THE RATE OF RETURN ON COMMON EQUITY CAPITAL AND THE OVERALL RATE OF RETURN APPROPRIATE FOR OLYMPIC IN THIS CASE.

A. My analysis indicates that, at the present time, investors require an 8.0 to 10.0 percent return on common equity in comparable enterprises. My recommendation is that the Commission allow 9.0 percent, the mid-point of the range, on the common equity portion of the capital structure used to set Olympic's rates in this Docket. This, combined with a 7.0 percent cost allowance for debt capital and an 80/20 debt/equity deemed capital structure, produces an overall rate of return allowance recommendation of 7.4%. Alternatively, given a significant increase in equity capital so as to achieve a target capitalization of 50% debt/equity, the corresponding overall return allowance would be 8.0%. These recommendations are summarized in Exhibit No. ___ (JWW-9).

Q. HOW HAS OLYMPIC'S WITNESS, DR. SCHINK, ATTEMPTED TO ESTIMATE THE COST OF CAPITAL FOR OLYMPIC PIPE LINE COMPANY IN THIS CASE?

A. He has submitted a copy of the testimony and exhibits that he originally prepared for the Company's wholesale rate filing before the FERC in FERC Docket No.

IS01-258-000 in which he attempted to estimate Olympic's cost of capital through the application of a discounted cash flow ("DCF") model, applied only to selected oil pipeline limited partnerships, which generally follows a procedure used by the FERC staff in a prior pipeline rate proceeding.

Q. HOW HAVE RECENT TRENDS IN MONEY MARKET COSTS AFFECTED EQUITY CAPITAL RETURN REQUIREMENTS?

A. Money costs have fallen considerably during the past several years, leaving little doubt that return requirements have been lower in recent years than they were throughout the 1980s and 1990s.

One indicator of this decline in money costs is the trend in interest rates during the past decade. Exhibit No. ___ (JWW-2) shows a variety of interest rate data for the past twenty years. Although the level of interest rates is not a precise indicator of the change in common equity costs, the trend in these interest rate data indicate that money costs are now lower than they have been for most of the last two decades.

As I explain in my testimony, common equity return requirements can run a course that differs from debt costs. The relationship between bond yields and common equity cost rates is not constant, but rather it changes with changes in the perceived risk of the two different securities. For this reason, bond yields are not an ideal standard for determining common equity return requirements. The very broad levels and trends of debt yields do, however, provide good information about changes in the cost of capital in the economy.

The level of stock prices of comparable firms further demonstrates that recent common equity return requirements have been lower than in prior years. Most comparable common stocks are trading at healthy margins over book value, indicating that investors are expecting returns in excess of capital costs.

III. DISCOUNTED CASH FLOW

DCF Theory

Q. PLEASE EXPLAIN THE DISCOUNTED CASH FLOW APPROACH TO DETERMINING THE COST OF COMMON EQUITY CAPITAL.

A. The discounted cash flow (or DCF) approach is a frequently used method of measuring the cost or required return for a firm's common equity capital. The DCF model is based upon two fundamental principles. First, it is based on the principle that rational investors evaluate the risks and expected returns of securities in capital markets and establish a price for a particular security which adequately compensates investors for the risks they perceive. Second, the model is based upon the proposition that the total return received by shareholders consists of dividends and capital gains, and these are measured in terms of the current dividend yield plus the expected rate of dividend growth. The DCF

model, which combines yield and growth information to produce the total return expected by investors, is the following:

Total Return to Investor	=	Current Dividend Yield	+	Expected Dividend Growth Rate

The model makes no separate provision for capital gains since they are fully accounted for in the growth component. Capital gains are a consequence of price appreciation which, in turn, is a consequence of rising dividends and expected dividend growth.

Since an individual investor cannot control either the current dividend rate or the dividend growth rate, his decision about the adequacy of returns is reflected by his buy, sell, and hold decisions. If the expected return exceeds the required return, the price of common stock will be greater than the stock's book value. If the expected return is lower than investor requirements, the market price will fall below book. If investor expectations and requirements are the same, the stock will trade at a price equal to book value.

In other words, the DCF procedure for estimating capital cost reflects the fact that the maximum price a logical investor will pay for a security is an amount equal to the present value of the dividends that he expects to receive over the years during which he holds the security plus its resale price, including capital gains, when he

sells it. Algebraically, this observation can be represented by the following equation:

$$P_o = \frac{D_1}{1+R} + \frac{D_2}{(1+R)^2} + \ldots + \frac{D_t}{(1+R)^t} + \frac{P_t}{(1+R)^t}$$

where P_o is the price of a company's common stock today; D_1, D_2 ... D_t are expected dividends in subsequent periods; Pt is the expected resale price of the stock at some time in the future; and R is the discount rate or required return (often referred to as the opportunity cost of capital).

The market price is the present value of all cash flows expected in the future, discounted at a rate equal to the rate of return investors require on the investment. Present value is the current worth of expected future returns – that is, what an investor would be willing to pay today in order to obtain the expected cash flows in the future. Today's price is the present value of these expected cash flows, discounted at a rate that reflects the cost of capital, including the risk perceived by investors that their expectations will not be met.

Calculating present value is accomplished simply by adding up the discounted total future returns. Since a dollar in hand today can be invested profitably and result in a dollar plus compounded interest at some future date, a dollar today is worth more than a dollar tomorrow. If, for example, a dollar can be invested and

obtain a 10 percent annual return, the expectation of receiving a dollar in one year is worth 90.9 cents today; i.e.,

$$\frac{\$1.00}{1.10} = \$0.909$$

Similarly, the expectation of receiving a dollar two years from now is worth 82.6 cents; i.e.,

$$\frac{\$1.00}{(1.10)^2} = \$0.826$$

That is true simply because the investment of 82.6 cents today at 10 percent annual interest will result in $1.00 in two years; i.e.,

$0.826 x 1.10 = $0.909 at the end of year one,

and

$0.909 x 1.10 = $1.00 at the end of year two.

Of course, not all individual investors make explicit present value calculations of this type when making stock or bond acquisitions. This computation, however, accurately describes the operation of the market as a whole, and this discounting principle is implicit in virtually all investment pricing decisions.

Discounted cash flow computations equate market price with expected cash flows, discounted at the return requirement for the investment. For example, suppose that it is expected that a security will pay a dividend of $1.00 per year, and after 2 years it can be sold for $15.00. Also suppose that, as an alternative to

this potential investment, there is another enterprise of equal risk (for example, a certificate of deposit or money market fund) which will produce a 10 percent rate of return. Applying the discounted cash flow principle, it can therefore be estimated that the appropriate price for this security is $14.13; i.e.,

$$P_o = \frac{D_1}{1+R} + \frac{D_2}{(1+R)^2} + \frac{P_2}{(1+R)^2}$$

$$Po = \frac{\$1.00}{1.l0} + \frac{\$1.00}{(1.l0)^2} + \frac{\$15.00}{(1.10)^2}$$

$$P_o = \$0.909 + \$0.826 + \$12.397$$

$$P_o = \$14.132$$

The accuracy of this price estimate can be checked by calculating what $14.13 would yield in the equivalent alternative investment at 10 percent compounded over two years. The result is $17.10 ($14.l32 x 1.10 x 1.10) which is precisely correct. After two years this stock sells for $15.00 and the dividends then would have totaled $2.00 plus 10 cents for reinvesting the first year's $1.00 dividend at the assumed 10 percent rate. Consequently, when the opportunity cost of capital is 10 percent, the investor in this example will wish to buy this security if it is offered at a price of $14-1/8 or below. He will invest in alternative opportunities if the market price is above that level.

In this simplified hypothetical illustration, a $15.00 selling price two years from the present is the price which reflects investors' expectations concerning future cash flows at that point in time. In other words, the projected selling price in two years reflects subsequent cash flow expectations just like the current price reflects

currently expected cash flows. For example, if the discount rate remains at 10 percent, and the dividends in years 3, 4, and 5 are expected to grow at a rate of 5 percent per year, and the resale value at the end of year 5 is expected to be $16.32, then investor No. 1 can expect to be able to sell the security to another buyer, investor No. 2, for $15.00 at the end of year 2. That is, where P_2 is the price at the end of year 2, the present value of the income from years 3, 4, and 5, including the selling price in year 5, is:

$$P_2 = \frac{(1.00)\,(1.05)}{1.10} + \frac{(1.00)\,(1.05)^2}{(1.10)^2} + \frac{(1.00)\,(1.05)^3}{(1.10)^3} + \frac{16.32}{(1.10)^3} = 15.00$$

This process is continuous. That is, an expected price of $16.32 in year 5 is based on expectations regarding dividends and resale values from that point forward, and so on. Because of the discount factor, expected values in the very distant future will not have a substantial effect on the current present value computation. For example, with a discount factor of 10 percent, $1.00 in 10 years is worth only $0.38 today; $1.00 in year 25 is worth only $0.09; $1.00 in year 50 is worth only $0.01. The more distant into the future is the expected return, the less is its present value today. Thus, while this DCF model technically reflects an infinite stream of returns, with a 10 percent discount rate and a level cash flow, more than 90 percent of the total present value is realized in less than twenty-five years and more than 99 percent of the total value is realized in less than fifty years.

A security's price today, is based on expected dividends and capital gains, since they are the basis of both the yield and future stock prices. The time horizon for DCF analysis is long-term. This is true because it is future income stream expectations as of the resale date that determine the resale price and capital gains. Intermediate prices between now and the long term "wash" because every seller's price is someone else's buying price. And of course, no rational investor will be willing to pay more than the present value of his or her expected future returns.

DCF analysis reflects capital gains because the gains are a consequence of price appreciation, which, in turn, is a consequence of expected dividend growth. This is why ultimate terminal values for a security need not be directly estimated in DCF capital cost evaluations. It is an error in DCF analysis to confuse the holding period of an initial investor with the relevant growth horizon. The use of an expected holding period for the growth horizon requires that a terminal price be assumed, and the price at the end of an investor's holding period is the present value of expected cash flows to the investor at that time. Thus, intermediate selling prices cancel each other out and are irrelevant to the DCF model.

The basic DCF equation shown above can be reduced algebraically to:

$$Po = \frac{D_1}{R - g}$$

where P_o is the market price of common stock, D_1 is the currently expected annual dividend, R is the discount rate or opportunity cost of equity capital, and g is the expected dividend growth rate. This expression converts to:

$$R = D_1/P_o + g$$

where R is the annual required rate of return on common equity capital.

The discount rate, R, is the rate of return that could be obtained from an alternative comparable investment. It follows, therefore, that R will provide a competitive rate of return and thus meet the capital attraction test of a fair rate of return. Moreover, since R is equivalent to the rate of return that investors can obtain from comparable alternative investments, the result not only corresponds to the capital attraction requirement, but conforms to the comparable earnings requirement as well – and thus meets traditional regulatory requirements.

The DCF equation is a statement of the price that investors are willing to pay for a security, given their estimate of the dividend growth that they believe is likely over the long term. The current dividend yield and expected dividend growth are the determinants of price for investors; growth is not an element of the return that investors can control. Only the current yield portion of the return can be controlled by investors, and they exercise their control by setting market prices. Because of this relationship between yields and growth, dividend yields are established in response to growth expectations. Dividend yields do not "cause" growth expectations. Growth expectations "cause" dividend yields. That is so

because growth influences market price, and market price is the denominator in calculating dividend yields.

Q. DO YOU AND OLYMPIC'S WITNESS, DR. SCHINK, DISAGREE WITH RESPECT TO THE DCF THEORY YOU HAVE DESCRIBED?

A. No. As in this case, the controversial aspect of DCF analysis is usually measurement of the yield and growth components, rather than the underlying theory. Dividend yields depend upon growth expectations, and the cost of equity capital is the discount rate which relates specific market prices to specific cash flows, including the growth in those cash flows.

In this regard, it is important to emphasize that the task of the rate of return analyst is to determine what growth rate investors are expecting, and not to forecast the actual growth rate the analyst expects. Nor does it matter whether investors' expectations turn out to be right or wrong. Today's common stock prices, which enter the DCF calculation through the dividend yield term, depend upon today's expectations for future growth. Of course, expectations and requirements may be different at different times, and therefore the cost of common equity is likely to change over time. For example, when interest rates are very high, it is likely that required equity returns are higher than when interest rates are low. Similarly, when expected long-term inflation rates are high, it is likely that the cost of common equity will be higher than when long-term inflation expectations are low. A cost of common equity established at one point in time may be quite different from that established previously, or that found to be true in

the future. Tomorrow's hindsight may prove that today's expectations were wrong, but that does not and cannot possibly affect today's cost of capital. That is why it is necessary only for the rate of return analyst to determine correctly what present investor expectations actually are, and not whether they are correct.

Q. WHAT EXPECTATIONS ARE IMPORTANT IN DCF ANALYSIS?

A. Investor expectations are central to the discounted cash flow approach and are the key to establishing the cost of common equity capital. Investors establish prices for common stocks on the basis of their expectations of future income streams (dividends and capital gains) relative to their return requirement for the level of perceived risk. It is the consensus of investor expectations that establishes the price of common equities, and those expectations are concerned with the future income stream. This means that it is the expected future growth in dividends which is most important.

Although dividend yields are easy to measure with published data, the growth component is not as easy. There is no published consensus value for the expectations investors hold. Investor expectations should not be confused with published analysts' forecasts, which tend to be more bullish and are therefore implicitly discounted (if they are used at all) by investors in establishing security market prices. Indeed, this is a major error in the DCF analysis that has been presented in this case by the Applicant’s witness, Dr. Schink. In seeking an equity cost rate one must determine, on the basis of factual information, what the

most reasonable estimate of growth expectations held by investors is at any point in time.

Analysts' Forecasts

Q. HOW HAS DR. SCHINK ESTIMATED THE EXPECTED GROWTH COMPONENT IN HIS DCF CALCULATIONS?

A. Dr. Schink relies upon IBES analysts' earnings forecasts in specifying his assumed values for investor dividend growth expectations for the comparison companies in his DCF analysis. (See Exhibit No. ___ (GRS-2) at 30, line 588.)

Q. ARE THESE FORECASTS USEFUL FOR DCF ANALYSIS?

A. No, they are not. Dr. Schink's reliance upon these analysts' earnings forecasts published by IBES is equivalent to assuming that investors' dividend growth expectations are the same as the IBES analysts' earnings forecasts. That is not likely to be true. First, the IBES analysts do not forecast dividend growth at all. Therefore, at best, their earnings forecasts are no more than some sort of proxy for the growth rate that is relevant in the DCF model. Second, investor expectations are already incorporated in stock market prices. Therefore, investors would not be particularly interested in analysts' growth forecasts if those forecasts were the same as investor expectations and were already reflected in stock market prices. The reason for this is that a forecast containing information already known to investors is essentially useless.

The valuable forecast is one that differs from market expectations when it is published, but is a good forecast of what market expectations will be at some future date. A change in investors' expectations always results in a change in market value, given no change in the cost of equity. Thus, if an analyst is unusually capable of foretelling the future with respect to market assessments, he can identify stocks whose prices will change in the near future.

The value of analysts' forecast to investors depends upon the extent to which the forecasts improve investors' ability to make profitable buy-sell decisions. The purpose of analysts' forecasts is to identify mispriced stocks. If an investor holds a stock whose price increases, the price increase is an extra profit above dividends received. Similarly, if an investor avoids holding a stock whose price falls, he avoids the loss and resultant reduction in his return. To the extent that the analyst can identify the stock whose price should increase (the underpriced stock) and the stock whose price should fall (the overpriced stock), and to the extent that the investor relies upon the analyst's projection, the investor will enjoy a profit (or escape a loss) resulting from the change in market assessments. In other words, an analyst who is an accurate fortune teller when it comes to predicting future market appraisals can improve the ability of investors to succeed at a "buy low, sell high" strategy that all investors seek.

The key to all this, of course, is that: (a) the analyst must know something the market does not know; and (b) the market must eventually acquire some knowledge that leads to a revaluing of the stock to a level consistent with the analyst's

forecast. The successful analyst, therefore, is the one who has information that is not reflected in the market (i.e., does not reflect investor expectations).

Q. ARE THERE OTHER DEFICIENCIES IN RELYING UPON ANALYSTS' FORECASTS IN DCF ANALYSIS?

A. Yes. First of all, common sense supports the view that analysts' projections are unlikely to be the basis for stock prices. Although it is probably true that investors read the particular publications of analysts that happen to be available to them, that does not mean that investors share the often excessive bullishness of analysts when it comes to future growth.

Analysts' projections are made by individuals whose interest is to encourage the highest possible returns from regulatory authorities (thereby increasing stock market prices), and to generate stock and bond trades and income for the firms that they work for. Investors, on the other hand, are likely to be more realistic in assessing the prospects for long-term dividend growth by regulated companies. Investors are undoubtedly aware that regulated profits are typically established on a cost of capital basis. They also know that capital costs are now considerably lower than they have been in recent years. Investors -- at least successful investors -- are realistic in assessing the probable consequences of investment decisions; if they are not, they soon have nothing to invest. Investors' knowledge about the reality of price regulation and their understanding of the "real world" consequences of decisions to invest cash in common shares means they discount what they perceive to be hopes and dreams expressed in analysts' publications.

For this reason, analysts' forecasts are, at best, an overstated proxy for investors' long-term expectations.

The firms that employ securities analysts are most interested in those companies that provide above-average returns to investors. Analysts believe that they know something that the market does not know -- after all, this is how extraordinary profits are obtained. To the extent that analysts are successful in convincing regulators to participate in the endeavor of producing extraordinary returns, there are more profits for all (except, of course, for the ratepayer, who must pay the cost of the extraordinary profits).

Q. ARE THERE OTHER REASONS WHY REGULATORS SHOULD BE SKEPTICAL ABOUT RELYING ON ANALYSTS' PROJECTIONS IN THE RATE SETTING PROCESS?

A. Yes. For many years, securities analysts have been under increasing pressure to make bullish forecasts. Those who do not have sometimes been disciplined or even fired. Securities firms have also been intimidated by companies that threaten to sue or take business elsewhere if analysts issue unfavorable reports. Little wonder that “buy” and “hold” recommendations outpace “sells” by more than 10 to 1.

The common sense conclusion that regulators should be skeptical about relying upon analysts' projections in the rate setting process was documented nearly two

decades ago in a Wall Street Journal article that addressed conflicting interests within investment firms and how that affects analysts' assessments:

> Critics also suggest that analysts face subtle, and not so subtle, pressures to comment favorably on companies. Major investment firms have corporate finance departments that compete avidly for the lucrative business of underwriting corporate stock offerings and other financing transactions. These operations are supposedly kept strictly separate from investment analysis -- by a so-called Chinese wall. But some analysts concede that they well know that panning a stock might cost their firm business (Wall Street Journal, September 28, 1983).

A January 13, 1984, New York Times article made the same point. The article quoted Raymond F. DeVoe, an employee of Legg Mason Wood Walker, Inc.:

> "Most analysts depend upon the company as their prime source of information," Mr. DeVoe said. "Often they reheat this data and pass it on as original thinking. One basic problem is that company executives don't like to admit their mistakes or admit that things are not going exactly right."
>
> One professional investor agrees with this assessment. "Most analysts," he said, "follow the management's views hook, line and sinker."
>
> This problem is compounded by the fact that some analysts lean over backward to treat kindly the companies they cover. This is partly because they feel that harsh criticism of a company may damage lines of communications between analyst and management. Some analysts, too, follow a practice of according overly generous earnings estimates to companies, since this makes a stock easier to recommend. And that, in turn, makes it simpler for a brokerage firm to market the stock to both individual and institutional clients.

Q. HAVE SUBSEQUENT REPORTS UNDERSCORED YOUR RECOMMENDATION THAT REGULATORS SHOULD NOT RELY UPON DCF STUDIES BASED ON ANALYSTS' FORECASTS?

A. Yes. Several years later, the New York Times reported that "dozens of stock analysts have...in recent years [been] cut off from the companies they follow after issuing negative reports."

> ...95 percent of the recommendations made by Wall Street analysts are buy or hold ... because most analysts are afraid of being cut off, and that adulterates the entire system."
>
> Analysts complain that corporate armtwisting has become such a problem of late they are forced to speak with forked tongues. (New York Times, May 15, 1990).

In addition, during the past month Merrill Lynch agreed to pay $100 million to settle charges by New York's Attorney General that Merrill's analysts misled investors by tailoring their "research" to please corporate banking clients, while, at the same time privately deriding the stocks that they publicly touted.

Q. ARE THERE FURTHER PROBLEMS WITH RELYING ON THE IBES FORECASTS THAT ARE USED BY DR. SCHINK?

A. Yes. A particular problem with the IBES data that Dr. Schink has chosen to rely upon is the characterization of those forecasts as a "consensus" when, in fact, there is really considerable disagreement among the analysts about the growth forecasts that Dr. Schink relies on.

Q. PLEASE EXPLAIN THE EVIDENCE TO WHICH YOU ARE REFERRING.

A. As shown in Exhibit No. ___ (JWW-3), Dr. Schink's IBES "forecasts" are, in fact, averages of widely divergent analyst's forecasts. They are neither

independent forecasts nor a “consensus”" forecast. The IBES averages generally have high standard deviations and coefficients of variation. Thus, even if analyst's forecasts were truly objective, the averages used by Dr. Schink are neither reliable nor statistically valid. Indeed, they generally represent a wide range of disagreement between analysts rather than a meaningful consensus.

As IBES has stated in its glossary:

> "the mean or consensus earnings estimate for the time period indicated... is the arithmetic average of all of the earnings forecasts for the time period... [the] Coefficient of variation for the Mean Earnings Estimates for each of the reported fiscal periods...is the standard deviation of the estimates expressed as a percentage of the mean or average estimate. It indicates the percentage range within which about 2/3 of all estimates fall. If the coefficient of variation is small, it means that the analysts are in general agreement. Their forecasts are within a narrow range and are clustered about the mean. If the coefficient of variation is large, it means that the estimates are spread out and not bunched about the mean. The analysts are not reaching a consensus but disagree with each other. The normal range for the coefficient of variation is between 5 and 15. When less than 5, the range of earnings estimates is extremely narrow. When greater than 15, the range of estimates is notably broad."

Thus, according to IBES, the analysts are not reaching a consensus, but disagree with each other when the coefficient of variation for their forecasts exceeds 15. Dr. Schink’s analysis in this case was based upon IBES growth forecasts for 5 pipeline limited partnerships. The IBES reports upon which Dr. Schink’s testimony is based reveal that the average coefficient of variation for his companies was 37.36 – well above the value of 15.0 which IBES, itself, characterizes as “notably broad” and indicative that “the analysts are not reaching a consensus but disagree with each other.” Likewise, all five of Dr. Schink’s comparable

companies had coefficients of variation above 15. Consequently, Dr. Schink's IBES growth forecasts are not a consensus at all, but merely represent wide disagreement between securities analysts.

Using GDP for Long-term Growth

Q. HAS DR. SCHINK MADE ANY OTHER FUNDAMENTAL ERRORS IN HIS ANALYSIS?

A. Yes. Dr. Schink has made a fundamental error in his use of U.S. gross domestic product ("GDP") growth projections as a proxy for the long term growth expectation component of the DCF model. In fairness to Dr. Schink, I presume that this procedure was followed to accommodate the FERC's mistaken precedent which follows this same approach. Nonetheless, it is a clear and fundamental error that this Commission should reject notwithstanding the FERC's failure, thus far, to rectify its mistake.

To properly use GDP growth projections as a reasonable proxy for the long term growth expectation component of the DCF model, it is essential to adjust the aggregate GDP growth values to an estimated growth rate on a per share basis. Dr. Schink has failed to do this.

Q. WHY IS SUCH AN ADJUSTMENT NECESSARY?

A. GDP growth is a totally encompassing economic measure that includes both the growth of existing business enterprises and the addition of new enterprises in the

economy over time. In other words, the economy, as measured by GDP, grows over time for two distinct reasons:

1) Existing business enterprises become larger;
and
2) New business enterprises come into being.

Furthermore, when existing business enterprises grow:

1) New equity capital is often raised from new equity issues; and

2) Existing equity investments grow over time due to retained earnings and other accumulations to existing shares.

As all DCF practitioners are aware, the growth rate that is relevant in the DCF cost of capital model is the rate of growth in dividends per share of stock, and the growth in dividends per share is derived from the growth in earnings per share. Overall, economic growth, such as GDP growth, that is associated with the issuance of new additional shares of stock is not part of earnings or dividend growth per share.

Q. PLEASE ELABORATE.

A. If a company's earnings and the market value of its equity capital doubles over ten years, and it still has the same number of shares outstanding, the value of each share doubles, reflecting a 7.18% annual rate of growth over the ten years:

$$(1.0718)^{10} = 2.0$$

If, on the other hand, a company's earnings and market value double, but this growth is financed by selling additional shares, the resulting per share value is less than double and the annual per share growth rate is less than 7.18%. For example, if total earnings and dividends double while the number of shares increases by 50%, earnings and dividends per share rise by only one-third:

$$\frac{2.0}{1.5} = 1.33$$

If this occurs over a ten year period, the annual growth rate in earnings and dividends per share is 2.89%, not 7.18%.

Likewise, if GDP or total corporate earnings double over 10 years and this reflects growth in the number of corporations as well as growth in the number of shares issued by each corporation, growth per share is less than double.

Between 1980 and 1998, the post tax profits of U.S. corporations grew from $103.5 billion to $541.7 billion or 11.67 percent per year. However, over that same period of time the number of companies listed on the NYSE grew from 1,570 to 3,114, the number of companies listed on NASDAQ grew from 2,894 to 5,126, and the number of shares listed on all exchanges grew from 48.3 billion to 346.1 billion. In contrast to the 500% growth in total earnings over this recent 18 year period, per share earnings growth was much less.

In short, it is obvious that total growth measures, like growth in GDP, total corporate earnings, or total dividends over a long period of time will not provide a good proxy for earnings or dividend growth per share. Over any long period of

time, there will also be substantial growth in population, households, number of investors, number of corporations, and corporate shares outstanding. From 1980 to 1998, cash dividends on common stocks for NYSE listed companies grew from $53.1 billion to $179 billion, or 6.98 percent per year. However, because the number of listed companies also doubled over this same 18-year period and the number of shares listed grew from 33.7 billion to 239.3 billion, dividends per share actually declined.

Q. WHAT IS YOUR RECOMMENDATION TO THE COMMISSION IN THIS CASE?

A. It is clear that if the Commission elects to use a gross measure such as GDP growth as a proxy for the long term growth rate per share component of the DCF model that is employed for rate of return regulation, it is necessary to adjust that value to reflect the difference between total growth and growth per share. It is my recommendation that any GDP growth forecast be reduced by at least 50 percent to reflect per share projections for DCF cost of equity calculations.

DCF Results

Q. HOW DO YOU PROPERLY APPLY THE DCF PRINCIPLES YOU HAVE DISCUSSED TO DETERMINE THE COST ALLOWANCE FOR COMMON EQUITY CAPITAL IN THIS CASE?

A. To estimate Olympic's cost of equity capital, I have focused on publicly held enterprises in three comparable industries. These are: (1) the same five oil

pipeline limited partnerships used by Dr. Schink, (2) natural gas pipelines, and (3) integrated petroleum companies, including the owners of Olympic. The specific companies that I used in each of these industries are as follows:

Oil Pipeline Limited Partnerships

Buckeye Partners, L.P.

Enbridge Energy Partners, LLP

Kaneb Pipe Line Partners, L.P.

Kinder Morgan Energy Partners, L.P.

TEPPCO Partners, L.P.

Natural Gas Pipelines

El Paso Corporation

Equitable Resources, Inc.

Kinder Morgan

National Fuel Gas Company

Questar Corp.

TransCanada Pipelines, Ltd.

The Williams Companies

Integrated Petroleum Companies

Amerada Hess Corporation

Ashland, Inc.

BP, p.l.c.

Chevron Texaco Corp.

Conoco

Exxon Mobil Corp.

Marathon Oil Corporation

Murphy Oil Corporation

Occidental Petroleum

Phillips Petroleum

Royal Dutch Petroleum

Shell Transport & Trading

Sunoco, Inc.

Total Fina Elf S.A.

Unocal Corporation

Q. HOW DID YOU SELECT THESE COMPARABLE COMPANIES?

A. These represent all of the major U.S.[1] companies in each of the respective industries for which adequate data for financial analysis purposes are published regularly in the Value Line Investment Survey. They are the leading publicly owned firms in each of these industries whose stock is traded on the New York Stock Exchange.

Most of these companies have substantial business diversification in addition to their pipeline enterprises. A number of the gas pipelines are also in the gas distribution utility business and even the oil pipeline partnerships have diversified interests. For example, Enbridge operates in the natural gas liquids business; Kinder Morgan has about 10,000 miles each of petroleum products pipelines and natural gas/CO_2 pipelines; and TEPPCO, which is operated by a subsidiary of Duke Energy, is also in the natural gas business.

Q. HOW DO YOU ESTIMATE THE DIVIDEND GROWTH THAT INVESTORS EXPECT WHEN THEY PRICE EQUITY SECURITIES?

A. The DCF equation normally used for regulatory purposes is derived from the more general mathematical statement discussed above that market price is a function of the current dividend (the amount investors expect to receive over the coming year) and the annual growth investors expect for dividend payments

[1] TransCanada Pipeline, of course, is primarily a Canadian company, while Total Fina Elf is primarily European and B.P., Shell and Royal Dutch are European based with major U.S. operations. Most of the other integrated petroleum companies also have significant international operations.

thereafter, over the life of the security. Market price and current dividend are values which are relatively easy to measure, as they are known values.

The growth component is different in character, as there is no published consensus value for the expectations investors hold. As a result, regulators seeking an equity cost rate must determine, on the basis of factual information, what the most reasonable estimate of growth expectations held by investors is at any point in time.

DCF cost of equity indications are presented in Exhibit No. ___ (JWW-4). The reported dividend yields reflect the dividends declared per share in 2001 divided by the average market price per share during the year. For each comparable enterprise, I have shown both historic and projected growth. Historic growth is computed over 15, 10 and 5 year periods through 2001, except in the case of the oil pipeline limited partnerships, where I was able to obtain data for 8 and 5 year periods. Projected growth is the compound annual rate of dividend growth between 2001 and 2006 as projected by the Value Line Investment Survey. Growth averages are somewhat overstated as I have excluded negative values from the calculation. The reported DCF indications weight historic and projected growth equally and the overall average DCF cost of equity indication (9.4%) weights each of these three industries equally. While the results of my DCF analyses produce a general benchmark common equity cost rate estimate, the range of estimates (5.4% to 17.2%) is sufficiently wide that it would be highly desirable to have further information as a basis for a rate of return recommendation in this case.

Fundamental DCF

Q. HAVE YOU PERFORMED ANY ADDITIONAL DCF STUDIES?

A. Yes. I have also performed "fundamental" DCF calculations as an alternative means of estimating common equity costs.

Q. WHAT IS A FUNDAMENTAL DCF CALCULATION?

A. A fundamental DCF calculation uses retained earnings as the measure of expected growth. Because retained earnings provides for growth in equity and growth in equity provides for business growth, the rate of earnings plow-back (i.e., those earnings not paid out in dividends) serves as a basis for estimating future dividend growth. If the funds that are retained and reinvested earn the allowed return and the allowed return is equal to the cost of capital, retained earnings provide a good estimate of future growth.

For example, if a company with a stock price and book value of $50 per share earns $5.00 (10%) and pays out a dividend of $2.50, its dividend yield is 5% (i.e., 2.50/50). Expected growth will also be 5% because the $2.50 that is retained will permit earnings to increase by that amount (i.e., $2.50 x 10% = $0.25 which is 5% of $5.00). Likewise, the retention of $2.50 of earnings within the corporation will cause the book value of its stock to increase by 5% (i.e., $2.50 is 5% of $50.00). In this case, the dividend yield of 5% plus expected growth of 5% equals 10%, which is the cost of capital.

Q. PLEASE DESCRIBE THE RESULTS OF YOUR FUNDAMENTAL DCF ANALYSIS.

A. The results of my fundamental DCF analysis are presented in Exhibit No. ___ (JWW-5). The average indication in this case is 11.8 percent, ranging from 10.8% for the oil pipeline limited partnerships to 12.9% for natural gas pipelines. It should be noted, however, that there were sufficient data for this calculation for only 2 of the 5 oil pipeline partnerships.

Q. WHAT DO YOU CONCLUDE FROM THESE DCF CALCULATIONS?

A. These calculations produce cost of capital estimates in the range of 9.4 – 11.8 percent per year for comparable companies. They also indicate that the much higher cost of equity capital estimates produced by Dr. Schink and used to develop Olympic's proposed pipeline tariffs, appear to be excessive.

IV. CAPITAL ASSET PRICING MODEL

Q. HAVE YOU ALSO PERFORMED CAPITAL ASSET PRICING MODEL STUDIES TO ESTIMATE THE APPROPRIATE RATE OF RETURN ALLOWANCE?

A. Yes, I have.

Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL ("CAPM").

A. The CAPM is, like the DCF model, one of the most widely used techniques to estimate the cost of equity capital. The fundamental principle underlying the CAPM is that investors require compensation for risk when making an investment – that is, a higher return than is required for a riskless investment. In other words, while the DCF model estimates the cost of equity capital directly by examining expected dividend flows and market prices, the CAPM estimates required returns by evaluating the relative risk of alternative investments.

In comparison with the expected return on a risk free investment, a risky investment must provide investors with a risk premium – an expected return higher than the riskless rate. The most commonly used measure of a risk free asset is a short term (e.g., 90 day) U.S. Treasury security, which has little or no default or inflation price risk.

CAPM separates the total risk of an investment into two parts: systematic and unsystematic risk. Systematic risk is unavoidable; it affects all assets to a greater or lesser degree. For example, a sharp rise in inflation would affect all stocks to a greater or lesser degree. The size of the risk premium for each stock is determined in a proportion to the stock's co-movement with the market for all stocks. A stock that is twice as volatile as the average requires a risk premium that is double the average risk premium. A stock that is half as volatile as the average requires a risk premium that is half the average, etc. All systematic risk is rewarded with a risk premium, above the risk free rate of return, that varies in direct proportion to the stock's relative volatility. The relative risk of each stock

is measured by a value known as beta (B), which is a measure of the stock's relative volatility in comparison with the volatility of the entire market.

In contrast, unsystematic risk is that portion of total risk that can be avoided by diversifying. Unsystematic risk is not rewarded with a risk premium.

The CAPM defines the cost of equity for each company's stock as equaling the riskless rate plus an increment equal to the amount of systematic risk that goes with the investment:

$$K_n = R_f + B_n (R_m - R_f)$$

where,

K_n = the cost of equity for company n

R_f = the riskless rate of return

B_n = the beta for the stock of company n

$R_m - R_f$ = the expected market risk premium

(i.e., the average difference between the expected returns on the diversified market portfolio and the riskless return).

Q. WHAT ARE THE APPROPRIATE VALUES FOR THESE VARIABLES IN THIS CASE?

A. At the present time, riskless treasury bills are yielding 1.75%. Thus, $R_f = 0.0175$. With regard to risk premium, recent surveys and academic analyses indicate that

the expected market risk premium R_m is in the range of 3% to 7%. For example, according to Dinson, March and Staunton ("Risks and Returns in the 20th and 21st Centuries," Business Strategy Review, 2000, Volume 11, Issue 2):

> "It has become clear that the current level of the equity risk premium is unlikely to be as high as was considered reasonable in the mid-1990s. The arithmetic mean of 8½% recommended by Ross, Westerfield and Jaffe (1993), the 8-9% suggested (with caveats) by Bealey and Myers (2000), and the 7½% recommended by Wetson, Chung and Sui (1997), and a similar figure inferred from the Copeland, Koller and Murrin (1995) geometric mean of 5-6%, all look excessive. The market is almost certainly building lower risk permia than this into stock prices….The cost of capital has thus fallen substantially in recent years."

Also, according to Eugene F. Fama of the University of Chicago and Kenneth R. French of Massachusetts Institute of Technology, the risk premium over the past half-century was only 4%. Their calculation is based on going back to the past and analyzing what kinds of returns investors had a reasonable right to expect for the future, given companies' dividend yields and expected growth rates. The return they got exceeding 4% was, they say, the result of a series of surprises, such as the end of the cold war and the development of the computer – windfalls that investors do not count on to repeat themselves. Fama and French expect stocks to outperform risk-free securities by only 3% to 3.5% a year in the long term. (See E.F. Fama and K.R. French, "Dividend Yields and Expected Stock Returns," Journal of Financial Economics, 22 (1), 3-25 and "Business Conditions and Expected Returns on Stocks and Bonds," Journal of Financial Economics, 25 (1), 23-49.)

Among the people who have studied the equity premium closely, most think it is probably no more than 3 to 5 percentage points above treasury bills. Still, rank-and-file finance professors continue to peg the long-term premium at about 6 to 7%, according to a comprehensive survey published last year by Ivo Welch, then a professor at UCLA's Anderson School and now of Yale University. Welch, himself, agrees with the 3-5 percent range. According to his analysis, it is more accurate to recommend a 3% geometric equity premium estimate and a 5% arithmetic estimate than the 6% to 7% consensus of the profession. (See Ivo Welch, "Views of Financial Economists on the Equity Premium and on Professional Controversies" (University of California, Los Angeles and Yale University, 2001)).

As shown in Exhibit No. ___ (JWW-6), average beta values in this case are 0.62 for oil pipeline limited partnerships, 0.73 for natural gas pipelines and 0.8 for integrated petroleum companies. Using 0.7 as the beta estimate for Olympic and 7 percent as the market risk premium, the CAPM cost of equity estimate for Olympic is:

$$K = 1.75\% + 0.7\ (7.0\%) = 6.65\%.$$

Assuming that the riskless rate of return may be expected to increase from today's relatively low level during the rate period for this case, CAPM analysis could support an equity return range of 6.0 to 10.0 percent. For example, assuming a 4.0% risk free rate, the indicated return range would be approximately 7 to 9 percent depending on the selected market risk premium value. Beta values for

each of the identified comparable enterprises and further CAPM equity return calculations are shown in Exhibit No. ___ (JWW-6).

Q. IS IT YOUR OPINION THAT IT IS MORE APPROPRIATE TO COMPUTE THE DIFFERENCE BETWEEN EQUITY AND DEBT RETURNS USING GEOMETRIC GROWTH RATHER THAN ARITHMETIC GROWTH?

A. Yes. The historic compounded (or geometric) spread between debt and stock returns is about two percentage points less than the arithmetic growth spreads. In my opinion, most investors are more interested in the compound returns that they can actually obtain over time than in the arithmetic average of annual values.

The following example illustrates why the simple arithmetic annual averages can be misleading: assume that the value of an investment starts at $100.00 and ends at $108.00 after the passage of two full years:

Starting Value	$100.00
Value after 1 year	$ 90.00
Value after 2 years	$108.00

The investor gained $8.00 by acquiring this $100 investment and holding it for two years. That produced a compounded annual return to the investor of 3.923%,

$$\$100 \times 1.03923^{2} = \$108.00$$

But, if one were simply to use the arithmetic average of the annual changes in value, that would produce the illusion that the investor actually obtained 5% per year rather than only 3.9%:

		Annual Change
Starting Value	$100.00	
Value after 1 year	$ 90.00	-10%
Value after 2 years	$108.00	+20%
Average Annual Change		+5%

V. COMPARABLE EARNINGS

Q. HAVE YOU ALSO EXAMINED COMPARABLE EARNINGS FOR INVESTORS IN FIRMS IN THESE COMPARABLE INDUSTRIES?

A. Yes. I have examined the rates of return that are expected to be earned on common equity capital by firms in these industries as well as returns that are expected to be earned in relation to the market price of equity securities. This latter and most relevant comparison is essentially the return on book value divided by the market/book ratio.

Q. WHAT IS A MARKET/BOOK RATIO AND WHY IS IT RELEVANT IN DETERMINING A FAIR COMMON EQUITY RETURN ALLOWANCE?

A. A market/book ratio is the relationship that exists at any time between the value that investors place on a firm's common stock and the stock's book value.

If regulators allow firms to earn rates of return that equal the cost of obtaining capital in the marketplace, then market forces will tend to drive the prices of

stocks toward their book values. Since an individual investor cannot control either the current dividend rate or the dividend growth rate, investors' decisions about the adequacy of returns are reflected by their buy, sell and hold actions. If the expected return exceeds the required return, the price of common stock will be greater than the stock's book value. If the expected return is lower than investor requirements, the market price will tend to fall below book value. If investor expectations and requirements are the same, the stock will tend to trade at a price equal to book value.

Q. IS THIS AN IMPORTANT CONSIDERATION IN RATE REGULATION?

A. Yes. It is an important consideration in rate regulation. If the market price of common stock rises to and remains at a level that is substantially in excess of book value, that is a clear signal to regulators that investors perceive earnings that exceed the cost of capital, and that they have capitalized these expected excess earnings by bidding up the price of common stock to a level greater than the stock's book value. Thus, for example, if an investor purchases common shares at a market price equal to 1.5 times the stock's book value and the company earns a 15 percent rate of return on book value, investors actually realize a smaller return (i.e., 10 percent) on the market value of their investments. Since 15 percent exceeds the return that is required in the marketplace (we know that because, in this example, with a 15 percent return investors bid the stock price up to 150 percent of its book value), the excessive 15 percent return on book value is capitalized (i.e., built into the discounted present value of the security) by investors, thus inflating the market price of stock. While this may result in

windfalls for original stockholders who paid book value for their holdings, the excessive return is an unnecessary expense for ratepayers if it is reflected in allowed rates. Since it is both excessive and unnecessary, this condition should typically be prevented by fair and effective rate regulation. Of course, temporary fluctuations and short-term cycles affect prices, and a stock price varies from its trend over time. This means that, if common equity costs remain about the same over time, and if investors expect future returns equal to the market cost of equity, the price fluctuates within a reasonably narrow range of book value.

Q. IS THERE EVIDENCE AS TO WHAT RETURN ON EQUITY CAPITAL IS EXPECTED TO PRODUCE A MARKET-TO-BOOK RATIO OF 1.0 IN THE PIPELINE INDUSTRY IN THE FUTURE?

A. Yes. The Value Line Investment Survey, which is an excellent source of reported historical financial data, has published projected market-to-book ratios for companies for the period 2005-2007 in recent issues. These are summarized for Dr. Schink's comparable pipeline companies, and for natural gas pipelines and integrated petroleum companies in Exhibit No. ___ (JWW-7). As shown in this Exhibit, it is projected that a 21 percent return on the book value of oil pipeline limited partnerships will produce a market-to-book ratio of 2.21. This, in turn, implies a cost of equity capital for these companies of about 9.5%.

A market price equal to book value indicates that investors expect future earnings rates equal to their required return or cost of capital. To the extent that investors expect that the rate of return earned on book assets will exceed the required return

or cost of capital, there will be a tendency to bid up the market value of stocks to the level at which the expected return in relation to market value equals the required return or cost of capital. Thus, if the required return or cost of capital is 9.5 percent, but investors expect that a 21 percent return will be earned on book value, market prices will be bid up to 2.2 times book value so that the realized return equals the cost of capital (i.e., 9.5%). The implication in this case is that an equity return of 9.5 percent would be sufficient to sustain the stock price at book value,

i.e., 21.0 / 2.21 = 9.53.

Q. HAVE YOU MADE SIMILAR COMPARABLE EARNINGS STUDIES IN THE NATURAL GAS PIPELINE INDUSTRY AND FOR INTEGRATED PETROLEUM COMPANIES?

A. Yes, I have. These results, which indicate equity costs in the 6 to 7 percent range, are shown on pages 2 and 3 of Exhibit No. ___ (JWW-7).

Q. WHY HAVE YOU EXAMINED THESE EXPECTED COMPARABLE EARNINGS RATES?

A. Comparable rates of return from alternative investment opportunities determine the return level that investors can expect to obtain in competitive capital markets at any time. Moreover, comparable returns are generally considered by regulatory commissions and courts in determining “fair earnings” rates in rate proceedings. Indeed, regulatory standards demand that Commissions make an effort to allow

similar profit rates to firms in similar circumstances. In examining comparable earnings data, it is, of course, important to remember that rates of return earned by other regulated companies are determined in some measure by previous regulatory decisions, and they may be either excessive or inadequate for certain firms at certain times. Therefore, while comparable earnings data do provide an essential reference point for any cost of capital decision (indeed, comparable earnings opportunities are the foundation on which investors make their capital commitment determinations and they are therefore the foundation of DCF and other cost of capital models) a simple mathematical extrapolation is not always sufficient.

Q. SHOULD OLYMIC'S RATES INCLUDE A COMMON EQUITY RATE OF RETURN ALLOWANCE EQUAL TO THAT EARNED IN RECENT YEARS BY ENTERPRISES IN THESE COMPARABLE INDUSTRIES?

A. No. Experienced returns may be an approximate benchmark for return authorizations, but there are several reasons why caution should be exercised in simply applying those average rates of return here. First, there is an obvious element of circularity in allowing a rate of return for a given regulated enterprise equivalent to the rate of return which other regulated enterprises are allowed to earn.

Second, earned returns are not the same as required returns. The fact that market to book ratios in these industries are high at the present time means that book

return expectations are substantially higher than are current equity market return requirements.

Q. ARE THERE OTHER PROBLEMS WITH USING EARNED RETURNS FROM THE UNREGULATED SECTOR?

A. Yes. There are some obvious problems in following this approach. Most significantly, unregulated non-utility industries are generally more risky because they are not favored with monopoly franchises and because their profits are less stable and less predictable.

Also, to the extent that earnings in unregulated enterprises exceed the cost of capital, they constitute an inflated regulatory standard. Returns earned by regulated companies on the book value of their common equity need not represent the cost of capital, because it is likely that firms in the unregulated sector may be earning more or less than their cost of capital.

The unregulated sector is not free of monopoly power, which allows some firms and some industries to earn rates of return persistently in excess of their costs of capital. In addition, there are many firms, even in competitive industries, that tend to earn a higher rate of return than the cost of capital, and these firms may well be the largest and most successful in their industries. As a result, many frequently seen groups of industrial and other unregulated companies contain large numbers of highly profitable firms, to which regulated enterprises are not directly comparable. Appropriate comparisons will nevertheless provide some boundaries within which to assess regulated returns.

VI. CAPITAL STRUCTURE

Q. IS CAPITAL STRUCTURE AN IMPORTANT ISSUE IN THIS CASE?

A. Yes. That is so because each source of capital has associated with it a certain level of risk and corresponding return. In a competitive market, a firm must be responsive to the interests of both its customers and investors. Customers are interested in the lowest possible product price; since debt is generally a cheaper source of capital than equity (and short term debt is cheaper than long term debt), consumers would generally prefer to maintain a more leveraged (lower equity %) capital structure. Investors, on the other hand, have a prime concern of return commensurate with risk. They have an interest in balancing the lower cost of debt with the higher financial risk associated with additional leverage. In an unregulated market, a firm balances these interests to keep both its customers and investors and not to lose them to competitors. Competitive forces tend to drive a company's relative usage of debt and equity to the optimal level for that company and that industry. Ideally, a firm will obtain capital funds through a "mix" that will result in the most economical financing of its assets over the long run.

A regulated enterprise that operates in a monopoly environment does not always have these market forces operating to the same extent to balance its use of debt and equity. When a regulated firm capitalizes itself in an inappropriate manner, the burden of this inefficiency falls on the customer. It is a company's prerogative to obtain its capital funds from any source it chooses, but the

Commission has a responsibility to protect consumer interests in determining the allowed rate of return for a regulated enterprise.

The imputation of a reasonable "deemed" capital structure for ratemaking purposes is an adjustment just like any other in a rate case; it is used to calculate a fair rate of return in order to ensure that consumers are not burdened with excessive costs. This does not dictate to management a particular capital structure which must be achieved. As with other ratemaking adjustments, management can still incur the actual costs associated with the capital structure it chooses, but regulators have no obligation to permit them to earn a "fair rate" of return on that capital structure. The deemed capital structure adjustment simply ensures that equity costs above a reasonable level may not be recovered from ratepayers.

Q. WHAT CAPITAL STRUCTURE DOES OLYMPIC RECOMMEND?

A. Olympic's witness, Dr. Schink, recommends establishing a rate of return allowance based on a hypothetical capital structure comprised of 82.92% common equity and 17.08% debt. (See Exhibit No. ___ (GRS-2) at 51-54.)

Q. IS THAT A REASONABLE CAPITAL STRUCTURE FOR RATEMAKING PURPOSES IN THIS CASE?

A. No. That proposed capital structure is much more equity intensive (and much more costly) than would be reasonable for ratemaking purposes in this case. It is also largely arbitrary since it reflects the average capital structure of Olympic's oil industry owners. Before ARCO was acquired by BP, this average was less than

60 percent (and even lower with other owners a few years ago). Because BP's equity ratio is exceptionally high, the ARCO acquisition caused the average parent equity ratio to jump 25 percentage points. This, of course, has nothing to do with any changes in Olympic's operations or risks.

Q. WHAT IS THE COST OF MAINTAINING A HIGH COMMON EQUITY RATIO?

A. The cost of maintaining a high common equity ratio is the resulting higher overall return requirement (including actual or imputed income tax costs) and therefore, high regulated rates, that are attributable to the higher percentage of common equity in the overall capital structure.

Q. IS THERE ANY BENEFIT TO MAINTAINING A HIGH COMMON EQUITY RATIO?

A. The benefit derived from maintaining a high common equity ratio is the savings in capital costs at the margin (if any) which are attributable to low debt leverage. To the extent that the costs of common equity, new debt and preferred stock are reduced as a consequence of a high common equity ratio, the annual savings are the benefits of maintaining high common equity ratios.

It may also be true that, when financial markets are especially risk-averse, companies with high common equity ratios may have greater access to new debt and equity capital. However, above the A bond rating category this advantage is not likely to be significant. This potential benefit is not relevant in this case

because Olympic does not issue its own long-term debt without a guarantee from its owners. (See Exhibit No. ___ (GRS-2) at 51, lines 960-961.)

Q. DO THE BENEFITS OF HIGH COMMON EQUITY RATIOS GENERALLY OFFSET THE COSTS?

A. No, certainly not within the range of common equity ratios generally observed in regulatory proceedings. Although it is true that low common equity ratios should imply greater risk and higher capital costs, the degree to which an excessive common equity ratio contributes to reductions in risk and capital costs, in comparison with an adequate common equity ratio, is most likely to be minimal. The reason for this is that investors do not reduce their return requirements by enough as a result of the high common equity ratio to offset the higher cost of an equity rich capital structure.

A second reason is that the additional costs of new debt and preferred stock issues, even if ratings are lower and issue yields are incrementally higher, are very small in comparison to the large additional overall pre-tax return requirement resulting from the higher common equity ratio. Extraordinarily high common equity ratios, such as those proposed by Dr. Schink in this case, are also not cost beneficial because the income tax allowance charged to ratepayers on the extra common equity capital would more than cancel out any cost savings that might be realized on new debt and preferred stock issues. In this case, I recommend that the Commission set Olympic's revenue requirement and rates at a level reflecting the Company's actual expected income tax costs rather than the income tax costs

that may be implied by the deemed capital structure that is adopted for ratemaking.

Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND IN THIS CASE?

A. My recommendation is that the Commission deem a capital structure for ratemaking purposes of between 50/50 debt/equity and 80/20 debt/equity. The appropriate point within this range depends upon the level of equity commitment by Olympic's owners. If these owners choose to maintain the highly leveraged debt capitalization that exists presently, the selection of an 80/20 debt/equity ratio would be appropriate. On the other hand, if a new major infusion of equity capital is forthcoming to finance the repair and capacity expansion that would be desirable for this facility, the selection of a higher equity ratio (up to a maximum of 50/50) would be appropriate.

Q. IS THIS RECOMMENDATION CONSISTENT WITH PRECEDENTS ESTABLISHED BY THIS COMMISSION?

A. Yes. For example, in American Water Resources, Inc., Docket No. UW-980076 (5th Supplemental Order, 11/24/98) ALJ Moss stated (at 23):

> "One indisputable fact is apparent: AWRI's actual capital structure is highly undesirable because it puts the company at a high risk of financial failure. In addition, AWRI's extraordinary debt ratio probably makes it impossible for the company to borrow funds in conventional markets or attract equity investment from outsiders. This adds to AWRI's overall business risk. Unfortunately, it is AWRI's customers who must bear the risk; they are the ones most vulnerable in the event AWRI fails

> financially. The Commission's goal, then, must be to encourage AWRI to change its capital structure to improve the company's financial structure and stability."

Likewise, in the 6th Supplemental (Final) Order in the same case, the Commission established an 80/20 debt/equity ratio for ratemaking purposes for a company with a 94/6 actual debt/equity ratio and concluded that,

> …imputation of 10 to 15 percent more equity than actual is intended to send a positive signal to AWRI that the Commission favors a more balanced actual capital structure than AWRI presently maintains" (at 8).

AWRI had sought a 50/50 debt/equity ratio for ratemaking purposes in the proceeding.

Q. WHAT IS THE COST OF DEBT THAT YOU HAVE USED IN DEVELOPING YOUR OVERALL RATE OF RETURN RECOMMENDATION?

A. I have used a debt cost rate of 7.0 percent. This rate is slightly higher than the 6¾ percent average debt cost reported for Olympic's integrated petroleum company parents. It is, however, the approximate current cost of high quality long term corporate bonds. In my opinion, this is a reasonable debt cost to employ in this case together with my recommended common equity return allowance and deemed capital structure.

VII. RISK CONSIDERATIONS

Q. DOES OLYMPIC SEEK A RISK PREMIUM ADDER TO ITS ALLOWED RATE OF RETURN BASED ON ALLEGED COMPETITION?

A. Yes. Dr. Schink concludes that a fair rate of return for Olympic must include a further 75 basis point risk premium because of the competitive market risks that Olympic faces. (See Exhibit No. ___ (GRS-2) at 49, lines 922-924.)

Q. DO YOU AGREE?

A. No. Dr. Schink's conclusion is based on the extent to which waterborne transport (i.e., tankers and barges) was able to increase volume on the Olympic route following the accident in June, 1999 that forced Olympic to shut down its operations (which were restored at 80% of original capacity in February of 2001). Dr. Schink's conclusion is wrong. It was not the relative competitive strength of tanker/barge transport that caused Olympic to lose volume and waterborne traffic to gain volume during this period; it was Olympic's accident-induced shutdown. Prior to the accident there was no evidence of a competitive traffic loss to waterborne commerce. Likewise, since the June 2001 reopening there is no evidence that waterborne competition is reducing Olympic's shipments. In short, all of the evidence indicates that it was Olympic's accident, not barge/tanker competition, that caused throughput on the pipeline to drop dramatically after June 10, 1999.

Q. DR. SCHINK REPORTS THAT HIS ANALYSIS SHOWS THAT OLYMPIC'S OUTAGE HAD NO SUSTAINED EFFECT ON REFINED PRODUCTS PRICES AND THAT THERE WAS NOT A SIGNIFICANT INCREASE IN BARGE/TANKER RATES AS THE DEMAND FOR THESE SERVICES INCREASED DURING THE SHUT-DOWN PERIOD. DOES THIS INDICATE THAT OLYMPIC FACES EFFECTIVE COMPETITION FROM WATERBORNE TRANSPORTATION?

A. No. While waterborne transportation costs are significantly higher than pipeline costs, they are still a small fraction of refined product costs and, therefore, not likely to have a significant impact on ultimate market prices. Moreover, the fact that barge and tanker rates did not increase significantly as demand grew may indicate that there is competition between operators in the barge and tanker industry, but it does not indicate that barges and tankers can compete effectively for traffic with Olympic when and if the pipeline is operating. Far more telling in this regard is Dr. Schink's testimony regarding Olympic's capacity-constrained situation and need for expansion:

> "even before the incident at Whatcom Creek, Olympic was capacity constrained" (See Exhibit No. ___ (GRS-2) at 25, lines 479-480.)

The fact that barge/tanker capacity is available, and yet Olympic, when operating, approaches its capacity constraint limit, is powerful evidence that Dr. Schink's competitive risk theory lacks merit. There is simply no evidence that Olympic should receive a risk premium (or an allowance at the upper end of the otherwise

reasonable range) because it faces a likely major loss of throughput to waterborne competitors.

Q. IS THERE OTHER EMPIRICAL EVIDENCE DEMONSTRATING THAT REGULATED ENTERPRISES WHICH PROVIDE ESSENTIAL SERVICES UNDER LARGELY MONOPOLISTIC MARKET CONDITIONS ARE LESS RISKY BUSINESSES THAN COMPETITIVE UNREGULATED ENTERPRISES?

A. Certainly. Analyses of stock market indices such as Beta coefficients establish the comparatively stable, low-risk nature of common stock investments in regulated industries.

Q. WHAT ARE BETA COEFFICIENTS?

A. As discussed above in the context of the CAPM analysis, the Beta coefficient for the common stock of a particular firm is a measure of the sensitivity of that stock's price to overall fluctuations in the stock market average. A Beta coefficient of 1.5, for example, indicates that the price of a stock tends to rise (or fall) 1.5 percent with a 1.0 percent rise (or fall) in the New York Stock Exchange Composite Average. Beta coefficients, as reported regularly by Value Line, are derived from a least squares regression analysis between weekly percent changes in the price of a stock and weekly percent changes in the New York Stock Exchange Composite Average.

Q. HAVE YOU EXAMINED THE BETA COEFFICIENTS FOR OIL PIPELINES AND OTHER COMPARABLE ENTERPRISES IN REACHING YOUR CONCLUSION THAT OLYMPIC IS LESS RISKY THAN THE MARKET AS A WHOLE?

A. Yes, the Beta coefficients for comparable enterprises are shown on Exhibit No. ___ (JWW-6). The average Beta coefficient for these companies is considerably less than 1.0. This means that, on average, common stocks for these comparable enterprises, and especially for oil pipelines, are less volatile (i.e., less risky) than the stock market as a whole.

Q. ARE THERE ALSO OTHER COMPREHENSIVE, ANALYTICAL DATA TO DEMONSTRATE THAT COMMON STOCK INVESTMENTS IN REGULATED INDUSTRIES ARE LESS RISKY THAN INVESTMENTS IN UNREGULATED INDUSTRIES?

A. Yes. For example, Value Line also publishes indices of safety, price stability and earnings predictability for a wide variety of firms in all sectors of the economy. As shown in Exhibit No. ___ (JWW-8), the oil pipeline industry has an average safety index of 2 on a scale from 1 to 5, where 1 is the highest safety rating. Also, price stability ranks at the upper end of the scale from 5 to 100 where 100 is the highest stability rating. Finally, the industry's average earnings predictability index is also relatively high on a scale from 5 to 100 where 100 is the highest predictability rating.

This greater risk for non-regulated firms, of course, is logical. Businesses that operate in more competitive markets have uncertain returns because competitors may erode the company's market share or bring the available market price below the cost levels of a higher cost provider. Customers' tastes may also change or economic cycles may affect the demand for goods or services. These are not risks that Olympic faces, and it would be an error to allow the competitive risks adder proposed by Dr. Schink.

VIII. CONCLUSION

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION CONCERNING THE RATE OF RETURN ON COMMON EQUITY CAPITAL AND THE OVERALL RATE OF RETURN APPROPRIATE FOR OLYMPIC IN THIS CASE.

A. My analysis indicates that, at the present time, investors require an 8.0 to 10.0 percent return on common equity in comparable enterprises. As summarized on page 2 of Exhibit No. ___ (JWW-9), this conclusion is consistent with the DCF, CAPM and comparable expected market earnings evidence that I have presented in this case. My recommendation is that the Commission allow 9.0 percent, the mid-point of the range, on the common equity portion of the capital structure used to set Olympic's rates in this Docket. This, combined with a 7.0 percent cost allowance for debt capital and an 80/20 debt/equity deemed capital structure, produces an overall rate of return allowance recommendation of 7.4%. Alternatively, given a significant increase in equity capital so as to achieve a

target capitalization of 50% debt/equity, the corresponding overall return allowance would be 8.0%. These recommendations are summarized in Exhibit No. ___ (JWW-9).

Q. DOES THIS COMPLETE YOUR PREPARED DIRECT TESTIMONY IN THIS CASE?

A. Yes; it does.