Exhibit No.
Issue: Cost of Capital
Witness: James H. Vander Weide, Ph.D.
Type of Exhibit: Surrebuttal Testimony
Sponsoring Party: Empire District
Case No. R-2006-0351

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

SURREBUTTAL TESTIMONY

OF

JAMES H. VANDER WEIDE, PH.D.

August 2006

SURREBUTTAL TESTIMONY
OF
DR. JAMES H. VANDER WEIDE
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2006-0351

Q. WHAT IS YOUR NAME AND BUSINESS ADDRESS?

A. My name is James H. Vander Weide. I am Research Professor of Finance and Economics at the Fuqua School of Business of Duke University. I am also President of Financial Strategy Associates, a firm that provides strategic and financial consulting services to corporate clients. My business address is 3606 Stoneybrook Drive, Durham, North Carolina.

Q. ARE YOU THE SAME JAMES H. VANDER WEIDE WHO PRESENTED DIRECT AND REBUTTAL TESTIMONIES IN THIS PROCEEDING BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION ("COMMISSION")?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I have been asked by The Empire District Electric Company ("Empire" or "the Company") to review the rebuttal testimonies of Mr. David Murray, Mr. Mark L. Oligschlaeger, and Mr. Charles W. King, and to respond to their comments regarding Empire's cost of equity. Mr. Murray's and Mr. Oligschlaeger's testimonies are presented on behalf of the Staff of the

Commission ("Staff"), and Mr. King's testimony is presented on behalf of the Office of the Public Counsel of the State of Missouri ("OPC").

I. SURREBUTTAL OF MR. MURRAY

Q. WHAT IS THE PURPOSE OF MR. MURRAY'S REBUTTAL TESTIMONY?

A. Mr. Murray's rebuttal testimony presents his response to my direct testimony in this proceeding.

Q. WHAT ISSUES DOES MR. MURRAY RAISE IN HIS RESPONSE TO YOUR DIRECT TESTIMONY?

A. Mr. Murray criticizes my direct testimony on the grounds that: (1) my recommended financial risk adjustment allegedly is inconsistent with my testimony filed 25 years ago in a 1982 Carolina Power & Light ("Carolina Power") case in South Carolina; (2) my recommended proxy group is also inconsistent with my testimony in the 1982 Carolina Power case; (3) my estimated weighted average cost of capital for my proxy companies exceeds the discount rate UBS used to value Missouri Gas in a presentation to Empire's Board; and (4) my recommended weighted average cost of capital for my proxy companies exceeds the expected return on pension plan assets Empire's actuary, Towers Perrin, used to estimate the appropriate amount of funding for Empire's pension plan.

A. FINANCIAL RISK ADJUSTMENT

Q. HOW DO YOU ESTIMATE EMPIRE'S COST OF EQUITY IN THIS PROCEEDING?

A. I estimate Empire's cost of equity by: (1) estimating the average cost of equity for a large proxy group of comparable risk companies, and (1) adjusting the proxy group's estimated cost of equity to reflect the difference between the proxy group's average financial risk and the financial risk implicit in Empire's recommended capital structure.

Q. HOW DO YOU MEASURE YOUR PROXY GROUP'S AVERAGE FINANCIAL RISK?

A. I measure my proxy group's average financial risk using data on the percentages of debt and equity in the group's composite market value capital structure.[1]

Q. HOW DO FINANCIAL ECONOMISTS MEASURE THE RISK OF INVESTING IN A COMPANY'S STOCK?

A. Financial economists generally measure the risk of investing in a company's stock by the variance of the expected rate of return earned by a company's shareholders in the marketplace.

Q. DOES THE RISK OF INVESTING IN A COMPANY'S STOCK DEPEND ON THE COMPANY'S CAPITAL STRUCTURE?

A. Yes. It can be easily demonstrated that the variance of return to shareholders depends on the company's capital structure measured using market values. The impact of the company's market value capital

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[1] In measuring the debt component of the market value capital structure, I used the book value of debt as a surrogate for the market value of debt. Use of book debt values as surrogates for market values is common in the financial community because the book value of debt is generally approximately equal to the market value of debt.

structure on the variance in return to shareholders is frequently termed, "financial risk."

Q. IS THERE ANY MEANINGFUL RELATIONSHIP BETWEEN A COMPANY'S BOOK VALUE CAPITAL STRUCTURE AND THE VARIANCE OF RETURN TO SHAREHOLDERS IN THE MARKETPLACE?

A. No. The variance of the market return to shareholders depends on the company's market value capital structure, not its book value capital structure.

Q. CAN YOU ILLUSTRATE WHY FINANCIAL RISK DEPENDS ON MARKET VALUES RATHER BOOK VALUES?

A. Yes. Assume that an individual buys a house at year end 2000, for a price of $200,000, and finances the purchase price with a $160,000 interest-only mortgage. Thus, the book value of the individual's equity in the house is $40,000. Now assume that, by year end 2005, the value of the house has increased to $300,000. Since the principal in the mortgage has not declined, the market value of the equity in the house is now $140,000 ($300,000 - $160,000 = $140,000). However, the book value of the equity is still $40,000. Finally, assume that by year end 2006, the market value of the house declines to $250,000. Does the $40,000 book value of the house have any impact on the risk of a decline in market value during 2006? Clearly, the answer is no. Since the market value of the house was $300,000 at the beginning of the year, the

$50,000 decline in the market value still leaves the market value of the house ($250,000) well in excess of the $160,000 mortgage. The fact that the book value of the house is $40,000 is totally irrelevant.

Q. DOES MR. MURRAY DISPUTE THE ECONOMIC REASONING BEHIND YOUR CONCLUSION THAT FINANCIAL RISK DEPENDS ON A COMPANY'S MARKET VALUE CAPITAL STRUCTURE?

A. No, he does not.

Q. DOES MR. MURRAY DISPUTE THE ECONOMIC REASONING BEHIND YOUR RECOMMENDED FINANCIAL RISK ADJUSTMENT IN THIS PROCEEDING?

A. No, he does not.

Q. WHAT, THEN, IS THE BASIS FOR MR. MURRAY'S DISAGREEMENT WITH YOUR USE OF A FINANCIAL RISK ADJUSTMENT IN THIS PROCEEDING?

A. Mr. Murray claims that my use of a financial risk adjustment in this case, at a time when the average market-to-book ratio of electric utilities is significantly greater than 1.0, is inconsistent with my failure to recommend a financial risk adjustment in testimony for Carolina Power, in a case filed approximately 25 years ago, at a time when the average market-to-book ratio for electric utilities was less than 1.0.

Q. DO YOU RECALL THE GENERAL ECONOMIC ENVIRONMENT IN WHICH CAROLINA POWER OPERATED IN THE EARLY 1980S?

A. Yes. Carolina Power operated in an economic environment characterized by soaring inflation, high capital expenditures, and increasing regulatory uncertainty. Specifically, Carolina Power was seeking relatively large rate increases to recover the costs of a major nuclear construction program begun in the early 1970s when demand was growing rapidly. After its construction program was begun, the Federal government passed additional safety and environmental requirements for nuclear power plants that significantly increased the cost of construction. Construction costs also increased significantly as a result of rapidly rising inflation. To make matters worse, the economy began to slow in the early 1980s, causing a decline in the demand for electricity. Given strong public reaction to the possibility of significant rate increases in a weak economic environment, regulators were reluctant to set rates that would allow Carolina Power and other electric utilities an opportunity to earn their costs of capital. In short, the early 1980s was a difficult time for electric utilities such as Carolina Power.

Q. WHAT WAS THE LEVEL OF LONG-TERM INTEREST RATES AT THE TIME YOU PREPARED YOUR CAROLINA POWER TESTIMONY IN LATE 1981?

A. At the time I prepared my testimony in late 1981, interest rates on A-rated utility bonds exceeded 17.0 percent. For the year, the average interest rate on A-rated utility bonds in 1981 was 15.95 percent, and, in 1982, the average interest rate was 15.86 percent.

Q. WHAT WAS THE LEVEL OF ALLOWED RATES OF RETURN ON EQUITY FOR ELECTRIC AND GAS UTILITIES AT THAT TIME?

A. Allowed rates of return on equity were in the range 13 percent to 16 percent. (I have been informed by Progress Energy that Carolina Power's allowed rate of return in the Carolina Power case cited by Mr. Murray was 14.5 percent.)

Q. WHAT IS THE PURPOSE OF A FINANCIAL RISK ADJUSTMENT?

A. The purpose of a financial risk adjustment is to allow investors in regulated utilities an opportunity to earn a rate of return on their equity investments commensurate with returns they could earn on other investments of similar risk.

Q. WOULD A FINANCIAL RISK ADJUSTMENT EQUIVALENT TO THAT WHICH YOU ARE RECOMMENDING IN THIS PROCEEDING HAVE PROVIDED CAROLINA POWER AN OPPORTUNITY TO EARN A RATE OF RETURN ON EQUITY COMMENSURATE WITH RETURNS INVESTORS COULD EARN ON OTHER INVESTMENTS OF SIMILAR RISK?

A. No. At the time I prepared my testimony in late 1981, interest rates on A-rated utility bonds exceeded 17 percent. Since equity investments are more risky than bond investments, the cost of equity was higher than 17 percent. However, commissions were allowing rates of return on equity that were generally less than the yield on A-rated utility bonds and were disallowing major investments in generation facilities. Thus, a

financial risk adjustment similar to the risk adjustment I am proposing in this proceeding would have only increased the likelihood that Carolina Power would be unable to earn its cost of capital.

Q. ON A PURELY LOGICAL BASIS, DOES IT MAKE SENSE TO ARGUE THAT BECAUSE YOU FAILED TO RECOMMEND A FINANCIAL RISK ADJUSTMENT 25 YEARS AGO, YOU SHOULD NOT RECOMMEND A FINANCIAL RISK ADJUSTMENT NOW?

A. No. My recommendation here must be judged on its merits. I have shown that financial theory and practice require the adjustment I have proposed, whereas Mr. Murray has failed to provide any reasonable basis for rejecting the fundamental economic reasoning and correctness of my financial risk adjustment. At best, Mr. Murray's argument only suggests in hindsight that perhaps I should have considered a financial risk adjustment in 1981. For the reasons cited above, however, such a recommendation would have been ill advised. Thus, Mr. Murray's argument certainly does not suggest that my recommended financial risk adjustment in this proceeding is inappropriate.

Q. MR. MURRAY IMPLIES THAT YOUR RECOMMENDATION TO USE A FINANCIAL RISK ADJUSTMENT IN THIS PROCEEDING MAY BE OPPORTUNISTIC. DO YOU AGREE WITH HIS ASSESSMENT OF YOUR REASONS FOR RECOMMENDING SUCH AN ADJUSTMENT IN THIS PROCEEDING?

A. No. I recommend a financial risk adjustment because such an adjustment: (1) is consistent with financial and economic theory; and (2) properly adjusts the cost of equity for the difference in the financial risk embedded in my cost of equity estimate and the financial risk implied by Empire's recommended capital structure.

B. PROXY COMPANIES

Q. WHAT PROXY COMPANIES DO YOU RECOMMEND FOR THE PURPOSE OF ESTIMATING EMPIRE'S COST OF EQUITY?

A. I recommend the large group of proxy companies shown on Schedules JVW-1 and JVW-2 of my direct testimony.

Q. WHY DO YOU RECOMMEND USING A LARGE GROUP OF COMPARABLE RISK COMPANIES TO ESTIMATE EMPIRE'S COST OF EQUITY?

A. As explained in my earlier testimonies, I recommend using a large proxy group of comparable risk companies because use of such a group increases the reliability of my cost of equity estimates and is consistent with the U.S. Supreme Court mandate in the *Hope* and *Bluefield* cases that the utility should be allowed to earn a return commensurate with returns they could achieve if they invested in other companies of comparable risk.[2]

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[2] *See Bluefield Water Works and Improvement Co. v. Public Service Comm'n.* 262 U.S. 679, 692 (1923) and *Hope Natural Gas Co*., 320 U.S. at 603.

Q. DID YOU PROVIDE EVIDENCE IN YOUR TESTIMONY THAT YOUR PROXY COMPANIES ARE REASONABLE PROXIES FOR THE RISK OF INVESTING IN EMPIRE?

A. Yes. On pages 29-32 and Schedules JVW-1 and JVW-2 of my direct testimony and pages 14-15 and Rebuttal Schedule JVW-1 of my rebuttal testimony, I provided evidence that my proxy companies are, in fact, conservative proxies for the risk of investing in Empire. By the word "conservative," I mean that my group of proxy companies is, if anything, less risky than Empire; and hence, the cost of equity for my proxy companies understates Empire's cost of equity.

Q. DID MR. MURRAY ATTEMPT TO REFUTE YOUR EVIDENCE THAT YOUR PROXY COMPANIES ARE CONSERVATIVE PROXIES FOR THE RISK OF INVESTING IN EMPIRE?

A. No, he did not.

Q. DID MR. MURRAY PROVIDE ANY EVIDENCE THAT YOUR USE OF PROXY COMPANIES IS INCONSISTENT WITH THE U.S. SUPREME COURT'S MANDATE THAT THE UTILITY SHOULD BE ALLOWED TO EARN A RETURN COMMENSURATE WITH RETURNS INVESTORS COULD ACHIEVE ON OTHER INVESTMENTS OF COMPARABLE RISK?

A. No, he did not.

Q. DID THE COMMISSION ACCEPT YOUR ARGUMENT IN FAVOR OF USING A GROUP OF COMPARABLE RISK COMPANIES TO

ESTIMATE EMPIRE'S COST OF EQUITY IN DOCKET NO. ER-2004-0570?

A. Yes.

Q. DOES MR. MURRAY AGREE WITH YOUR RECOMMENDATION TO ESTIMATE EMPIRE'S COST OF EQUITY BASED ON THE COST OF EQUITY RESULTS FOR A PROXY GROUP OF COMPARABLE RISK COMPANIES?

A. No. Although Mr. Murray applies the DCF model to a proxy group of electric utilities, he asserts that he prefers to estimate Empire's cost of equity by applying the DCF model to Empire alone [Murray direct at page 34].

Q. DOES MR. MURRAY PRESENT ANY ARGUMENT IN HIS REBUTTAL TESTIMONY AGAINST YOUR RECOMMENDATION TO ESTIMATE EMPIRE'S COST OF EQUITY BY APPLYING COST OF EQUITY MODELS TO A PROXY GROUP OF COMPARABLE RISK COMPANIES?

A. Yes. Mr. Murray argues that my recommendation to use a proxy group of companies is inconsistent with a DCF analysis I presented in the 1982 Carolina Power case cited above.

Q. DOES YOUR COST OF EQUITY ANALYSIS IN THE 1982 CAROLINA POWER CASE INVALIDATE YOUR CURRENT RECOMMENDATION TO ESTIMATE EMPIRE'S COST OF EQUITY BASED ON DATA FOR A PROXY GROUP OF COMPARABLE RISK COMPANIES?

A. No. In the early 1980s it was common for regulators and witnesses to rely on single-company analyses to estimate the regulated company's cost of equity. Since the 1982 Carolina Power case was my first testimony for an electric utility, I followed the then-current practice in the field. Subsequently, I realized that I could improve the reliability of my cost of equity estimate by applying the DCF and other cost of equity methodologies to a proxy group of comparable risk companies. Since the mid-1980s, most commissions and experts have used proxy groups, not single companies, to estimate a regulated company's cost of equity.

C. THE UBS DISCOUNT RATE

Q. DOES MR. MURRAY ATTEMPT TO PROVIDE ANY ADDITIONAL EVIDENCE IN HIS REBUTTAL TESTIMONY TO SUPPORT HIS VIEW THAT YOUR ESTIMATE OF EMPIRE'S COST OF EQUITY IS TOO HIGH?

A. Yes. Mr. Murray provides evidence on: (1) the discount rate UBS Investment Bank ("UBS") used to value Missouri Gas in a presentation made to Empire's Board of Directors; and (2) the expected return on pension plan assets used by Empire's actuary, Towers Perrin, to determine the proper funding level for Empire's pension plan.

Q. WHAT DISCOUNT RATE DID UBS USE TO VALUE MISSOURI GAS IN ITS PRESENTATION TO EMPIRE'S BOARD?

A. UBS used a discount range from 6 percent to 8 percent (see response to Data Request 0234).

Q. HOW DID UBS ARRIVE AT ITS DISCOUNT RATE RANGE?

A. UBS arrived at its discount rate range by first estimating an after-tax weighted average cost of capital range for Missouri Gas (6.273 percent to 8.273 percent), and then rounding this estimate down to the nearest whole number (6 percent to 8 percent).

Q. WHAT INPUTS DID UBS USE TO OBTAIN ITS ESTIMATE OF THE AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL FOR MISSOURI GAS?

A. UBS used a cost of debt of 5.3 percent, an average cost of equity of 11.13 percent (the midpoint of the range 9.13 percent to 13.13 percent), a tax rate of 35 percent, and a capital structure containing 50 percent debt and 50 percent equity. The UBS cost of capital estimate is shown below in Table 1.

Table 1
UBS Estimate of Missouri Gas Cost of Capital at September 2005

Capital Source	*Percent*	*Cost Rate*	*After-tax Cost Rate*	*Weighted Cost*
Long-term Debt	50.00%	5.3%	3.45%	1.72%
Common Equity	50.00%	11.1%	11.1%	7.55%
Total	100.00%			7.27%

Q. HOW DID UBS ARRIVE AT ITS ESTIMATE OF ITS COST OF EQUITY FOR MISSOURI GAS?

A. UBS applied the Capital Asset Pricing Model ("CAPM") with the following inputs: risk-free rate of 4.3 percent; beta estimate of 0.67; risk premium on the market portfolio, 7.2 percent; and size premium, 0.0% to 4.0% (see Table 2 below).

Table 2
UBS Estimate of Missouri Gas Cost of Equity at September 2005

Risk-free Rate	4.30%
Beta	0.67
Risk Premium	7.20%
Beta x Risk Premium	4.82%
Size Premium	0.0% -4.0%
CAPM cost of equity, no premium	9.12%
CAPM cost of equity, with size premium	13.12%
Average CAPM cost of equity	**11.12%**

Q. HOW DOES MR. MURRAY ESTIMATE EMPIRE'S COST OF EQUITY IN THIS PROCEEDING?

A. Mr. Murray bases his recommended cost of equity for Empire primarily on his DCF analysis. He uses the CAPM only to check the reasonableness of his DCF results.

Q. HOW DOES THE UBS AVERAGE 11.12 PERCENT ESTIMATE OF THE COST OF EQUITY FOR MISSOURI GAS COMPARE TO MR. MURRAY'S ESTIMATE OF EMPIRE'S COST OF EQUITY?

A. The UBS average 11.12 percent estimate of the cost of equity for Missouri Gas is 152 to 162 basis points higher than Mr. Murray's 9.5 percent to 9.6 percent estimate of Empire's cost of equity.

Q. WHAT IS THE TIME PERIOD FOR THE DATA INPUTS IN THE UBS ANALYSIS OF THE COST OF EQUITY AND AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL FOR MISSOURI GAS?

A. UBS used input data at September 2005 to estimate the cost of equity and the after-tax weighted average cost of capital for Missouri Gas.

Q. HAVE THERE BEEN ANY CHANGES IN THE CAPITAL MARKETS SINCE UBS CONDUCTED ITS ANALYSIS OF THE AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL FOR MISSOURI GAS?

A. Yes. Long-term interest rates have increased by approximately 100 basis points since the time of the UBS analysis, and electric utility betas have increased by approximately 11 basis points since that time. For example, the average Value Line beta for my proxy group of electric utilities has increased from 0.84 to 0.95.

Q. WHAT WOULD BE THE IMPACT OF A 100-BASIS POINT INCREASE IN INTEREST RATES ON THE UBS ESTIMATE OF THE COST OF EQUITY FOR MISSOURI GAS?

A. Because the CAPM cost of equity moves in direct proportion to interest rates, a100-basis point increase in interest rates would increase the UBS estimate of the Missouri Gas cost of equity by 100 basis points.

Q. WHAT WOULD BE THE IMPACT OF AN 11-BASIS POINT INCREASE IN BETA ON THE UBS ESTIMATE OF THE COST OF EQUITY FOR MISSOURI GAS?

A. An 11 basis point increase in the beta input would increase the UBS cost of equity for Missouri Gas by 78 basis points.

Q. WHAT AVERAGE CAPM COST OF EQUITY WOULD THE UBS ANALYSIS HAVE PRODUCED FOR MISSOURI GAS IF THE ANALYSIS WERE UPDATED TO INCLUDE BOTH RECENT CHANGES IN INTEREST RATES AND BETA?

A. An updated CAPM analysis using the UBS methodology would produce an average cost of equity equal to 12.84 percent (the midpoint of the range 10.84 percent to 14.84 percent) [5.3 percent risk-free rate + (0.78 beta x 7.1 percent market risk premium) = 10.84 percent + 4.0 percent size premium = 14.84 percent CAPM cost of equity]. (See Table 3.)

Table 3
Updated CAPM Estimate of Missouri Gas Cost of Equity Using the UBS Methodology

Risk-free Rate	5.30%
Beta	0.78
Risk Premium	7.10%
Beta x Risk Premium	5.54%
Size Premium	0.0% - 4.0%
CAPM cost of equity, no size premium	10.84%
CAPM cost of equity, with size premium	14.84%
Average CAPM cost of equity	**12.84%**

Q. MR. MURRAY CLAIMS THAT THE UBS COST OF CAPITAL ANALYSIS FOR MISSOURI GAS DEMONSTRATES THE UNREASONABLENESS OF YOUR RECOMMENDED 11.7 PERCENT COST OF EQUITY FOR EMPIRE IN THIS PROCEEDING. DO YOU AGREE WITH MR. MURRAY'S ASSESSMENT?

A. No. To the contrary, the September 20, 2005, UBS cost of equity estimate of 11.1 percent is significantly closer to my recommended 11.7 percent cost of equity for Empire than to Mr. Murray's 9.5 percent to 9.6 percent estimate of the cost of equity. Furthermore, the updated 12.84 percent estimate of the cost of equity using the UBS methodology strongly supports the reasonableness of my recommended 11.7 percent

estimate of Empire's cost of equity and the unreasonableness of Mr. Murray's 9.5 percent to 9.6 percent estimate of Empire's cost of equity.

Q. YOU NOTED ABOVE THAT UBS USED AN AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL OF 7.0 PERCENT TO VALUE MISSOURI GAS. WHAT AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL IS SUGGESTED BY THE UBS ANALYSIS WHEN THE RECENT INCREASE IN INTEREST RATES AND BETAS ARE ALSO CONSIDERED?

A. If the UBS analysis is updated for recent increases in interest rates and beta, the midpoint after-tax weighted average cost of capital is 8.5 percent. (See Table 4.)

Table 4
Updated Estimate of Missouri Gas After-tax Weighted Average Cost of Capital
Using the UBS Methodology

Capital Source	*Percent*	*Cost Rate*	*After-tax Cost Rate*	*Weighted Cost*
Long-term Debt	50.00%	6.4%	4.16%	2.08%
Common Equity	50.00%	12.84%	12.84%	6.42%
Total	100.00%			8.50%

Q. WHAT RECOMMENDED COST OF EQUITY WOULD YOU HAVE OBTAINED FOR EMPIRE IF YOU HAD USED AN 8.5 PERCENT MIDPOINT AFTER-TAX WEIGHTED AVERAGE COST OF CAPITAL?

A. My estimate of Empire's adjusted cost of equity based on an 8.5 percent after-tax weighted average cost of capital would be 12.7 percent.

D. The Towers Perrin Expected Rate of Return on Pension Assets

Q. WHAT RATE OF RETURN DID TOWERS PERRIN ASSUME ON PENSION PLAN ASSETS WHEN IT RECENTLY ESTIMATED THE PROPER FUNDING LEVEL FOR EMPIRE'S PENSION PLAN?

A. Towers Perrin assumed an expected return on pension plan assets of 8.5 percent for this purpose.

Q. IS THE EXPECTED RETURN ON PENSION PLAN ASSETS CONCEPTUALLY SIMILAR TO YOUR ESTIMATE OF EMPIRE'S COST OF EQUITY?

A. No. There are two differences between Towers Perrin's estimate of the expected return on Empire's pension plan assets and my estimate of Empire's cost of equity. First, since Towers Perrin's 8.5 percent expected return on pension plan assets is the expected return on a portfolio of both stocks and bonds, it is more comparable to a weighted average cost of capital than to a cost of equity. Second, it is common for actuaries to use extremely conservative estimates of the expected return on pension plan assets to estimate the proper funding for a company's pension plan in order to protect the company's employees. Thus, it would be reasonable to conclude that Empire's weighted average cost of capital is higher than the Towers Perrin expected return on pension plan assets.

Q. DOES TOWERS PERRIN'S 8.5 PERCENT EXPECTED RETURN ON PENSION PLAN ASSETS DEMONSTRATE THE

UNREASONABLENESS OF YOUR COST OF EQUITY ESTIMATE, AS MR. MURRAY ASSERTS?

A. No. The Towers Perrin 8.5 percent expected return on pension plan assets, on an after-tax basis, is approximately equal to the 8.361 percent after-tax weighted average cost of capital I used for the purpose of calculating my financial risk adjustment. Thus, contrary to Mr. Murray's argument, the Towers Perrin 8.5 percent expected return supports my recommended cost of equity for Empire.

Q. WHAT EXPECTED RATE OF RETURN ON U.S. EQUITIES DID TOWERS PERRIN USE IN DEVELOPING ITS 8.5 PERCENT EXPECTED RETURN ON PENSION PLAN ASSETS?

A. Towers Perrin used two estimates of the expected rate of return on U.S. equities to develop its 8.5 percent expected return on pension plan assets, one for the S&P 500 and one for the Russell 2000, an index that includes smaller companies in addition to the large cap companies included in the S&P 500.

Q. WHAT ARE THE TOWERS PERRIN ESTIMATES OF THE EXPECTED RETURNS ON THE S&P 500 AND RUSSELL 2000?

A. Towers Perrin conservatively estimated a return on the S&P 500 in the range 7.8 percent to 8.9 percent, and on the Russell 2000, a return in the range 11.6 percent to 12.6 percent.

Q. WHICH OF THESE TWO INDICES IS MORE INFORMATIVE FOR ESTIMATING THE COST OF EQUITY FOR EMPIRE?

A. The Russell 2000 is more informative for estimating Empire's cost equity because it includes the returns on small capitalization companies such as Empire, while the S&P 500 only includes large capitalization stocks. The financial literature has demonstrated that small capitalization stocks such as Empire have higher required returns than large capitalization stocks.

Q. HOW DID TOWERS PERRIN ESTIMATE THE EXPECTED RETURN ON THE S&P 500 AND THE RUSSELL 2000?

A. Towers Perrin estimated the expected return on these two stock indices using historical return data compiled by Ibbotson Associates for the 40-year period from 1966 though 2005.

Q. WHAT WAS THE ACTUAL RETURN ON THE S&P 500 FOR THE FORTY-YEAR PERIOD 1966 THROUGH 2005?

A. As shown on page 83 of the Ibbotson Associates 2006 Yearbook, Valuation Edition, the actual return on the S&P 500 over this period was 11.6 percent.

Q. DOES IBBOTSON ASSOCIATES RECOMMEND USING THE 40-YEAR PERIOD FROM 1966 THROUGH 2005 TO ESTIMATE THE EXPECTED RETURN ON THE S&P 500?

A. No. Ibbotson Associates strongly recommends using the 80-year period from 1926 through 2005 to estimate the expected return on the S&P 500. Over the period from 1926 through 2005, the return on large company stocks was 12.3 percent, and the risk premium was 7.1 percent. When

the long-run risk premium of 7.1 percent is added to the expected 5.5 percent yield on long-term Treasury bonds, one obtains a cost of equity estimate for the S&P 500 equal to 12.6 percent.

Q. HAVING EXAMINED THE TOWERS PERRIN REPORT, DO YOU AGREE WITH MR. MURRAY'S ASSESSMENT THAT THE TOWERS PERRIN ANALYSIS RELATING TO THE EXPECTED RETURN ON EMPIRE'S PENSION PLAN ASSETS DEMONSTRATES THE UNREASONABLENESS OF YOUR COST OF EQUITY ESTIMATE FOR EMPIRE?

A. No. Even though the Towers Perrin report is a highly conservative estimate of expected returns, used for the purpose of determining the proper funding level for Empire's pension fund, it strongly supports my recommended cost of equity.

II. SURREBUTTAL OF MR. OLIGSCHLAEGER

Q. WHAT RATE OF RETURN ISSUES DOES MR. OLIGSCHLAEGER DISCUSS IN HIS REBUTTAL TESTIMONY?

A. Mr. Oligschlaeger discusses my recommended financial risk adjustment to the estimated cost of equity for my proxy group of risk comparable companies.

Q. WHAT IS THE PURPOSE OF YOUR RECOMMENDED FINANCIAL RISK ADJUSTMENT?

A. My recommended financial risk adjustment is designed to adjust the estimated cost of equity for my proxy group of companies to reflect the

difference in the financial risk reflected in my cost of equity estimate and the financial risk implied by Empire's recommended capital structure in this proceeding. Thus, my recommended cost of equity will appropriately reflect the financial risk in Empire's recommended capital structure.

Q. HOW DO YOU MEASURE THE FINANCIAL RISK REFLECTED IN YOUR COST OF EQUITY ESTIMATE FOR YOUR PROXY COMPANIES?

A. I measure the financial risk reflected in my cost of equity estimate for my proxy companies by the composite market value capital structure of my proxy companies.

Q. WHY DID YOU USE THE COMPOSITE MARKET VALUE CAPITAL STRUCTURE OF YOUR PROXY COMPANIES TO MEASURE THE FINANCIAL RISK REFLECTED IN YOUR ESTIMATE OF THE PROXY COMPANIES' COST OF EQUITY?

A. I use the composite market value capital structure to measure the financial risk reflected in my proxy companies' cost of equity because investors measure risk by the variance of their return in the marketplace, and the variance of return in the marketplace depends on the market value capital structure. The higher the percentage of equity in the market value capital structure, the lower is the financial risk of the investment, because the investment will exhibit lower variability in the return to the investor. This lower variability in return to the investor will be reflected in a lower cost of equity capital for the proxy companies.

Q. WHAT ARE MR. OLIGSCHLAEGER'S MAIN CONCERNS WITH YOUR RECOMMENDED FINANCIAL RISK ADJUSTMENT?

A. Mr. Oligschlaeger has three concerns with my financial risk adjustment. First, he argues that it would force ratepayers to pay higher rates whenever the market value of equity in the proxy companies increases. Second, he argues that current regulatory practice protects ratepayers from the risks of fluctuations in the proxy companies' market values of equity. Third, he argues that accepting my recommended financial risk adjustment would force ratepayers to bear all the risk of fluctuations in the market values of the proxy companies, even though they would not experience any gains when market values increased.

Q. DO YOU AGREE WITH MR. OLIGSCHLAEGER'S ARGUMENT THAT UTILITY RATES WILL INCREASE AS A RESULT OF YOUR RECOMMENDED FINANCIAL RISK ADJUSTMENT?

A. No. Mr. Oligschlaeger fails to recognize that utility rates depend on the estimated cost of equity for the proxy companies, and the estimated cost of equity for the proxy companies declines whenever the percentage of equity in their market value capital structure increases. Taken by itself, this lowering of the cost of equity for the proxy companies arising from increases in the market value of equity would reduce the revenue streams provided by the target utility's customers. My financial risk adjustment is required to bring the cost of equity back to the level it would have been prior to the increase in the average market value of the

proxy companies' stock. Thus, contrary to Mr. Oligschlaeger's conclusion, my financial risk adjustment holds ratepayers harmless for the risk of increases and decreases in the market values of my proxy companies' stock.

Q. DO YOU AGREE WITH MR. OLIGSCHLAEGER'S ARGUMENT THAT CURRENT REGULATORY PRACTICE PROTECTS RATEPAYERS FROM THE RISKS OF FLUCTUATIONS IN THE MARKET VALUES OF THE PROXY COMPANIES' EQUITY?

A. No. If the average market value of equity for the proxy companies increases, investors in these companies recognize that the financial risk of their investments has declined; and, as a result, they require a lower rate of return on their equity investment in these companies. Under Mr. Oligschlaeger's description of current regulatory practice, the reduction in the estimated cost of equity resulting from increases in market values is passed directly through to ratepayers in the form of lower rates. On the other hand, when the market value of equity for my proxy companies declines, investors recognize that the financial risk of their investment in these companies has increased; and, as a result, they require a higher rate of return on their equity investment in these companies. Under Mr. Oligschlaeger's description of current regulatory practice, the increase in the estimated cost of equity resulting from decreases in market values of equity is passed directly through to ratepayers in the form of higher rates. Thus, under Mr. Oligschlaeger's recommended approach, ratepayers

would experience the risks of both increases and decreases in the market values of the proxy companies' equity.

Q. WOULD RATEPAYERS EXPERIENCE THE RISK OF CHANGES IN THE MARKET VALUE OF EQUITY IN THE CASE WHERE THE COST OF EQUITY IS ESTIMATED BY APPLYING COST OF EQUITY METHODOLOGIES ONLY TO EMPIRE?

A. Yes. The situation is exactly the same as when the cost of equity is estimated based on data for proxy companies. When the market value of Empire's equity increases, its estimated cost of equity, other things equal, will decline. And this decline in the cost of equity will be passed through to ratepayers. On the other hand, when the market value of Empire's equity declines, other things equal, the estimated cost of equity increases; and this increase would be passed directly through to ratepayers.

Q. DO YOU AGREE WITH MR. OLIGSCHLAEGER'S ARGUMENT THAT ACCEPTING YOUR FINANCIAL RISK ADJUSTMENT WOULD FORCE RATEPAYERS TO BEAR THE RISK OF FLUCTUATIONS IN THE MARKET VALUES OF THE PROXY COMPANIES' EQUITY?

A. No. Contrary to Mr. Oligschlaeger's argument, my financial risk adjustment would protect ratepayers from bearing the risk of fluctuations in the market values of the proxy companies' equity. As discussed above, without my risk adjustment, ratepayers share in the gains and losses from changes in the market values of the proxy companies'

equity. The purpose of my financial risk adjustment is to make the estimated cost of equity reflect the financial risk in Empire's recommended capital structure. Since Empire's recommended capital structure is based on book values of equity that do not change when market values of equity change, and my adjusted cost of equity now reflects the risks of Empire's recommended capital structure, my financial risk adjustment protects ratepayers from the risks of fluctuations in the market values of the proxy companies' equity.

III. SURREBUTTAL OF MR. KING

Q. HAVE YOU ALREADY ADDRESSED SOME OF THE ERRORS IN MR. KING'S REBUTTAL TO YOUR ANALYSIS OF EMPIRE'S COST OF EQUITY?

A. Yes. In my rebuttal testimony, I demonstrated the following errors in Mr. King's rebuttal of my analysis of Empire's cost of equity (Mr. King's comments are quoted from his rebuttal testimony at pages 3 – 5):

1. Mr. King's comment: "Dr. Vander Weide's proxy group of electric companies includes two companies, FPL Group and Constellation Energy, that have announced a merger, in violation of the fifth of Dr. Vander Weide's selection criteria."

Dr. Vander Weide's response: FPL Group and Constellation Energy had not yet announced their merger at the time I prepared the cost of equity studies presented in my direct testimony (Vander Weide Rebuttal at 34). It is unreasonable for Mr. King to eliminate two companies that no longer

meet my criteria for inclusion without considering whether there are other companies that need to be either included or excluded at the present time.

2. Mr. King's comment: "Dr. Vander Weide's proxy group of electric companies includes four companies that are more heavily involved in gas distribution than electric service."

Dr. Vander Weide's response: The purpose of proxy group selection is to select companies that are comparable in risk to the target company. The four electric companies Mr. King excluded from my proxy group are all included in the Value Line list of electric utilities, and they are clearly similar in risk to the other companies in the group (Vander Weide Rebuttal at 31 – 32).

3. Mr. King's comment: "Dr. Vander Weide's proxy group of electric companies includes one company, MDU Resources, that is most heavily involved in non-utility activities."

Dr. Vander Weide's response: MDU Resources is listed in Value Line's group of electric utilities. As noted above, the purpose of proxy group selection is to select companies that are comparable in risk; it is not necessary that companies of similar risk be in exactly the same line of business as the target company. With a Value Line Safety Rank of 1 and an S&P bond rating of A-, MDU is clearly a conservative proxy for the risk of investing in Empire (Vander Weide Rebuttal at 32).

4. Mr. King's comment: "Dr. Vander Weide's proxy group of electric companies includes TXU Corporation which has an equity percentage of approximately 3.5 percent."

Dr. Vander Weide's response: Value Line forecasts that TXU will have a book equity percentage of 43 percent, and TXU already has a market value percentage of equity of 69.7 percent. Investors use market value percentages of debt and equity to measure financial risk (Vander Weide Rebuttal at 33).

5. Mr. King's comment: "Dr. Vander Weide's proxy group of electric companies includes 10 companies that have less than 75 percent of their revenues derived from regulated operations. By contrast, Empire derived 93.2 percent of its revenues from regulated electric service in 2005."

Dr. Vander Weide's response: The purpose of proxy group selection is to select companies of comparable risk. I have demonstrated that my proxy groups are, on average, conservative proxies for the risk of investing in Empire. The average S&P bond rating for my proxy groups is BBB+ and the average Value Line Safety Rank is 2; Empire's S&P bond rating is BBB-, and its Value Line Safety Rank is 3 (Vander Weide Rebuttal at 14 and 35).

6. Mr. King's comment: "Dr. Vander Weide forecasts next year's dividend by applying the "g" factor to the current year's dividend, thereby

assuming unrealistically that each company will increase its dividends regardless of its cash flow condition."

Dr. Vander Weide's response: The annual DCF model assumes that all dividends grow at the same constant rate, *g*, including the first dividend. The only correct application of an annual DCF model is to estimate the first period dividend using the equation, $D_1 = D_0 \times (1 + g)$ (Vander Weide Rebuttal at 6 and 29).

7. Mr. King's comment: "Dr. Vander Weide applies the quarterly compounding procedure to next year's dividend, even though the compound earnings are not the responsibility of the dividend-issuing company."

Dr. Vander Weide's response: The DCF model is based on the cash flows expected to be received by ***investors***, not the cash flows expected to be received by the company. Since investors expect to receive cash flows from Dr. Vander Weide's proxy companies on a quarterly basis, the quarterly DCF model is the best DCF model for these companies (Vander Weide Direct, Appendix 1).

8. Mr. King's comment: "Dr. Vander Weide uses earnings forecasts from a single source, I/B/E/S, when other sources, such as Value Line and Zacks.com, are also available."

Dr. Vander Weide's response: The I/B/E/S forecasts represent the average of the forecasts of the many individual analysts surveyed. The I/B/E/S forecasts are generally preferred to Zacks because they are

more comprehensive and more widely studied in the financial literature. The I/B/E/S forecasts are preferable to those of Value Line because the Value Line forecasts do not use the current period as the base (Vander Weide Rebuttal at 30 – 31).

9. Mr. King's comment: "Dr. Vander Weide's "ex ante" risk premium analysis is self-contradictory. It uses a DCF series that shows the November 2005 return requirement at 9.66 percent to derive a rate of return indication of 10.9 percent."

Dr. Vander Weide's response: My ex ante risk premium is not "self-contradictory." Rather than using a DCF analysis for a single month, it uses knowledge of the relationship between DCF results and interest rates over a 6- or 7-year period to forecast the expected return on equity. The expected return on equity, based on the normal relationship between DCF results and interest rates, was 10.9 percent in December 2005 (Vander Weide Rebuttal at 40).

10. Mr. King's comment: "The variation in the historical risk premiums in Dr. Vander Weide's "ex post" risk premium analysis is so great as to render the average statistically unreliable."

Dr. Vander Weide's response: Mr. King's analysis of variation in historical risk premiums relates only to differences in the achieved risk premium from one year to the next, whereas the cost of equity requires an analysis of the expected return over a long period of time. The

average risk premium over a long period of time has been remarkably constant (Vander Weide Rebuttal at 41 – 42).

11. Mr. King's comment: "Dr. Vander Weide's "ex post" analysis is based on the unsupportable assumption that the average realized return represents a valid expression of expected return."

Dr. Vander Weide's response: The ex post analysis is the only directly observable evidence on the returns investors have actually received on stock and bond investments. It is reasonable to assume that investors would base their expectation of long-run future returns at least to some extent on the record of their experiences (Vander Weide Rebuttal at 41 – 42).

12. Mr. King's comment: "Dr. Vander Weide's "ex post" analysis makes the incorrect assumption that risk premiums do not vary over time."

Dr. Vander Weide's response: My ex post risk premium analysis considers the potential for long-term or secular changes in risk premiums over time. I provide evidence in my direct testimony that there is no statistically significant long-term trend in risk premiums over time (Vander Weide Rebuttal at 41 – 42).

Q. DOES MR. KING HAVE ANY ADDITIONAL REBUTTAL COMMENTS CONCERNING YOUR ANALYSIS OF EMPIRE'S COST OF EQUITY?

A. Yes. On page 5 of his rebuttal testimony, Mr. King states that he would like to respond to my concerns about the results of the DCF model and

to my statement that Empire has greater financial risk than my proxy group.

Q. WHAT CONCERN DID YOU EXPRESS IN YOUR DIRECT TESTIMONY ABOUT THE USEFULNESS OF THE DCF RESULTS AT THE TIME OF YOUR TESTIMONY?

A. I expressed the concern that the DCF results had varied significantly more than interest rates over the last six or seven years, and that the DCF results were significantly lower than the results obtained from other COST OF EQUITY METHODOLOGIES.

Q. WHAT ARE MR. KING'S RESPONSES TO THE CONCERN YOU RAISED IN YOUR DIRECT TESTIMONY ABOUT THE USEFULNESS OF YOUR DCF RESULTS?

A. Mr. King has three responses to my concern. First, he argues that DCF results should vary more than interest rates because they have a higher average value than interest rates. Second, he argues that DCF results should vary more than interest rates because equity investments are more risky than bond investments. Third, he contends that if DCF results are less than the results of other cost of equity methodologies, the results from other methodologies should be ignored.

Q. DO YOU AGREE WITH MR. KING'S RESPONSES TO YOUR CONCERN ABOUT THE USEFULNESS OF YOUR DCF RESULTS?

A. No. Regarding his first argument, because DCF results are higher than interest rates does not mean that they will have greater variability than

interest rates. Indeed, the evidence in the financial literature suggests that DCF results generally vary significantly less than interest rates.[3]

Second, Mr. King ignores the distinction between the ***expected*** return and the ***actual*** return on equity. Because equity investments are more risky than bond investments, one would reasonably expect the actual returns on equity investments to vary to a much greater extent than the return on bond investments. However, the fact that equity investments are more risky than bond investments does not imply that the expected equity return should vary more than interest rates. Indeed, as noted above, there is strong evidence that the expected equity return as measured by DCF results does not vary by more than interest rates.

Concerning his third argument, while Mr. King may claim that his own CAPM analysis supports his DCF analysis because he has used reasonable assumptions, I have demonstrated that Mr. King's CAPM assumptions are not reasonable and that a proper application of CAPM and risk premium methodologies produces significantly higher cost of equity results than the DCF at this time (Vander Weide Rebuttal at 36 – 38).

Q. WHAT IS MR. KING'S RESPONSE TO YOUR ASSERTION REGARDING THE FINANCIAL RISK OF EMPIRE RELATIVE TO YOUR PROXY GROUP?

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3 See, for example, Robert S. Harris and Felicia C. Marston, "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts," *Journal of Applied Finance*, Vol. 11, No. 1, 2001, 6-16.

A. Mr. King claims that my comparison of the average market value capital structure of my proxy group to Empire's recommended capital structure in this proceeding is an "apples" to "oranges" comparison. In his opinion, if I had compared the capital structure of my proxy group to Empire's on an "apples" to "apples" basis, I would have found that Empire and the proxy group have approximately equal financial risk.

Q. DO YOU AGREE THAT YOU HAVE MADE AN "APPLES" AND "ORANGES" COMPARISON?

A. No. Mr. King has misinterpreted my comparison. As I discuss in my direct testimony, I am comparing the financial risk embodied in my cost of equity estimate to the financial risk embodied in Empire's recommended capital structure. The financial risk embodied in my cost of equity estimates is best measured by the composite market value capital structure of my proxy companies. On the other hand, the financial risk embodied in Empire's recommended capital structure is best measured by its book value capital structure, because Empire is recommending a book value capital structure in this proceeding. Thus, I have made an "apples" to "apples" comparison, where the "apple" is financial risk.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes, it does.