Exhibit No.:	
Issues:	*Rate of Return/Cost of Capital*
Witness:	*David Murray*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Surrebuttal Testimony*
Case Nos.:	*ER-2006-0315*
Date Testimony Prepared:	*August 18, 2006*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

SURREBUTTAL TESTIMONY

OF

DAVID MURRAY

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2006-0315

Jefferson City, Missouri
August 2006

****Denotes Highly Confidential Information****

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BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of The Empire District Electric Company of Joplin, Missouri for authority to file tariffs increasing rates for electric service provided to customers in the Missouri service area of the Company.	)))))	Case No. ER-2006-0315

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

David Murray, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Surrebuttal Testimony in question and answer form, consisting of 28 pages to be presented in the above case; that the answers in the foregoing Surrebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

David Murray

Subscribed and sworn to before me this 17th day of August, 2006.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
County of Cole
My Commission Exp. 07/01/2008

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Q. Please state your name.

A. My name is David Murray.

Q. Are you the same David Murray who filed direct and rebuttal testimony in this proceeding for the Staff of the Missouri Public Service Commission (Staff)?

A. Yes, I am.

Q. In your direct testimony, did you provide your expert opinion on what you considered to be a fair and reasonable rate of return on the Missouri jurisdictional electric utility rate base for The Empire District Electric Company (Empire)?

A. Yes, I did.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of Dr. James H. Vander Weide. Dr. Vander Weide sponsored rate-of-return direct and rebuttal testimony on behalf of Empire.

EXECUTIVE SUMMARY

Q. Can you please identify the issues you will address in your surrebuttal testimony?

A. Dr. Vander Weide addresses issues in my direct testimony ranging from my discussion of Standard & Poor's (S&P) downgrade of Empire to my citation of prominent experts in finance and investing that believe that expected returns have declined.

I have addressed the following issues in my surrebuttal testimony:

1. Trends in interest rates;

2. S&P's downgrade of Empire;

3. Assumptions and judgments in application of the discounted cash flow model;

4. Comparable group selection;

5. Inputs for the capital asset pricing model (CAPM);

6. Tests of reasonableness of recommendations; and

7. Dr. Vander Weide's methodology comparing market-to-book value capital structures.

Dr. Vander Weide addresses many of the academic issues surrounding cost of common equity estimation. Many of these issues are complicated and can involve a lot of detail that can be confusing. For example, the methodology Dr. Vander Weide started using in 2004, in which he compares his proxy groups' market value capital structure to the subject company's book value capital structure, can be confusing and lead to illogical results. My surrebuttal testimony attempts to clarify the differences between the Staff and the Company on their approaches to estimating Empire's cost of common equity. This should assist the Commission in determining a just and reasonable rate of return based on logical methodologies and observed evidence, such as lower costs of debt, which illustrates a lower cost of capital environment than the one depicted by Dr. Vander Weide.

RESPONSE TO DR. VANDER WEIDE'S REBUTTAL TESTIMONY

Q. On page 3, lines 5 through 14 of his rebuttal testimony, Dr. Vander Weide provides his explanation for why he believes that the recent increase in interest rates in the past year can be described as an "upward trend." Have there been short-term periods of interest rate increases (at least one year or more) during the past 25 years of generally downward trending interest rates?

A. Yes. A review of Schedules 5-1 and 5-3 attached to my direct testimony shows that there have been three other short-term periods of interest rate increases of a year or more, within a longer general downward trend in interest rates. Public utility bond yields increased from 6.88 percent in September 1998 to 8.55 percent in May 2000, which is approximately a year and a half of interest rate increases. Public utility bond yields increased from 6.99 percent in October 1993 to 9.00 percent in November 1994, which is just a little over a year. Public utility bond yields increased from 13.00 percent in May 1983 to 15.16 percent in June 1984, which, again, is just a little over a year. Consequently, one can find short-term periods of interest rate increases in the past 25 years, but the stronger, more permanent trend, has been that of falling interest rates.

Q. Dr. Vander Weide discusses the May 17, 2006 S&P downgrade of Empire's credit rating on page 4 and 5 of his rebuttal testimony. He claims that you were misleading in your direct testimony when you indicated that S&P did not provide a "good explanation" for the downgrade. Were you misleading?

A. No. As I indicated in my direct testimony (p. 14, ll. 1-11), I do not believe that S&P provided a good explanation as to why it "…downgraded Empire only **three months after it removed Empire from a CreditWatch with negative implications**" (emphasis added). The language that Dr. Vander Weide quoted on page 5, lines 11

through 16 of his rebuttal testimony provides S&P's explanation as to why Empire was downgraded. However, all of the quoted factors in S&P's explanation were in existence at the time that S&P took Empire off a negative CreditWatch on February 13, 2006. When I contacted S&P, after their May 17, 2006 downgrade of Empire, I was most interested in an explanation as to what circumstances had changed since Empire was taken off of a negative CreditWatch on February 13, 2006. S&P had already mentioned higher commodity prices, planned capital expenditures for generation needs and the gas property acquisition in its February 13, 2006 report. Below are excerpts from S&P's February 13, 2006 report, which was attached as Schedule 22 to my direct testimony:

> The rating was also removed from CreditWatch after Standard & Poor's reviewed the acquisition proceeding pending before the Missouri Public Service Commission (MPSC), and analyzed an **updated financial forecast that incorporates the gas utility and the effect of higher commodity prices on the company's cash flow relative to the level in current rates.** (emphasis added)

S&P further stated the following about Empire's capital expenditures in its February 13, 2006 research report:

> To strengthen Empire's cash flow during its planned capital spending for generation and environmental compliance, it will be critical for the MPSC to provide the necessary rate relief as indicated by the commission in an order authorizing the company's ownership interest in the Iatan 2 unit.

Consequently, it appeared that there must have been further developments since February 13, 2006, which caused S&P to downgrade Empire because the reasons cited for the downgrade were all uncertainties that had been in effect at the time of S&P's February 13 report. Gerrit Jepsen, the S&P analyst covering Empire, told me in a telephone conversation on June 20, 2006 that he was unaware of the Plum Point project when he took Empire off a negative CreditWatch. While this wasn't the only reason that he decided to downgrade

Empire's corporate credit rating, this was the one thing that he said he had not considered at the time of his February 13 report. This was not clearly stated in the May 17, 2006 report.

Q. On page 5, lines 19 through 22 of his rebuttal testimony, Dr. Vander Weide claims that it is difficult to believe that S&P would have been unaware of Empire's investment in Plum Point at the time of its February 13 report. When did Empire publicly announce its participation in Plum Point?

A. Empire announced its negotiations to participate in Plum Point in a press release on February 23, 2006.

Q. Do you know when the financial projections incorporating expenditures on Plum Point were provided to S&P?

A. Based on Empire's responses to Staff Data Request No. 0007 in Empire and Aquila's Application to the Commission for approval of Empire's proposed acquisition of Aquila's Missouri gas properties, Case No. GO-2006-0205, an email was sent by Empire to Mr. Jepsen of S&P on March 29, 2006 (see Schedule 1 attached).

Q. Did Dr. Vander Weide provide an explanation as to why he believed Empire was downgraded only three months after they were removed from a CreditWatch with negative implications?

A. No.

Q. Are there other credit rating agencies that follow Empire?

A. Yes. Fitch and Moody's also perform analysis on the credit quality of Empire and its debt.

Q. What are Fitch's and Moody's current credit ratings on Empire?

A. Fitch's current corporate credit rating on Empire is BBB with a stable outlook. Moody's current corporate credit rating on Empire is Baa2 (Moody's equivalent to a BBB rating given by Fitch and S&P) with a stable outlook.

Q. Have either of these credit rating agencies downgraded Empire recently or put Empire on a watch or review for possible downgrade?

A. No. Neither Moody's nor Fitch have downgraded Empire or put it on a watch or review for possible downgrade.

Q. Have you talked to any analysts at Fitch or Moody's concerning Empire's credit rating?

A. Yes. I talked to Moody's analysts Michael Haggarty and Jim O'Shaugnessy and Fitch analyst Karen Anderson in June 2006. I corresponded with Mr. O'Shaugnessy and Ms. Anderson again shortly before I filed surrebuttal testimony.

Q. Did these analysts give you the impression that they would be changing Empire's credit rating because of any developing events at Empire?

A. These analysts indicated that they are more or less in a hold pattern because of uncertainties surrounding the current rate case proceeding, the rulemaking process for a fuel adjustment clause mechanism in Missouri and the integration of the natural gas distribution operations into Empire's existing operations.

Q. On page 6, line 13, through page 7, line 3 of his rebuttal testimony, Dr. Vander Weide criticizes you for not using the quarterly compounding version of the DCF model as he did in his direct testimony. How do you respond?

A. Dr. Vander Weide is projecting a level of precision that is somewhat trivial considering the large difference we have in our recommendations. However, based on the

information Value Line provides to investors, it is hard to fathom that many investors employ a quarterly DCF model when valuing equities. Value Line does not even provide quarterly projected dividends. It provides projected dividends on an annual basis. In fact the dividend yield provided by Value Line in its tear sheets is based on the expected dividend for the next year without quarterly compounding. The following definition of "dividend yield" is contained in the *Value Line Investment Survey for Windows: User's Manual*, © 1995 through 2002:

> The common dividends declared per share expressed as a percentage of the average annual price of the stock. Dividend yield = common dividends declared per share divided by the average annual price of a stock. **The year-ahead estimated dividend yield (shown in the top right-hand corner of the Value Line page) is the estimated total of cash dividends to be declared over the next 12 months, divided by the recent price of the stock.** (emphasis added)

Consequently, if an investor uses Value Line information to determine the dividend yield on the company's stock, then he is basing this estimate on a calculation that incorporates dividends to be declared over the next 12 months. I believe it is best to try and evaluate the cost of common equity using techniques that are most likely used by the majority of investors.

Q. On page 7, lines 12 through 23, of his rebuttal testimony, Dr. Vander Weide criticizes my use of Value Line to estimate the dividends that may be expected next year in order to estimate the dividend yield component in my DCF analysis. How do you respond?

A. It appears that Dr. Vander Weide believes that no judgment should be used when estimating the cost of common equity. He claims that my approach isn't consistent with the assumption that dividends will grow at the same constant rate forever. Using Empire as an example, I don't believe it is reasonable to believe that investors expect to receive an annual dividend next year that is higher than Empire's current annual dividend

of $1.28. Empire has been paying this same annual dividend since 1993 and has been unable to earn this dividend in eight of the years since 1993. Until Empire can consistently earn higher than its dividend, it would be unwise to increase the dividend from its current level. Value Line also doesn't anticipate that Empire will increase its dividend next year. In fact, according to a June 30, 2006 report, Value Line projects that Empire's dividend will still be $1.28 in 2010. However, Dr. Vander Weide still believes that the strict rules of the model should be applied even if the results are not practical to the real world investor. In this instance, if I were to abide by Dr. Vander Weide's advice to follow the strict assumptions of academic theory, my DCF results would be overstated.

Q. Are you aware of any supporting sources that suggest using an investment advisory service's estimate of next year's dividends may be appropriate when performing a DCF analysis?

A. Yes. David Parcell's book, *The Cost of Capital—A Practitioner's Guide*, 1997, provides the following direction on estimating the dividend yield component of the DCF model:

> The second term – D_1 – can be determined in two alternative ways. First, as shown in equation (8.9), D_1 can be estimated by increasing D_0 by the growth rate, or $D_1 = D_0 (1+g)$. Second, analysts' forecasts of dividends per share for the next period can be utilized for D_1. Sources such as Value Line and Salomon Brothers provide annual dividends per share estimates for most public utilities.

I believe it is more appropriate to reflect the amount of dividends that investors are most likely to receive in the next year and the use of Value Line to estimate this amount provides a reasonable proxy.

Q. On page 8, lines 1 through 6 of his rebuttal testimony, Dr. Vander Weide explains what he believes to be another violation of the DCF assumptions you made when estimating the dividend yield. How do you respond to this criticism?

A. Dr. Vander Weide believes I violated another DCF assumption when I chose to average Value Line's 2006 and 2007 dividend to determine the expected dividend to use in my DCF analysis. He believes my dividend estimate should be based the expected annualized dividend in 2007. As I already explained above, the use of Value Line's estimation of dividends to be received in the next year is consistent with how Value Line determines its indicated dividend yield. Because I performed my DCF analysis in the middle of 2006, I determined that an average of the expected annual dividends per share for this year and next year would be an appropriate proxy of the dividends investors expect over the next twelve months.

Q. Are there any supporting sources for the use of the expected dividend over the next 12 months to determine the dividend yield?

A. Yes, Dr. Roger A. Morin's book, *Regulatory Finance: Utilities' Cost of Capital*, 1994, states on page 139: "In implementing the standard DCF model, it is the dividend that an investor who purchases the stock today expects a company to pay during the next 12 months that should be used, and not the dividend that was paid last year."

Q. On page 9, lines 3 through 13 of his rebuttal testimony, Dr. Vander Weide claims that it is inappropriate to consider historical growth rates to estimate investors' expectations when analysts' growth expectations are available. Do you believe that this is true?

A. No. Dr. Vander Weide is implying that investors blindly accept analysts' estimated growth rates when making investment decisions. As I indicated in my direct testimony, there is a general perception that analysts' growth rate projections tend to be too high. One way an investor can test the reasonableness of these projections is to review historical financial information on companies. If investors didn't demand historical financial information to evaluate the reasonableness of analysts, then Value Line wouldn't need to incur the expense of compiling and publishing historical financial information.

Q. Beginning on page 9, line 14 of his rebuttal testimony, Dr. Vander Weide explains why he believes it is more desirable to choose a larger group of comparable companies versus your smaller, more focused group of comparable companies. Do you agree that selection of a large group of companies is a worthwhile goal?

A. Yes, but not at the expense of selecting a proxy group that isn't comparable. There are certain tradeoffs in selecting a large group of companies that are not truly comparable in terms of business risk. There are certain business risks that only vertically integrated electric utility companies face. While the use of third-party risk rankings, as Dr. Vander Weide used, may seem appealing in attempting to select comparable companies, the results of Dr. Vander Weide's own analysis should cause him to reconsider his approach.

Q. How did Dr. Vander Weide go about selecting his proxy group to estimate Empire's cost of common equity?

A. Dr. Vander Weide's approach for selecting his electric proxy group was based on applying the following criteria to all companies classified as electric companies by Value Line:

1. paid dividends during every quarter of the last two years;

2. did not decrease dividends during any quarter for the past two years;

3. had at least three analysts included in the I/B/E/S mean growth forecast;

4. have an investment grade bond rating and a Value Line Safety Rank of 1, 2, or 3; and

5. have not announced a merger.

Based on Dr. Vander Weide's comments on page 15, line 22 through page 16, line 4 of his rebuttal testimony, it appears that he believes that item 4 is the key criterion that allowed him to select what he believes is a proxy group that closely represents Empire's risk. Dr. Vander Weide also applied the same criteria to companies classified as natural gas companies by Value Line. Dr. Vander Weide indicates that because his natural gas proxy group has an average Value Line Safety Rank of a 2 compared to a safety rank of 3 for Empire, it is a conservative proxy group for Empire. He also states that because the average S&P credit rating for his natural gas proxy group is an A- compared to Empire's BBB- rating, this provides further evidence that his natural gas proxy group is less risky than both Empire and the electric proxy group.

Q. Do Dr. Vander Weide's cost of capital estimates of his two proxy groups corroborate his own belief that his approach allows for a risk-based cost of capital estimation for Empire?

A. No. According to Dr. Vander Weide's direct testimony (p. 33, ll. 6 - 8), his natural gas proxy group should have less overall risk than Empire and his electric proxy group. If true, one would presume that his natural gas proxy would also have a lower cost of capital. However, according to Table 5 and Table 6 on page 52 of his direct testimony, this is not the case. In fact, because the weighted average cost of capital (WACC) estimated from

his natural gas proxy group was much higher than his electric utility proxy group's WACC, Dr. Vander Weide only used the electric utility group's WACC for the financial risk adjustment he believed was necessary to ensure that Empire could attract capital in the marketplace.

Q. Did Dr. Vande Weide dismiss his natural gas proxy group's WACC in Empire's last rate case?

A. No. In Empire's last rate case, Dr. Vander Weide averaged the WACC for both his natural gas proxy group and his electric utility proxy group in order to back into his recommendation for Empire's return on common equity (see page 51, Tables 3, 4 and 5 of Dr. Vander Weide's direct testimony in Case No. ER-2004-0570).

Q. Why did Dr. Vander Weide change his methodology in this case?

A. I don't know. Considering Dr. Vander Weide believes that Empire needs to have the same WACC as his proxy groups to attract capital in the marketplace, I would think that he wouldn't have changed his methodology. If he had applied the same methodology in this case, then Empire's WACC would need to be 8.79 percent. After applying Empire's embedded costs of capital to Empire's book value capital structure, per Dr. Vander Weide's methodology, Empire would need to have a 12.90 percent return on common equity to make up the difference (see Schedule 2 attached).

Q. If you had used this higher average WACC in your rebuttal testimony (p. 22, ll. 10-19) to determine what AmerenUE's return on common equity would need to be under Dr. Vander Weide's approach, what would it be now?

A. It would be 13.68 percent (see Schedule 3 attached).

Q. What is your conclusion about the inconsistency of Dr. Vander Weide's claim that his natural gas proxy group has less risk than the electric proxy group and Empire based on observations of the Value Line Safety Rank and credit ratings; and yet his indicated cost of capital for his natural gas proxy group is higher than that of his electric group?

A. Use of the Value Line Safety Rank and credit ratings to develop a proxy group, rather than selecting a pure play proxy group as I did, can cause illogical results. If these results are illogical, then the methodology should be dismissed.

Q. What is the best way to ensure that a comparable group's risks are similar to that of the subject company?

A. There are two main types of risk in corporate finance, business risk and financial risk. The financial risk of an entity is driven by the amount of fixed obligations created by issuing debt. Some analysts will attempt to screen their comparable companies for this type of risk by only selecting companies with a certain common equity percentage in the book value capital structure. I controlled for this type of risk by selecting companies that have at least an investment grade credit rating. The business risk of an entity is driven by the dominant operations of the company. The purest way to select companies that face similar business risk is to select companies that are predominately in the same business as the operations being evaluated. In common finance textbooks, this approach is commonly referred to as the "pure play method."

Q. Has it become more difficult to select pure play vertically-integrated electric utilities because of the restructuring of the electric utility industry in certain states and because of some electric utility companies' involvement in significant non-regulated operations?

A. Yes. This is why I chose to rely on S&P's CreditStats publication to choose companies that S&P classifies as vertically-integrated electric utilities.

Q. On page 19, lines 7 through 19 of his rebuttal testimony, Dr. Vander Weide discusses some criticisms he has about your capital asset pricing model (CAPM) analysis. How do you respond?

A. I do not agree that a forecasted yield should be used to estimate the risk-free rate component of the CAPM. There have been many times in the last few years when there have been predictions that long-term interest rates may increase and this never happened. Because investors can easily observe current long-term risk-free interest rates and apply their current required equity risk premiums to these interest rates, using current yields allows for a more reliable measure of the current cost of common equity. While it is possible that long-term interest rates may increase in the future, it is also possible that they will decrease. If Empire's cost of capital should increase dramatically because of an increase in long-term interest rates, then it can file a rate case and have all revenues and expenses of the Company reviewed at that time.

Dr. Vander Weide also claims that I should have used a yield from 20-year U.S. Treasury Bond rather than the yield on a 30-year U.S. Treasury Bond for my risk-free rate. Both the 30-year U.S. Treasury Bond and 20-year U.S. Treasury Bond are long-term government bonds and serve as reasonable proxies for a long-term interest rate.

Q. Are you aware of any discussions regarding the complexities of attempting to estimate future risk-free interest rates for use in the CAPM?

A. Yes. Dr. Roger A. Morin discussed these complexities in his book *Regulatory Finance Utilities' Cost of Capital*, 1994. The specific excerpt follows:

> Over the last 50 years, the Treasury bill rate has approximately equaled the annual inflation rate, as demonstrated in Fama (1975) and Ibbotson Associates (1993). Refined techniques to forecast inflation based on the current shape of the yield curve could thus be employed to obtain the expected risk-free rate.[5] Alternately, the consensus inflation forecast by economists over the requisite horizon could be employed to derive the risk-free rate estimate. However, none of these techniques is likely to provide superior estimates to that supplied by current yield data. The complexity and computational costs are likely to outweigh their marginal usefulness.

Q. On page 20 of his rebuttal testimony, Dr. Vander Weide claims that because you used a small group of comparable companies, your average beta of 0.81 underestimates your CAPM estimated cost of common equity for Empire. Do you have a different conclusion about what your average beta indicates about your estimated cost of common equity for Empire?

A. Yes. Beta is a measure of the covariance of the movement of the return on company's stock and the return on the market divided by the variance of the market. In more simplistic terms, it is the measure of the relative volatility of the individual stock price as it relates to the market. If a company's beta is less than one, then it is considered to have less market risk than the overall market and if it is greater than one, then it is considered to have more market risk than the overall market. It is important to note that beta only measures the amount of risk caused by the market, not company-specific risks.

Based on the above explanation of beta, if the beta of the subject company and the proxy group are about the same, then this implies that the comparable group's estimated cost of common equity should be a good proxy for the subject company. However, instead of using this information to question the appropriateness of his own proxy group when his average proxy group beta is now 0.95 versus Empire's 0.80 beta, he criticizes my proxy

group as being unreliable because it is too small. If anything, these beta results call into question the appropriateness of Dr. Vander Weide's proxy group.

Q. Did Dr. Vander Weide believe it was appropriate to compare his natural gas comparable companies' average Value Line Safety Rank to Empire's Value Line Safety Rank when evaluating the risk differences?

A. Yes. Therefore, I am not sure why he didn't do the same when evaluating betas.

Q. Page 20, line 22 through page 23, line 8 of Dr. Vander Weide's rebuttal testimony discusses risk premium estimates using geometric means as compared to arithmetic means. Do you agree with Dr. Vander Weide that geometric means should not be used in the CAPM to estimate the cost of common equity?

A. No.

Q. Is there any intuitive reason for your belief that geometric means rather than arithmetic means are more realistic in estimating market risk premiums for utility stocks?

A. Yes. For the most part, it is assumed that investors in utility stocks are buying for the long-term. Dr. Vander Weide confirmed this during his deposition in the last Empire rate case (Vander Weide deposition on p. 11, ll. 2-19, Case No. ER-2004-0570). Investors are not buying and selling the share every year. Consequently, the investor is not realizing any of the gains and losses that occur year-to-year.

Q. Please provide a simple example to illustrate why you don't believe investors use arithmetic means when determining the amount of risk premium they will require on a given stock or a portfolio of stocks.

A. Suppose that an investor makes a $1 stock investment over a three-year period. If an investor pays $1 for a stock in year 1 and in year 2 the stock increases to $1.50, then the investor would have a 50 percent growth rate. In year three the price of the stock decreases by 50 percent to $.75. If an investor performed a simple arithmetic average of these two returns, then he would think that he received 0 percent [(50 percent + -50 percent)/2] growth in his investment over the three-year period. However, in reality the investor actually had a 25 percent decline in his investment over this three-year period. This is why using the arithmetic mean is questionable.

Q. You have given an intuitive reason as to why you believe that geometric means are more realistic in measuring equity risk premiums, but Dr. Vander Weide cited Ibbotson Associates to support his claim that the arithmetic average should be used. Do you have any academic support for your use of the geometric mean?

A. Yes. The first is *Investment Analysis & Portfolio Management*, seventh edition, 2003, written by Frank K. Reilly and Keith C. Brown. Reilly and Brown stated the following:

> The geometric mean is appropriate for long-run asset class comparisons, whereas the arithmetic mean is what you would use to estimate the premium for a given year (e.g. the *expected* performance next year).

The second textbook is *Investment Valuation*, 1996, written by Aswath Damodaran. Dr. Damodaran stated the following in his textbook:

> The geometric mean generally yields lower premium estimates than the arithmetic mean. In the context of valuation, where cashflows over a long time horizon are discounted back to the present, the geometric mean provides a better estimate of the risk premium. Thus, the premium of 5.50% (the geometric mean of the premium over Treasury bonds) is used throughout this book for calculating expected returns.

The third textbook is *Analysis of Equity Investments: Valuation*, 2002, written by John D. Stowe, Thomas R. Robinson, Jerald E. Pinto and Dennis W. McLeavey. The text states the following:

> In taking a historical approach, we face a choice between using arithmetic mean return (typically, the average of one-year rates of return) and using the geometric mean return (the compound rate of growth of the index over the study period). The arithmetic mean more accurately measures average one-period returns; the geometric mean more accurately measures multiperiod growth. The dilemma is that the CAPM (as well as the APT) is a single-period model, suggesting the use of the arithmetic mean; but common stock investment often has a long time horizon, and valuation involves discounting cash flows over many periods, suggesting the use of geometric mean…
>
> …Although the debate is inconclusive, this book uses geometric means, not only for the previously given reasons but also because geometric means produce estimates of the equity risk premium that are more consistent with the predictions of economic theory.

The above-mentioned textbooks were used in the Chartered Financial Analyst (CFA) Program sponsored by the CFA Institute. As I mentioned in my direct testimony, the CFA Program is internationally recognized and considered by many employers and investors as the "definitive standard for measuring competence and integrity in the fields of portfolio management and investment analysis." Many individuals that are pursuing their CFA designation may either work in the investment field or intend to work in the investment field. If these individuals employ the CAPM as it is advised to be used in these textbooks, their valuation analysis will be based in part on historical geometric average risk premiums.

Q. On page 23, line 9 through page 24, line 2 of his rebuttal testimony, Dr. Vander Weide indicates that you used the wrong historical risk premium because you used the total return for long-term government bonds rather than just the income return on long-term government bonds. Are investors in long-term government bonds only going to

receive a return based on the coupon of the bond, which is the income from the interest rate stated on the bond?

A. This will happen only if investors hold the bond until maturity and they bought the bond at par value. Otherwise investors will receive a total return, which is based on changes in the price of the bond and reinvestment returns. Therefore, it is appropriate to measure the market risk premium by comparing total returns on stocks versus total returns on long-term government bonds because this is what investors will expect to receive.

Q. Did the examples you reviewed in Dr. Damodaran's textbook estimate risk premium by subtracting only income returns from long-term government bonds rather than the total returns?

A. No.

Q. Page 24, line 18 through page 26, line 11 of Dr. Vander Weide's rebuttal testimony discusses some further concerns that he has with the reliability of your CAPM analysis. Do you agree with Dr. Vander Weide that there has been research that questions the reliability of the CAPM?

A. Yes. This is one of the primary reasons that Staff has generally used this model as only a test of reasonableness for its recommendation based on a DCF analysis. However, Staff notes that by no means has any of this research gone unchallenged, especially when it is applied specifically to the utility industry. For example, although Ibbotson Associates suggests that an adjustment should be made to the risk premium used in a CAPM analysis when estimating the cost of common equity for smaller companies, this study was based on a study of all of the stocks in the New York Stock Exchange, the American Stock

Exchange and the NASDAQ National Market. Research specific to the utility industry questions the need for such adjustments.

Annie Wong, associate professor at Western Connecticut State University, performed a study that refutes the need for an adjustment based upon the smaller size of public utilities. She stated:

> First, given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their size. Therefore, utility betas would not necessarily be expected to be related to firm size.
>
> *Journal of the Midwest Finance Association*, v. 22, p. 95-99, 1993.

Because smaller utilities operate in a regulated environment, just as large utilities do, making an adjustment for firm size appears to be questionable.

Q. On page 27, lines 7 through 20 of his rebuttal testimony, Dr. Vander Weide claims that you incorrectly characterized the risk premium that you used based on Roger G. Ibbotson and Peng Chen's (Ibbotson and Chen) expected return on the market over the long-run of 9.67 percent. Did you mischaracterize the risk premium that you used?

A. No. On page 26, lines 4 through 10 of my direct testimony, I very clearly specified that I used Ibbotson and Chen's expected return on the market in order to determine an implied equity risk premium based on the current required return on the Thirty-year U.S. Treasury Bond. The difference between the Ibbotson and Chen expected return on the market and the average yield on the Thirty-Year U.S. Treasury Bond for April 2006 was 4.61 percent. If I were to update this difference based on the average yield on the Thirty-Year U.S. Treasury Bond of 5.13 percent for July 2006, the estimated equity risk

premium would be 454 basis points versus the 461 basis points in my direct testimony. If I applied the new average beta of 0.83 provided by Dr. Vande Weide in his rebuttal testimony to this revised risk premium and updated the risk-free rate, my CAPM result would be 8.96 percent [5.13 + (.83 x 4.54) = 8.96].

Q. Is Dr. Vander Weide correct in his assertion that Ibbotson and Chen calculated their own implied equity risk premium using a "supply-side earnings model?"

A. Yes. I realized that Ibbotson and Chen had calculated an implied-equity risk premium, but I only used their long-term expected return on the market and compared this estimate to current long-term yields to estimate an equity risk premium.

Q. If you had decided to use Ibbotson and Chen's implied equity risk premium, would you have used the arithmetic or geometric average of this implied equity risk premium?

A. I would have used the geometric average of the implied equity risk premium for reasons I have stated previously in this surrebuttal testimony. If I had done so, my CAPM estimated cost of common equity for my proxy group would have been 8.65 percent based on previously mentioned updated inputs [5.13 + (.83 x 424) = 8.65].

Q. On page 28, lines 7 through 14, of his rebuttal testimony, Dr. Vander Weide claims that you used your own inputs when using the model provided on Dr. Damodaran's website. Is this true?

A. Yes. The model provided on Dr. Damodaran's website allows for the user to enter current inputs to estimate a current implied equity risk premium. I plugged in the 5-year projected growth rate for the S&P 500, the long-term treasury bond yield and the S&P dividend yield.

Q. Dr. Vander Weide claims on page 29, lines 15 through 23 of his rebuttal testimony that you did not reveal the inputs that you entered into this model. Is this true?

A. No. Schedule 17-2 attached to my direct testimony provides the inputs that I used to calculated this implied equity risk premium. The response I provided to Data Request No. 0308 was just a copy of the model and did not contain the same data I had used. Data Request No. 0308 asked for "an equation, and explanation for the financial model developed by Dr. Damodaran," not the specific inputs. If Dr. Vander Weide had followed-up to this data request and asked for the specific inputs, I could have referred him to Schedule 17-2 attached to my direct testimony.

Q. Is Dr. Damodaran's methodology similar to any other methodology that is a more widely recognized method of estimating the implied equity risk premium?

A. Yes. One can simply use the single stage dividend discount model to estimate the implied equity risk premium priced in the market based on the dividend yield of the S&P 500. If one assumes that the S&P 500's sustainable long-run growth rate is similar to the 5.5 percent growth rate in the economy that Dr. Vander Weide mentions on page 30 of his rebuttal testimony, this growth rate can be applied to the current dividend yield on the S&P 500 to arrive at the required return for the market. The current dividend yield on the S&P 500 is 1.9 percent. After applying the 5.5 percent growth rate to this dividend yield, the appropriate dividend yield to include in the single stage dividend discount model on the S&P 500 is 2.00 percent. If the constant growth rate of 5.5 percent is added to this dividend yield, then the expected return in the market is only 7.5 percent. This estimate is quite low because the valuation level of the S&P 500 results in a dividend yield of slightly below

2 percent. However, this expected return on the market is fairly consistent with many of the predictions of prominent investors and academics that I have previously discussed.

Q. Are you aware of any information specific to the utility industry that would corroborate these lower equity risk premiums and hence lower required returns?

A. Yes. In a recent Value Line report on June 2, 2006, the following was stated about eastern electric utility companies:

> Currently, the average yield of all dividend-paying utility stocks is 4.3%, which is better than that (1.7%) of all stocks under our review, but historically low for this market sector. We project dividend growth of 2%-3% a year, and average 3- to 5-year utility total returns near 7.5% versus the *Value Line* universe average of 12.3%. At this juncture, utility stocks offer modest income and a fair measure of capital preservation.

Q. On page 31 of his rebuttal testimony, Dr. Vander Weide implies that the information that you provided to support a lower cost of capital is out-of-date. Did he provide any citations of current studies to refute the information you provided that supports the belief that required equity risk premiums are lower?

A. No.

Q. Did Dr. Vander Weide mention the citation in your direct testimony of the speech by Alan Greenspan, former Chairman of The Federal Reserve, as recently as last year about his concerns that investors are accepting "increasing lower levels of compensation for risk?"

A. No.

Q. What other studies assert required equity risk premiums are lower than those measured by realized equity risk premiums?

A. In 2002 Eugene Fama, Professor of Finance at the University of Chicago and Kenneth French, Professor of Finance at Dartmouth College, published an article that

challenged the notion that the realized return spreads between equities and risk-free securities were an accurate reflection of investors' actual required returns. [1] In this article, Dr. Fama and Dr. French (Fama and French), two of the most influential individuals in finance, maintained that the expected, i.e. required equity risk premium, for the period 1951 through 2000 was much lower than the realized equity risk premium that investors received for the same period. The authors specifically stated:

> Given the evidence that rational forecasts of long-term growth rates of dividends and earnings are not high in 2000, we conclude that the unexpected capital gains for 1951 to 2000 are largely due to a decline in the discount rate.

The decline in the discount rate is synonymous with stating that that cost of capital has decreased. Fama and French maintain that these excess returns were high enough to cause an upward bias in a risk premium estimate using the historical spread between equities and risk-free securities for the longer period of 1872 through 2000. Consequently, it is only logical to conclude that using the shorter-time period of 1926 through 2005 of Ibbotson Associates' data will be even more upwardly biased.

It is also important to note that the required returns on equities for the 1951 through 2000 period were measured using the dividend growth model and an earnings growth model. For the longer period of 1872 through 2000, only the dividend growth model was used. The authors also conclude that the estimates using the dividend growth model are more precise. Based on their study, the authors stated the following:

> Based on this and other evidence, our main message is that the unconditional expected equity premium of the last 50 years is probably far below the realized premium.

[1] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, (April 2002).

This means that the realized returns on equity had exceeded the cost of the equity, which the authors believe also explain recent higher market-to-book ratios. Consequently, instead of increasing the allowed return on common equity to support these higher market-to-book ratios, as Dr. Vander Weide would have the Commission do using his methodology, the Commission should adopt an ROE within my ROE recommendation of 9.50 to 9.60 percent using the DCF, i.e. dividend growth, model.

Q. You haven't discussed whether your recommended cost of common equity adjusts for Empire-specific risks, such as fuel and purchased-power recovery risks. Have you made any adjustments to your recommended cost of common equity because of any perceived risk differences between Empire and the proxy group?

A. Yes, I made a 20 basis point adjustment to take into consideration that Empire's credit rating was two notches below the comparable companies' credit rating. This adjustment takes into consideration the perceived difference in the total risk of the proxy group as compared to Empire.

Q. Do you have any other comments about Dr. Vander Weide's belief that investors determine their required rate of return based on the market values of utility companies' capital structures?

A. Yes. The S&P reports attached to my direct testimony, as Schedules 21 and 22, analyze Empire's book value capital structure rather than its market value capital structure. Additionally, in Mr. Greg Knapp's (Empire's Chief Financial Officer) November 17, 2004 deposition in Empire's last rate case, Mr. Knapp stated that Empire's targeted capital structure was around 45 to 50 percent equity based on book values (Knapp November 17, 2004 deposition at p. 54, l. 19 through p. 55, l. 14). Although Mr. Knapp

didn't explicitly state that this was based on the book value of equity, it can be deduced from the statements in his deposition that Empire's capital structure would fit into S&P's methodology, which is based on book values. Also, in my rebuttal testimony in Empire's last rate case (p. 23, l. 23 through p. 24, l. 2, Case No. ER-2004-0570), I determined that if the market value of Empire's common equity would have been used in Empire's capital structure, the common equity ratio would have been 57.26 percent, which is much higher than Empire's targeted book value of common equity. Finally, in Empire's recent purchase of the gas distribution properties from Aquila, it funded the purchase with a targeted capital mix of 45 percent equity and 55 percent debt. This is based on a book value mix, but I would also point out that when this capital is initially issued, the capital mix is also based on market values, which apparently Empire believes is an appropriate capital mix that will allow it to achieve a low overall cost of capital.

Q. Dr. Vander Weide's adjustment to reconcile his proxy group's market value capital structure to Empire's book value capital structure can become convoluted if one tries to understand all of the details involved. Can you provide an example that simplifies Dr. Vander Weide's methodology so the lay person can understand exactly what he is doing?

A. Yes. As long as one understands some simple algebra, one can get a firm understanding of Dr. Vander Weide's methodology. Let's look at a simple equation:

$$X + Y = Z$$ (X is the weighted cost of debt; Y is weighted cost of equity and Z is the cost of capital)

(The following examples assume a capital structure of 50% debt and 50% equity)

Because the cost of debt is determined by a mechanical calculation, this variable is given in most utility rate cases. Let's say Empire's cost of debt (X) is 5 and it has already been determined that the cost of capital (Z) of the proxy group is 10. In order to determine

the cost of equity, one just solves for (Y). In this case the cost of equity needs to be 5 to arrive at the cost of capital of 10. Now, let's assume that we have another company, AmerenUE, that has been able to attain a lower cost of debt of 4, but we still believe that the appropriate cost of capital is 10 because this is the industry cost of capital. Because of the relationship that has been established with this methodology, one is only left with the possibility of increasing the cost of equity to 6. Therefore, it is his methodology that drives up the indicated ROE, not risk-based analysis.

Q. Does this methodology make sense from a risk/return perspective?

A. No. If you assume that two companies have the same financial risk based on equivalent capital structures and one of the companies is able to attain a lower cost of debt, then it doesn't make sense that this very same company would have a higher cost of equity to make up for its ability to achieve a lower cost of debt. This also is inconsistent with the approach of estimating a company's cost of equity by applying a risk premium to the current yield on its debt (commonly referred to as the "bond yield plus risk premium method"). For example, assume one can estimate the cost of equity for Companies A and B by adding a 3 percent risk premium to their cost of debt. If Company A is able to achieve a lower cost of debt even with the same capital structure as Company B, then based on the "bond yield plus risk premium method," Company A should also have a lower cost of common equity. However, based on Dr. Vander Weide's methodology, the exact opposite occurs. Company A would have a higher cost of common equity than Company B. This defies the basic tenets of finance.

Q. On page 17, lines 4 through 7, and page 22, lines 20 through 23 of your rebuttal testimony you mentioned that Empire had objected two Staff data requests (Staff Data Request Nos. 0349 and 0351). Did you receive answers to these data requests?

A. Yes. Empire answered these data requests without waiving its objection to them. In response to Staff Data Request No. 0349, Empire provided a list of cases in which Dr. Vander Weide appeared in the last thirty years. However, Dr. Vander Weide does not routinely receive or maintain information on rates of return adopted. Consequently, Staff is unaware of the other states in which Dr. Vander Weide's rate of return recommendation was adopted.

Empire's response to Staff Data Request No. 0351 states that Dr. Vander Weide believes that his testimony in the cases listed in response to Staff Data Request No. 0349 have complied with the legal principles of the *Hope* and *Bluefield* cases.

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your surrebuttal testimony.

A. My revised recommended cost of common equity, which is in the range of 9.50 percent to 9.60 percent, would produce a fair and reasonable rate of return of 8.37 percent to 8.42 percent for Empire's Missouri jurisdictional electric utility rate base.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

SCHEDULE 1

HAS BEEN DEEMED

HIGHLY CONFIDENTIAL

IN ITS ENTIRETY

NP

THE EMPIRE DISTRICT ELECTRIC COMPANY
CASE NO. ER-2006-0315

Cost of Common Equity Required for Empire Using Dr. Vander Weide's Methodology from Last Empire Rate Case (After-tax Weighted Average Cost of Capital Based on Average of Gas and Electric Proxy Group Results)

Capital Component	Percentage of Capital	After-tax Cost	Weighted Cost
Common Stock Equity	51.45%	12.90%	6.64%
Preferred Stock	6.11%	5.44%	0.33%
Long-Term Debt	42.45%	4.29%	1.82%
Total	**100.00%**		**8.79%**

SCHEDULE 2

Cost of Common Equity Required for AmerenUE Using Dr. Vander Weide's Methodology from Last Empire Rate Case (After-tax Weighted Average Cost of Capital Based on Average of Gas and Electric Proxy Group Results)

Capital Component	Percentage of Capital	After-tax Cost	Weighted Cost
Common Stock Equity	52.49%	13.68%	7.18%
Preferred Stock	2.04%	5.19%	0.11%
Long-Term Debt	45.46%	3.31%	1.50%
Total	**100.00%**		**8.79%**

Sources:

Schedule JVW-11-1 attached to Dr. Vander Weide's direct testimony in Case No. ER-2007-0002.

Schedule LRN-E1-1 attached to Lee R. Nickloy's direct testimony in Case No. ER-2007-0002.