Exhibit No.:	
Issue:	*Rate of Return*
Witness:	*Stephen G. Hill*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*ER-2008-0318*
Date Testimony Prepared:	*August 28, 2008*

DIRECT TESTIMONY

OF

STEPHEN G. HILL

ON BEHALF OF

THE MISSOURI PUBLIC SERVICE COMMISSION

UNION ELECTRIC COMPANY
d/b/a AmerenUE

CASE NO. ER-2008-0318

Jefferson City, Missouri
August 2008

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Q. PLEASE STATE YOUR NAME, OCCUPATION AND ADDRESS.

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

Q. BRIEFLY, WHAT IS YOUR EDUCATIONAL BACKGROUND?

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

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

A. Yes, I have appeared previously before this Commission. In addition, I have testified on cost of capital, corporate finance and capital market issues in more than

250 regulatory proceedings before the following regulatory bodies: the West Virginia Public Service Commission, the Pennsylvania Public Utilities Commission, the Oklahoma State Corporation Commission, the Public Utilities Commission of the State of California, the Texas Public Utilities Commission, the Maryland Public Service Commission, the Public Utilities Commission of the State of Minnesota, the Ohio Public Utilities Commission, the Insurance Commissioner of the State of Texas, the North Carolina Insurance Commissioner, the Rhode Island Public Utilities Commission, the City Council of Austin, Texas, the Texas Railroad Commission, the Arizona Corporation Commission, the South Carolina Public Service Commission, the Public Utilities Commission of the State of Hawaii, the New Mexico Corporation Commission, the State of Washington Utilities and Transportation Commission, the Georgia Public Service Commission, the Public Service Commission of Utah, the Illinois Commerce Commission, the Kansas Corporation Commission, the Indiana Utility Regulatory Commission, the Virginia Corporation Commission, the Montana Public Service Commission, the Public Service Commission of the State of Maine, the Public Service Commission of Wisconsin, the Vermont Public Service Board, the Federal Communications Commission and the Federal Energy Regulatory Commission (FERC). I have also testified before the West Virginia Air Pollution Control Commission regarding appropriate pollution control technology and its financial impact on the company under review and have been an advisor to the Arizona Corporation Commission on matters of utility finance.

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

A. I am testifying on behalf of the Missouri Public Service Commission Staff (Staff).

EXECUTIVE SUMMARY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. In this testimony, I present the results of studies I have performed related to the appropriate return on equity and overall cost of capital for the integrated electric utility operations of Union Electric Company, d/b/a AmerenUE (the Company), a subsidiary of Ameren Corporation (Ameren, the Parent).

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

A. Yes, Exhibit_(SGH-1) consists of 12 Schedules and provides the analytical support for the conclusions reached regarding the cost of common equity, capital structure and overall cost of capital for AmerenUE presented in the body of the testimony. This Exhibit was prepared by me and is correct to the best of my knowledge and belief. Also, I have provided three Appendices ("A" through "C"), which contain additional detail regarding certain aspects of my narrative testimony in this proceeding.

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

A. My testimony is organized into four sections. First, I discuss factors that support the reasonableness of my cost of capital estimates. Second, I review the current economic environment in which my equity return estimate is made. Third, I review the capital structure requested by AmerenUE for ratemaking purposes in comparison to capital structures employed by the Company historically, as well as capital structures prevalent in the energy utility industry. From that review, I develop a capital structure appropriate for ratemaking purposes. Fourth, I evaluate the cost of equity capital for similar-risk utility

operations using Discounted Cash Flow (DCF), Capital Asset Pricing Model (CAPM), Modified Earnings-Price Ratio (MEPR), and Market-to-Book Ratio (MTB) analyses.

I have estimated the equity capital cost of the Company's electric utility operations to fall in a range of 9.00% to 9.75%. Within that range, I estimate the equity cost of the Company's utility operations to be 9.50%—above the mid-point of a reasonable range of equity costs due to the combination of AmerenUE's lower financial risk and higher risk related to its lack of a fuel adjustment clause.

Applying that 9.50% equity capital cost to a capital structure containing approximately 50.9% common equity, 1.8% preferred stock and 47.3% total debt, produces an overall cost of capital of 7.642% (Exhibit_(SGH-1), Schedule 12). That overall cost of capital affords the Company an opportunity to achieve a pre-tax interest coverage level of 4.06 times. That level of pre-tax interest coverage is sufficient to support or improve the Company's current credit rating. Therefore, the capital structure and overall return I recommend is sufficient to support the Company's financial position and fulfills the requirement of providing the Company the opportunity to earn a return which is commensurate with the risk of the operation while maintaining the Company's ability to attract capital.

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

A. The Supreme Court of the United States has established, as a guide to assessing an appropriate level of profitability for regulated operations, that investors in such firms are to be given an opportunity to earn returns that are sufficient to attract capital and are comparable to returns investors would expect in the unregulated sector for assuming the same degree of risk. The Bluefield and Hope cases provide the seminal decisions [Bluefield Water

Works v. PSC, 262 US 679 (1923); FPC v. Hope Natural Gas Company, 320 US 591 (1944)]. These criteria were restated in the Permian Basin Area Rate Cases, 390 US 747 (1968). However, the Court also makes quite clear in Hope that regulation does not guarantee profitability and, in Permian Basin, that, while investor interests (profitability) are certainly pertinent to setting adequate rates, those interests do not exhaust the relevant considerations.

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

Q. MR. HILL, ARE YOU AWARE OF THIS COMMISSION'S RECENT USE OF HISTORICAL ALLOWED ELECTRIC UTILITY RETURNS IN DETERMINING THE APPROPRIATENESS OF EQUITY RETURN ESTIMATES?

A. Yes, I am aware that this Commission has used historical allowed equity returns for electric utilities as a basis for creating a reasonable range for assessing equity cost estimates.

Q. DOES YOUR RECOMMENDED 9.50% RETURN ON EQUITY FALL WITHIN THIS COMMISSION'S "REASONABLE RANGE" CRITERION?

A. Yes. The January 8, 2008 edition of Regulatory Research Associates' (now an SNL Energy Company), Regulatory Focus indicates that the median equity return allowed electric utilities in the U.S. in 2007 and 2006 was 10.25%. There were 39 electric utility return on equity (ROE) determinations in 2007 and 26 in 2006. The median is the middle-value of the allowed returns, i.e., the value at which half of the ROE awards are above

and half are below. The median, unlike the average, is not affected by outliers that are unusually low or high and provides a reasonable basis for this Commission's criterion.

Using the Commission's 100 basis point metric and the median allowed ROE's for U.S. electric utilities for the last two years, 10.25%, indicates a "reasonable range" for equity returns estimates from 9.25% to 11.25%. My recommendation in this proceeding, 9.50%, falls within that range.

ECONOMIC ENVIRONMENT

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

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

Q. DOES THE OBJECTIVE EVIDENCE AVAILABLE IN THE CURRENT ECONOMIC ENVIRONMENT INDICATE THAT CAPITAL COSTS CONTINUE TO BE LOW?

A. Yes. First, the overall level of long-term fixed-income capital costs has been relatively low for several years, and continues to be low at the current time. Although, as shown in the chart below, there are relatively wide fluctuations in *short-term* interest rate levels over the past four years as the Federal Reserve (the Fed) has raised and lowered the Federal Funds rate to slow down and encourage (respectively) economic growth, long-term interest rates have fluctuated in a range of 4.5% to 5.5% over the past several years. Currently, long-term rates are at the lower end of that range.

The current data indicate that even though the Fed has recently lowered short-term interest rates to lessen an economic slowdown (or recession) and the spread between long-term and short-term treasuries is, as a result, above the historical average, investors are not convinced that the overall level of economic growth will be low enough to warrant a substantial decrease in long-term interest rates and long-term capital cost rates. As a result, long-term capital costs have decreased, but not nearly as much as short-term rates, which are directly affected by Fed policy.

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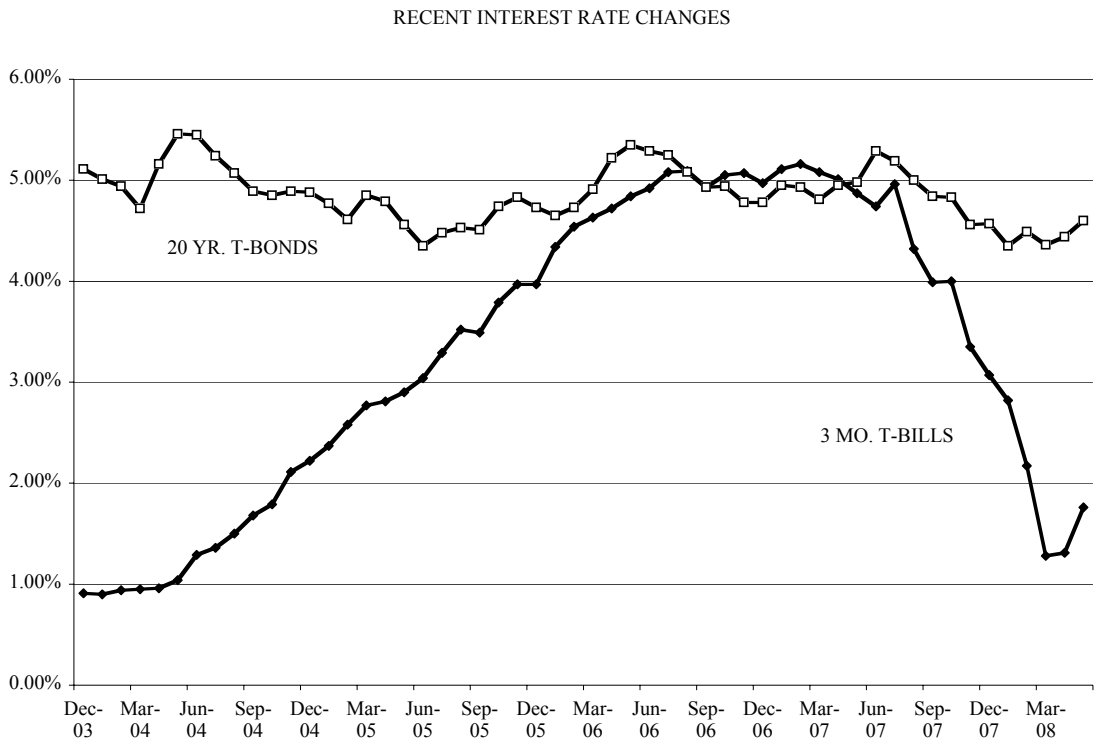

Data from Federal Reserve Statistical Release H.15

Another indication of the existence of relatively low capital cost rates is shown in Exhibit__(SGH-1), Schedule 1, page 1, which depicts Moody's Baa-rated bond yields from 1984 through May 2008. Page 1 of Schedule 1 shows that interest rates over the past couple of years are low relative to the interest rate levels that existed in the mid-1980s, and are part of a general downward trend in capital costs that began in 2000.

Also, page 2 of Schedule 1 (Exhibit__(SGH-1)), which presents the year-average Moody's Baa-rated bond yields for each year over the past 39 years (1968-2008), shows that Baa-rated bond yields thus far in 2008, remain below the bond yield levels seen in the U.S. in the late 1960s. Also, the most recent average Baa-rated utility bond yield, 6.41%[1], falls at the lower end of the range of interest rates that have existed over the past 30 years

[1] The Value Line Investment Survey, Selection & Opinion, most recent six weekly editions (5/9/08-6/13/08, inclusive), 20/30-year Baa-rated utility bond yield averages.

(See Schedule 1, page 2). Simply put, a fundamental reason that the current cost of common equity capital for electric utility operations of 9.00% to 9.75% is reasonable is that long-term capital cost rates are as low as they have been in more than thirty years.

The above data indicate that capital costs, even with the recent credit tightening by the Fed, remain at low levels and generally support the reasonableness of relatively low equity capital costs.

Q. WHAT IS THE CURRENT EXPECTATION WITH REGARD TO THE ECONOMY AND INTEREST RATES?

A. As Value Line notes in its most recent Quarterly Review the current expectation is that the economy will expand at a moderate pace during 2008 and 2009 after narrowly avoiding recession with the aid of accommodative Fed credit policy. However, increasing inflation pressures with energy, food and commodities indicate that the next interest rate move by the Fed will be toward tightening credit (i.e., increasing interest rates).

> **Economic Growth:** As noted, the nation's GDP recorded a surprising, albeit tepid, increase of 0.6% in the opening quarter [Chart omitted], mainly on strengthening in exports, a rise in federal government spending, a nominal gain in personal consumer expenditures, and a risk in inventory investment…. Our model then forecasts a resumption of growth in the third quarter, aided by the rebates and the earlier reductions in interest rates. The fourth quarter may also see rising GDP, but at a lesser rate than the prospective 1.5%-2.0% third-quarter pace. In 2009, before a solid housing comeback gets underway, helping growth to move closer to the historical trend of 3.0%-3.5%.
>
> **Inflation**: One of the hallmarks of the lengthy business expansion of the 1990s and the formative stages of the current decade's up cycle has been the comparatively low rate of inflation…. Now, all of that is changing, as oil and gas climb to one pricing record after another, while food prices escalate on soaring quotations for wheat and corn, in part furthered by the growing production of ethanol…. The level of consumer price inflation, which has held near 2.5%-3.5% for the past half decade, now seems set to climb to the upper end of that range, in the months to come, as oil and food gravitate toward levels that were unthinkable just a few months ago.

> Our sense is that pricing pressures will moderate a bit later this year as economies soften worldwide, causing demand for energy and food to wane somewhat. Our long-range view has inflation holding within a projected 2.5%-3.0% range, on the assumption that the worst fears on the energy front will subside [Chart omitted].
>
> **Interest Rates**: Recent trends have been more favorable here, as the Federal Reserve, chastened by a succession of credit market problems during 2007 and by the Bear Stearns implosion earlier this year, has been pulling out all stops to enable this country to bypass a deep recession….
>
> The positive rate of first-quarter economic growth, the likelihood that we will not suffer a deep recession, and the prospect of rising inflation in the near term all argue that the Fed will step aside and keep rates stable for a time. In fact, we thing the next move by the Fed will be to raise rates, and probably by later this year or early in 2009, a prospect that may not augur well for either the housing or the stock market [Chart omitted]. (The Value Line Investment Survey, Selection & Opinion, May 23, 2008, pp. 4125-4126.)

In that most recent Quarterly Economic Review cited above, Value Line projects long-term Treasury Bond rates will average 4.2% in 2009 and 5.1% through 2010. The recent 20-year T-Bond yield in May 2008, according to the Fed is 4.60% (Federal Reserve Statistical Release H.15, June 13, 2008). Therefore, the indicated expectation with regard to long-term interest rates is that they could move somewhat higher in the near-term future.

CAPITAL STRUCTURE

Q. WITH WHAT CAPITAL STRUCTURE DOES THE COMPANY REQUEST RATES BE SET IN THIS PROCEEDING?

A. Schedule MGO-E5 attached to Mr. O'Bryan's Supplemental Direct Testimony presents AmerenUE's requested ratemaking capital structure. The Company has filed its rate request based on a capital structure consisting of 50.928% common equity, 1.776% preferred stock, 46.558% long-term debt and 0.739% short-term debt. That ratemaking capital

structure is based on the Company's capital structure at March 31, 2008, as adjusted by the Company.

Q. IS THE COMPANY'S REQUESTED CAPITAL STRUCTURE SIMILAR TO THE MANNER IN WHICH AMERENUE HAS BEEN CAPITALIZED RECENTLY?

A. No. According to data from the Company's Response to Staff Data Request No. 99 and its Securities and Exchange Commission (S.E.C.) filings, AmerenUE was capitalized over the most recent five quarters with an average capital structure that consisted of approximately 46.2% common equity, 1.6% preferred stock, and 52% total debt (long- and short-term debt). The Company's capital structure, published in documents available to investors and the financial community, for each of the past five quarters is shown on page 1 of Schedule 2.

In addition, an examination of the Company's quarterly capital structure published in its S.E.C. filings, dating back to June 2005, indicates that AmerenUE has consistently been capitalized in a manner similar to that employed over the most recent five months. Therefore, the manner in which the Company has been capitalized is different from the capital structure requested by the Company in this proceeding.

Q. WHY IS THE CAPITAL STRUCTURE REQUESTED BY THE COMPANY DIFFERENT FROM THAT REPORTED TO THE FINANCIAL COMMUNITY AND INVESTORS?

A. First, the Company uses an amount of short-term debt for ratemaking purposes that is different from the amount appearing on its books. In calculating the amount of short-term debt used for ratemaking purposes, the actual amount of short-term debt is netted against average construction work in progress (CWIP) balances—which has become a standard regulatory practice in this jurisdiction. That adjustment creates a substantial

difference between the ratemaking and reported capital structures for AmerenUE. As shown on page 1 of Schedule 2 the Company's average short-term debt balance between March 2007 and March 2008 was approximately $337 Million. Also, the Company's response to Staff Data Request No. 107 indicates the average monthly amount of short-term debt between January 2006 and April 2008 is $327 Million. However, the Company includes only $47 Million in its ratemaking capital structure (the difference between the actual historical averages and the ratemaking amount is the average CWIP balances).

The second difference between AmerenUE's ratemaking capital structure and its reported capital structure relates to facility leases. The difference between the long-term debt reported on the Company's financial statements and the amount used by Mr. O'Bryan as a basis for his ratemaking capital structure is due to the exclusion of the lease-related debt for ratemaking purposes. Finally, the Company eliminates its investment in unregulated operations when determining its ratemaking common equity ratio. Those unregulated operations have recently been divested.

Q. WHAT ARE THE RATE IMPLICATIONS OF THE CAPITAL STRUCTURE DIFFERENCES DUE TO SHORT-TERM DEBT?

A. Basing rates on the Company requested 50.9% common equity, rather than the common equity ratio including an average amount of short-term debt, adds approximately $22 Million to the electric rates of AmerenUE's Missouri customers every year. Page 2 of Schedule 2 shows the Company's requested capital structure and cost rates at the top of the page. Assuming a combined State and Federal tax rate of 40%, the Company's requested capital structure implies a pre-tax overall cost of capital of 12.12%.

Using the Company's requested amounts of common equity, preferred stock and long-term debt in combination with a five-quarter average amount of short-term debt

($337 Million), produces a capital structure of 48.74% common equity, 1.70% preferred stock, 44.56% long-term debt and 5.00% short-term debt. That capital structure, shown in the bottom portion of Schedule 2, page 2, is similar to the mix of capital actually employed by AmerenUE.

With a capital structure including an average amount of short-term debt and the Company's requested capital cost rates, the pre-tax overall return would be 11.74%. The difference in overall pre-tax return (0.38%) multiplied by the Company-requested rate base ($5.899 Billion, see Company witness Gary S. Weiss' Schedule GSW-18), indicates that the ratemaking capital structure adjustment reducing the amount of short-term debt increases capital costs to Missouri ratepayers by approximately $22 Million annually.

Therefore, the assumption that the Company's CWIP is financed only with short-term debt removes a significant amount of that low-cost capital from consideration in the determination of the overall return for ratemaking purposes. This regulatory treatment allows the Company to recover a return from ratepayers that is higher than the capital costs it actually incurs. Therefore, the reduction of short-term debt in the ratemaking capital structure for AmerenUE should be considered a risk-reducing aspect of the regulatory process in Missouri, indicating a lower allowed return compared to other similar-risk electric utilities, all else equal.

Q. HOW DOES AMERENUE'S REGULATORY CAPITAL STRUCTURE COMPARE TO THAT UTILIZED IN THE ELECTRIC UTILITY INDUSTRY TODAY?

A. AmerenUE's ratemaking capital structure contains more common equity than is employed, on average, in the utility industry today. As shown on page 4 of Schedule 2 attached to my testimony, the average common equity ratio of the electric utility industry is 46%. Company witness Dr. Roger A. Morin selected a similar-risk sample group of

electric companies for his cost of equity analysis. Those companies are shown in his Schedule RAM-E2-1. According to the June 2008 edition of AUS Utility Reports, those companies have a current average common equity ratio of 43%. According to the same source, the electric utilities in my sample group, described later in my testimony, have an average common equity ratio of 42.4%.

AmerenUE's ratemaking common equity ratio of about 51% of total capital, contains considerably more equity and less debt than any of the similar-risk electric utility sample groups used by the cost of capital witnesses in this proceeding and more common equity than is used on average in the electric industry today. For that reason, AmerenUE's financial risk should be considered to be relatively low.

Q. WHAT CAPITAL STRUCTURE DO YOU USE TO DETERMINE THE OVERALL COST OF CAPITAL IN THIS PROCEEDING?

A. As shown on page 4 of Schedule 2, I use the Company's requested capital structure, which indicates relatively low financial risk compared to the capital structure of the other companies used to estimate the cost of capital. Therefore, I will recommend a return on equity that is below the average for that sample group, due to the reduced financial risk imparted by a ratemaking common equity ratio in excess of 50% of total capital. The cost rates for preferred stock, long-term debt and short-term debt are those included in Company witness Michael G. O'Bryan's Supplemental Direct Testimony, Schedule MGO-E5.

Q. DOES THIS CONCLUDE YOUR DISCUSSION OF CAPITAL STRUCTURE?

A. Yes, it does.

METHODS OF EQUITY COST EVALUATION

A. DISCOUNTED CASH FLOW MODEL

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

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

The theory is represented by the equation,

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

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

Q. WHAT GROWTH RATE (G) DID YOU ADOPT IN DEVELOPING YOUR DCF COST OF COMMON EQUITY FOR THE COMPANY IN THIS PROCEEDING?

A. The growth rate variable in the traditional DCF model is quantified theoretically as the dividend growth rate investors expect to continue into the indefinite future. The DCF model is actually derived by 1) considering the dividend a growing perpetuity, that is, a payment to the stockholder which grows at a constant rate indefinitely, and 2) calculating the present value (the current stock price) of that perpetuity. The model also assumes that the company whose equity cost is to be measured exists in a steady state environment, i.e., the payout ratio and the expected return are constant and the earnings,

dividends, book value and stock price all grow at the same rate, forever. As with all mathematical models of real-world phenomena, the DCF theory does not exactly "track" reality. Payout ratios and expected equity returns do change over time. Therefore, in order to properly apply the DCF model to any real-world situation and, in this case, to find the long-term sustainable growth rate called for in the DCF theory, it is essential to understand the determinants of long-run expected dividend growth.

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

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

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

A. While I have calculated both the historical and projected sustainable growth rates for a sample of utility firms with similar-risk operations, I have not relied solely on that type of growth rate analysis. To estimate an appropriate DCF growth rate, I have also utilized published data regarding both historical and projected growth rates in earnings, dividends, and book value for the sample group of utility companies. Through an examination of all of those data, which are available to and used by investors, I estimate investors' long-term internal growth rate expectations. To that long-term growth rate estimate, I add any additional growth that is attributable to investors' expectations regarding the on-going sale of stock for each of the companies under review.

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

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

Q. HOW WERE THE FIRMS SELECTED FOR YOUR ANALYSIS?

A. In selecting a sample of electric utility firms to analyze, I screened all the electric utilities followed by Value Line, because that investor service, in addition to providing a wealth of historical data, provides projected information, which is important in gauging investor expectations. I selected electric companies that had at least 70% of revenues from electric operations, had generation assets, did not have a pending merger, did not have a recent dividend cut, had stable book values and a senior bond rating between "A-" and "BBB-". The screening process for electric utilities is summarized on Schedule 3

attached to my testimony. All of the electric utilities followed by Value Line are shown, as well as the screening parameters and the parameter values for each company. The Companies selected for analysis as most similar in risk to AmerenUE are: Central Vermont Public Service (CV), FirstEnergy Corp. (FE), Northeast Utilities (NU), Ameren Corp. (AEE), American Electric Power (AEP), Cleco Corp. (CNL), Empire District Electric (DPL), Entergy Corp. (ETR), Westar Energy (WR), Hawaiian Electric (HE), Idacorp (IDA), Pinnacle West Capital Corp. (PNW), Unisource Energy (UNS), and Xcel energy (XEL).[2]

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

A. Schedule 4, pages 1 through 5, shows the retention ratios, equity returns, sustainable growth rates, book values per share and number of shares outstanding for the comparable electric companies for the past five years. Also included in the information presented in Schedule 4, are Value Line's projected 2008, 2009 and 2011-2013 values for equity return, retention ratio, book value growth rates and number of shares outstanding.

In evaluating these data, I first calculate the five-year average sustainable growth rate, which is the product of the earned return on equity (r) and the ratio of earnings retained within the firm (b). For example, Schedule 4, page 2, shows that the five-year average sustainable growth rate for AmerenUE's parent company Ameren Corp (AEE) is 1.33%. The simple five-year average sustainable growth value is used as a benchmark against which I measure the company's most recent growth rate trends. Recent growth rate trends are more investor influencing than are simple historical averages. Continuing to focus on AEE, we see that sustainable growth began the period at about 2.2% and ended at 1.3%, indicating a

[2] In the Schedules accompanying this testimony, the sample group companies are referred to by their stock ticker symbols, shown in parentheses here.

slowing growth rate trend. By the 2011-2013 period, however, Value Line projects AEE's sustainable growth will reach a level that exceeds the recent five-year average—2.70%. These forward-looking data indicate that investors expect AEE to grow at a rate greater than the growth rate that has existed, on average, over the past five years.

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

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

Another factor to consider is that AEE's book value growth is expected to increase at a 3.0% level over the next five years, after increasing at a 5.5% rate historically. This information indicates declining growth and would tend to moderate growth rate expectations. Also, as shown on Schedule 5, page 2, AEE's dividend growth rate, which was 0% historically, is expected to remain the same in the future. While the company is meeting its dividend requirements to investors, the dividend is not expected to increase, which would moderate long-term growth expectations.

Earnings growth rate data available from Value Line indicate that investors can expect a relatively higher growth rate in the future (3.5%), compared to that which has existed over the past five years (-1.5%). IBES and Zack's (investor advisory services that poll institutional

analysts for growth earnings rate projections) also project higher earnings growth rate for AEE—4% and 5%, respectively—over the next five years.

AEE's projected sustainable growth is expected to approach 3%, dividend growth is expected to be flat and book value growth is projected to increase at a 3% annual rate. Per share earnings growth is expected to range from 3.5% to 5%. A long-term sustainable growth rate of 3.5% is a reasonable expectation for AEE.

Q. IS THE INTERNAL (B X R) GROWTH RATE THE FINAL GROWTH RATE YOU USE IN YOUR DCF ANALYSIS?

A. No. An investor's sustainable growth rate analysis does not end upon the determination of an internal growth rate from earnings retention. Investor expectations regarding growth from external sources (sales of stock) must also be considered and examined. For AEE, page 2 of Schedule 4 shows that the number of outstanding shares increased at a 6.4% rate over the most recent five-year period, due primarily to an equity issuances in 2004 and 2005. However, Value Line expects the number of shares outstanding to increase at a slower rate through the 2011-2013 period, bringing the share growth rate to a 1.2% rate by that time. An expectation of share growth of 2% is reasonable for this company.

Because AEE is currently trading at a market price that is greater than book value, issuing additional shares will increase investors' growth rate expectations. Multiplying the expected growth rate in shares outstanding by (1-(Book Value/Market Value))[3] increases the

[3] This is Gordon's formula for "v" the accretion rate related to new stock issues. B=book value, M=market value. (Gordon, M.J., The Cost of Capital to a Public Utility, MSU Public Utilities Studies, East Lansing, Michigan, 1974, pp., 30–33)

investor-expected growth rate for AEE by 0.54%. Therefore, the combined internal and external growth rate for AEE is 4.04% (3.5% internal growth and 0.54% external growth).

I have included the details of my growth rate analyses for AEE as an example of the methodology I use in determining the DCF growth rate for each company in the electric industry sample. A description of the growth rate analyses of each of the companies included in my sample groups is set out in Appendix C. Schedule 5, page 1 of Exhibit_(SGH-1) attached to this testimony shows the internal, external and resultant overall growth rates for the electric utility companies analyzed.

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

A. Yes. Pages 2 and 4 of Schedule 5 shows the results of my DCF growth rate analysis as well as 5-year historic and projected earnings, dividends and book value growth rates from Value Line, earnings growth rate projections from Reuters, the average of Value Line and IBES growth rates and the 5-year historical compound growth rates for earnings, dividends and book value for each company under study.

My DCF growth rate estimate for all the electric utility companies included in my analysis is 5.04%. This figure happens to equal Value Line's projected average growth rate in earnings, dividends and book value for those same companies (5.04%) and is well above the five-year historical average earnings, dividend and book value growth rate reported by Value Line for those companies (2.31%). My growth rate estimate for the electric companies under review is below the analysts' earnings growth rate projections—7.3% and 7% (IBES and Zack's, respectively). Also, my growth rate estimate is well above the projected dividend growth rate of the sample companies, 4.36%.

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

A. Yes, it does.

Q. HOW HAVE YOU CALCULATED THE DIVIDEND YIELDS?

A. I have estimated the next quarterly dividend payment of each firm analyzed and annualized them for use in determining the dividend yield. If the quarterly dividend of any company was expected to be raised in the next quarter (3rd quarter 2008), I increased the current quarterly dividend by (1+g). Because many of the companies had recently increased dividends or were not expected to increase dividends at all during 2008, for the utility companies in the sample group, a dividend adjustment was necessary only for Pinnacle West and Xcel Energy.

The next quarter annualized dividends were divided by a recent daily closing average stock price to obtain the DCF dividend yields. I use the most recent six-week period to determine an average stock price in a DCF cost of equity determination because I believe that period of time is long enough to avoid daily fluctuations and recent enough so that the stock price captured during the study period is representative of current investor expectations.

Schedule 6 contains the market prices, annualized dividends and dividend yields of the utility companies under study. Schedule 6, indicates that the average dividend yield for the sample group of electric companies is 4.25%. The year-ahead dividend yield projection for the electric utility sample group published by Value Line is 4.33% (The Value Line Investment Survey, Summary & Index, June 13, 2008). By that measure, my dividend yield calculation is slightly lower, but representative of investor expectations.

Q. WHAT IS YOUR COST OF EQUITY CAPITAL ESTIMATE FOR THE ELECTRIC UTILITY COMPANIES, UTILIZING THE DCF MODEL?

A. Schedule 7 shows that the average DCF cost of equity capital for the group of electric utilities is 9.28%.

B. CAPITAL ASSET PRICING MODEL

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

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

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

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

Q. CAN YOU EXPLAIN WHY THE CAPM ANALYSIS SHOULD BE APPLIED TO COST OF CAPITAL ESTIMATION WITH CAUTION?

A. Yes. The reasons why the CAPM should be used in cost of capital analysis with caution are set out below. It is important to understand that my caution with regard to the use of the CAPM in a cost of equity capital analysis does not indicate that the model is not a useful description of the capital markets. Rather, my caution recognizes that in the practical application of the CAPM to cost of capital analysis there are problems that can cause the results of that type of analysis to be less reliable than other, more widely accepted models, such as the DCF.

The CAPM was originally designed as a point-in-time tool for selecting stock portfolios that matched a particular investor's risk/return preference. Its use in rate of return analysis to estimate multi-period return expectations for one stock or one type of stock, rather than a diversified portfolio of stocks, takes the model out of the context for which it was intended. Also, questions regarding the fundamental applicability of the CAPM theory, the accuracy of beta and the magnitude of the market risk premium have arisen recently in the financial literature.

There has been much comment in the financial literature regarding the strength of the assumptions that underlie the CAPM and the inability to substantiate those assumptions through empirical analysis. Also, there are problems with the key CAPM risk measure, beta, that indicate that the CAPM analysis is not a reliable primary indicator of equity capital costs.

Cost of capital analysis is a decidedly forward-looking, or *ex-ante*, concept. Beta is not. The measurement of beta is derived with historical, or *ex-post*, information. Therefore, the beta of a particular company, because it is usually derived with five years of historical data, is slow to change to current (i.e., forward-looking) conditions, and some price abnormality that may have happened four years ago could substantially affect beta while, currently, being of little actual concern to investors. Moreover, this same shortcoming, which

assumes that past results mirror investor expectations for the future plagues the market risk premium in an ex-post, or historically-oriented CAPM.

Also, an important study performed for the Center for Research in Security Prices at the University of Chicago Graduate School of Business shows that the assumed linear relationship between beta, risk and return (i.e., beta varies directly with risk and return) simply does not appear to exist in the marketplace. As Value Line reported in its Industry Review published in March of 1992:

> Two of the most prestigious researchers in the financial community, Professors Eugene F. Fama and Kenneth R. French from the University of Chicago have challenged the traditional relationship between Beta and return in a recent paper published by the Center for Research in Security Prices. In this study, the duo traced the performance of thousands of stocks over 50 years, but found no statistical support for the hypothesis that the relationship between volatility and return is significantly different from random. (Value Line, Industry Review, March 13, 1992, pp. 1-8.)

Fama and French have continued their investigation of the CAPM since their 1992 article and have postulated that a more accurate CAPM would use two additional risk measures in addition to beta. However, it is important to note that while those authors tout the superiority of their three-factor CAPM to the single-beta CAPM on theoretical grounds, they recognize that there are significant problems with any type of asset pricing model when it comes to using the model to estimate the cost of equity capital. Recently, Fama and French noted regarding the CAPM:

> The attraction of the CAPM is that is offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk. Unfortunately, the empirical record of the model is poor—poor enough to invalidate the way it is used in applications. The CAPM's empirical problems may reflect theoretical failings, the result of many simplifying assumptions. But they may also be caused by difficulties in implementing valid tests of the model…. In the end, we argue that whether the model's problems reflect weaknesses in the theory or in its empirical implementation, the

> failure of the CAPM in empirical tests implies that most applications of the model are invalid. (Fama, E., French, K., "The Capital Asset Pricing Model: Theory and Evidence," *Journal of Economic Perspectives*, Vol. 18, No. 3, Summer 2004, pp. 25-46)

While the recently published conclusions as to the imprecision of equity cost estimates produced by CAPM-type models does not negate the risk/return basis or the general theory of asset pricing, they do call for more accurate measures with which asset returns can be more reliably indexed. However, unless and until such indices are published and widely accepted in the marketplace, CAPM cost of equity capital estimates should be relegated to a supporting role or informational status. Therefore, I use the CAPM for informational purposes and do not rely on that methodology as a primary equity capital cost estimation technique.

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

A. As the CAPM is designed, the risk-free rate is that rate of return investors can realize with certainty. The nearest analog in the investment spectrum is the 13-week U. S. Treasury Bill (T-Bill). However, T-Bills can be heavily influenced by Fed policy, as they have been over the past three years. While longer-term U.S. Treasury Bonds (T-Bonds) have equivalent default risk to T-Bills, those longer-term government securities carry maturity risk that the T-Bills do not have. When investors tie up their money for longer periods of time, as they do when purchasing a long-term Treasury, they must be compensated for future investment opportunities forgone as well as the potential for future changes in inflation. Investors are compensated for this increased investment risk by receiving a higher yield on T-Bonds. However, when T-Bills and T-Bonds exhibit a "normal" (historical average) spread of about 1.5% to 2%, the results of a CAPM analysis that matches a higher market risk

premium with lower T-Bill yields or a lower market risk premium with higher T-Bond yields, are very similar.

As I noted in my previous discussion of the macro-economy, the Fed has acted vigorously since August of 2007 to lower short-term interest rates. Over the most recent six-week period, T-Bills have produced an average yield of 1.74% and Treasury Bonds have yielded 4.60% (data from The Value Line Investment Survey, Selection & Opinion, the six most recent weekly editions (5/9/08-6/13/08) available at the time of the preparation of my analysis).

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

A. In the current economic environment, the use of a long-term Treasury Bond produces a more accurate estimate of investors' cost of equity. Although the selection of a long- or short-term Treasury security as the risk free rate of return to be used in the CAPM is one of the areas of contention in applying the model in cost of capital analysis, the use of a normalized short-term T-Bill rate is the more prevalent in the literature. However, as noted above the T-Bill yield can be influenced by Fed policy, and, could produce inaccurate indications of the cost of equity, especially if the yield differential between T-Bonds and T-Bills is different from long-term averages as they are now.

Recently, with the Fed pushing down short-term T-Bill yields through credit easing, the yield differential between T-Bonds and T-Bills has widened to about 2.8%, which is well above long-term averages of about 1.5% to 2%. Therefore, the short-term CAPM (i.e., the CAPM based on short-term T-Bill yields) is likely to understate the cost of equity. While I will present the results of both long- and short-term CAPM analyses, for purposes of analysis in this proceeding I will rely on the long-term Treasury Bond yields for the risk-free

rate in the CAPM. Also, along with those measures of the risk-free rate I use the corresponding measures of market risk premiums.

Q. YOU MENTIONED PREVIOUSLY THAT RECENT RESEARCH HAS RAISED QUESTIONS REGARDING THE MAGNITUDE OF THE PROPER MARKET RISK PREMIUM TO USE IN A CAPM ANALYSIS. CAN YOU SUMMARIZE THAT RESEARCH AND ITS IMPACT ON ESTIMATING THE MARKET RISK PREMIUM?

A. The market risk premium is the difference between the return investors expect on stocks and the return they expect on a risk-free rate of return like a Treasury Bond. The "traditional" view, supported primarily by the earned return data over the past 80 years published by Morningstar, is based on the historical difference between the returns on stocks and the returns on bonds. That view assumes that the returns actually earned by investors over a long period of time are representative of the returns they expect to earn in the future.

For example, the Morningstar data show that investors have earned a return of 12.3% on stocks and 5.8% on long-term Treasury Bonds since 1926.[4] Therefore, based on those historical data, it is assumed that investors will require a risk premium in the future of 6.5% above the long-term risk-free rate to invest in stocks [12.3% - 5.8% = 6.5%]. With a current long-term T-Bond yield of 4.6%, that assumption indicates an investor expectation of an 11.1% return for the stock market in general [4.6% + 6.5% = 11.1%]. However, current research indicates that there are aspects of the Morningstar historical data set that, when examined, point not only to lower historical risk premiums than those reported by Morningstar, but also expected risk premiums that are much lower.

[4] Morningstar, SBBI Valuation Edition, 2007 Yearbook, p. 28.

The large body of research on the market risk premium was set in motion shortly after the first publication of Ibbotson and Sinquefield's initial study of the historical database of security prices and returns in 1977.[5] In response to Ibbotson's historical data, Mehra and Prescott published a paper on what would come to be known as the "equity risk premium puzzle."[6] In that paper, Mehra and Prescott noted that historical earned risk premiums were much higher than could be rationalized with standard economic models based on investors with reasonable risk aversion parameters. As Mehra noted in a recent article reviewing the risk premium research that he spawned:

> "To the original question: Are stocks so much riskier than T-bills that a 7 pp [percentage point] differential in their rates of return is justified? …Stocks and bonds pay off in approximately the same states of nature or economic scenarios, and hence, as argued earlier, they should command approximately the same rate of return. In fact, using standard theory to estimate risk-adjusted returns, we found that stocks, on average, should command, at most, a 1 pp return premium over bills."(Mehra, R., "The Equity Premium: Why Is It a Puzzle?" *Financial Analysts Journal*, January/February 2003, p. 56)

Mehra's original 1985 paper challenged the academic community and set off a flurry of research on two tracks. One track focused on behavioral finance, attempting to apply new aspects to traditional models describing investors' utility preferences, and expanding on Mehra's original research, which indicated that equities should at most command return premiums of 1% above bonds. If it could be shown that other models indicated that the theoretical return difference for equities was higher (and closer to the historical result), the "puzzle" originally postulated by Mehra would be somewhat less problematic. As Mehra notes in the abstract of the 2003 article cited above, the "proposed resolutions" in this track of

[5] Ibbotson, R., Sinquefield, R., Stocks, Bonds, Bills and Inflation: The Past (1926-1976) and The Future (1977-2000), Financial Analysts Research Foundation, University of Virginia, Charlottesville VA, 1977.

[6] Mehra, R., Prescott, E., "The Equity Premium: A Puzzle," *Journal of Monetary Economics*, No. 15 (March 1985), pp. 145-61.

research "fail along crucial dimensions." In other words, no one has yet come up with a behavioral economics model that explains the risk premium puzzle.

The other track of research that resulted from Mehra's original article was a detailed examination of the historical financial data based on the earned returns of stocks and bonds. The questions examined included: is the period chosen by Ibbotson (now Morningstar) too short; is the volatility experienced historically likely to be representative of the future; are there stochastic problems in the data such as survivor bias? It is to this latter research track that I refer—the research in financial economics directly related to the determination of the historical market risk premium. The overwhelming result of that recent research is that the Morningstar data overstate investors' current risk premium expectations.

For example, Dimson, Marsh, and Staunton published a recent article that evaluates returns over the past 100 years in the U.S., as well as other established stock markets, "Risk and Return in the 20th and 21st Centuries." Those researchers summarize their findings this way:

> The single most important contemporary issue in finance is the equity risk premium. This drives future equity returns, and is the key determinant of the cost of capital. The risk premium—the expected reward for bearing the risk of investing in equities, rather than in low-risk investments such as bills or bonds—is usually estimated from historical data…. The authors show that the historical equity risk premium has been lower than previously believed, and argue that the future risk premium is likely to be lower still. (Dimson, Marsh, Staunton, "Risk and Return in the 20th and 21st Centuries," *Business Strategy Review*, 2000, Volume 11, Issue 2, pp. 1-18)[7]

Dimson, et al, show that the Morningstar historical data set, which measures bond and stock return data from 1926 forward, suffers from survivor bias. Simply put, Morningstar's

[7] The Dimson, et al, article cited here was an advance summary of a subsequent textbook on the subject of the market risk premium: Triumph of the Optimists, Princeton University Press, Princeton NJ, 2002.

data is based on the stock market results of only the successful stocks, i.e., those that were successful enough to be listed on a major U.S. exchange. The return data of the stocks that did not grow large enough to be listed on a stock exchange or data from markets or time periods that were difficult to measure are not included in the Morningstar data—and those results are overstated for that reason. Dimson, et al, measure historical returns over a longer period than Morningstar—100 years of data—and include an analysis of the returns of stock markets in other countries, which gives a broader sample of investor opinion than the oft-cited Morningstar data.

Researching more data over a longer period of time, those authors come to the conclusion that over the past 100 years common stocks worldwide have earned an average arithmetic return that is 5.0% above Treasury Bonds.[8] Morningstar's return difference between stock and long-term bonds is 6.5%—150 basis points higher.

However, Dimson and his co-authors show that historical results, alone, are not accurate measures of future returns expectations unless the abnormalities in the historical record that are unlikely to exist in the future are removed. Taking those facts into account, the authors conclude that, "the key qualitative point is that [the expected risk premium] is lower than the raw historical risk premium."

There is significant additional research on historical returns that supports the reasonableness of lower market risk premiums. For example, in Stocks for the Long Run, A Guide to Selecting Markets for Long-term Growth (Irwin Professional Publishing, Chicago, IL, 1994, pp. 11-15), Professor Jeremy Siegel concludes that between 1802 and 1992, the return differential between stocks and long-term Treasuries ranged from 3.4% to 5.1%.

[8] A market risk premium of 5% added to a current T-Bond yield of 4.9% would indicate an equity return expectation for common stocks of 9.9% (expected utility stock returns would be lower).

Using the approximate mid-point, a 4% historical risk premium would indicate that investors could reasonably expect a stock market return of about 9% (5% long-term T-Bonds plus a 4% risk premium).

Therefore, recent research on the historical market risk premium, using a broader range of stock market data, show that the Morningstar data overstate long-term historical market risk premiums. Moreover, that research indicates that the risk premium investors expect for the future—the prime determinant of today's equity return requirements—is lower than long-term historical experience would indicate.

Q. IS THERE OTHER RECENT RESEARCH ON THE MARKET RISK PREMIUM THAT IS NOT BASED PURELY ON HISTORICAL EARNED RETURNS, AND WHICH SHOWS THE MARKET RISK PREMIUM TO BE SUBSTANTIALLY LOWER THAN THAT PUBLISHED BY MORNINGSTAR?

A. Yes, there is other new research regarding the risk premium, which is not based on historical earned returns. That research also indicates the Morningstar data is skewed upward and that the forward-looking market risk premium is lower. In 2003, Eugene Fama and Kenneth French published an article in *The Journal of Finance* focusing on the equity risk premium and measured (instead of the realized return) the expected return on the market less the expected return on bonds (the yield) over a long-term period, as well as several sub-periods. Their research, based on long-term historical expected returns, indicates that the *expected* (i.e., forward-looking) risk premium is in the range of 2.6% to 4.3%.[9]

Also, Professors Graham and Harvey of Duke University, who are currently co-editors of the *Journal of Finance*, in conjunction with *CFO Magazine*, regularly poll corporate

[9] Fama, E., French, K., "The Equity Premium," *The Journal of Finance*, Vol. LVII, No. 2, April 2003, pp. 637-659.

financial officers regarding their expectations regarding the expected market risk premium. The most recent result of the quarterly poll (January 2007) indicates that the financial executives polled expect stock returns over the next ten years to be only 3.2% higher than bond returns.[10] Since the survey was initiated (2000), the forward-looking market risk premium has ranged from about 2.5% to 4.5%. That means that corporate financial officers—individuals that are arguably well versed in capital markets—expect equity returns to range from 2.5% to 4.5% above ten-year Treasury Bonds. With current 20-year Treasury Bond yields of approximately 5%, the Duke survey pegs investor equity return expectations ranging from about 7.5% to 9.5%.

Also, in three independent papers presented to the Social Security Advisory Board, in 2001, John Y. Campbell (Harvard), Peter A. Diamond (M.I.T.), and John B. Shoven (Stanford), conclude that the long-term expected market risk premium is lower than exemplified by historical experience, and will range from 3% to 4% above U.S. Treasury securities in the future. With current T-Bond levels, that risk premium indicates an expected return on the stock market, generally, of about 8% to 9%.

I have mentioned a few of the research articles regarding the market risk premium that have been published over the last few years. There have been many, and the vast majority of them indicate that the expected market risk premium is below that exhibited in the Morningstar historical data.[11]

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[10] Graham, J., Harvey, C., "The Equity Risk Premium in January 2007: Evidence from the Global CFO Outlook Survey," Duke University/*CFO Magazine*, http://www.cfosurvey.org.

[11] There is only one academic study that, to my knowledge, supports the Morningstar historical risk premium data: Harris, Marston, Mishra and Obrien, "Ex Ante Cost of Equity Estimates of the S&P 500 Firms: The Choice between Global and Domestic CAPM," *Financial Management*, Autumn 2003, pp. 51-66. However, that study reviewed a relatively short period of data (mid-1980s to late-1990s), which included the longest bull market in U.S. history—unlikely to be representative of long-term expectations for the future.

Q. HAS THE RESEARCH YOU CITE FOUND ITS WAY INTO TODAY'S FINANCE TEXTBOOKS?

A. Yes. In the 2006 edition of their finance textbook, Brealey and Meyers[12] discuss the findings of Dimson, Staunton and Marsh. Importantly, in prior editions of their textbooks Brealey, et al, cited the Morningstar historical data, now they do not. They also discuss other recent findings regarding the market risk premium (e.g., Fama/French, Graham/Harvey). The textbook authors conclude, based on a review of the recent evidence regarding the market risk premium, that a reasonable range of equity premiums above short-term Treasury Bills is 5% to 8%.[13] Because, the long-term historical difference in the return between T-Bonds and T-Bills has been 1.2%, Brealey and Meyers' textbook indicates a long-term market risk premium relative to T-Bonds ranging from 3.8% to 6.8% [5% - 1.2% = 3.8%; 8% - 1.2% = 6.8%].[14] The mid-point of that 3.8% to 6.8% reasonable risk premium range is 5.3%. Although 5.3% is higher than other risk premium estimates, that average market risk premium added to a current T-Bond yield of 4.5%, would produce a current equity return expectation for U.S. equities of 9.3%. Because utility stocks are less risky than the market as a whole, an appropriate return on equity for utilities would be lower.

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

A. In the 2007 edition of Stocks, Bonds, Bills and Inflation, Morningstar indicates that the average market risk premium between stocks and T-Bills over the 1926–2006 time period is 6.5% (based on an arithmetic average), and 5.0% (based on a

[12] Brealey, R., Meyers, S., Allen, F., Principles of Corporate Finance, 8th Edition, McGraw-Hill, Irwin, Boston MA, 2006.
[13] Op cit, p. 154.
[14] Op cit, pp. 149, 222.

geometric average). I have, in prior testimony, used these values as an estimate of the market risk premium in the CAPM analysis. Due to the volume of research on the market risk premium discussed above, more recently, I have relied more heavily on the lower end of that range.

As I have noted above, recent research in the field of financial economics has shown that the market risk premium data published by Morningstar overstates investor-expected market risk premiums. Current textbooks (Brealey and Meyers) indicate that the long-term market risk premium ranges from 3.8% to 6.8%—reaching much lower levels than the Morningstar data indicates. The mid-point of Brealey and Meyer's long-term risk premium range is 5.3%, which is within the 5% to 6.5% range published by Morningstar. For purposes of determining the CAPM cost of equity in this proceeding I will use the mid-point of the long-term risk premium range set out in the most recent Brealey and Meyer's text—5.3%, as well as the Morningstar market risk premiums to develop a range of CAPM equity cost estimates.

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

A. Value Line reports beta coefficients for all the stocks it follows. Value Line's beta is derived from a regression analysis between weekly percentage changes in the market price of a stock and weekly percentage changes in the New York Stock Exchange Composite Index over a period of five years. The average beta coefficient of the sample of electric companies is 0.83.

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

A. Schedule 8 shows that the average Value Line beta coefficient for the group of electric companies under study is 0.83. The mid-point of the range of market risk premiums published by Brealey and Meyers of 5.3% would, upon the adoption of a 0.83 beta, become a sample group premium of 4.40% (0.83 x 5.3%). That non-specific risk premium added to the risk-free T-Bond rate of 4.60%, previously derived, yields a common equity cost rate estimate of 9.00%. Using the geometric market risk premium of 4.90% with the current T-Bond yield produces a CAPM estimate of 9.19%. Using the range of market risk premiums published by Morningstar (5.0% to 6.5%) the resulting CAPM equity cost estimates range from 8.75% to 9.99%, with a mid-point of 9.37%.

C. MODIFIED EARNINGS-PRICE RATIO ANALYSIS

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

A. The earnings-price ratio is calculated simply as the expected earnings per share divided by the current market price. In cost of capital analysis, the earnings-price ratio (which is one portion of this analysis) can be useful in a corroborative sense, since it can be a good indicator of the proper range of equity costs when the market price of a stock is near its book value. When the market price of a stock is *above* its book value, the earnings-price ratio *understates* the cost of equity capital. Schedule 9 contains mathematical proof for this concept. The opposite is also true, i.e., the earnings-price ratio *overstates* the cost of equity capital when the market price of a stock is *below* book value.

Under current market conditions, the utilities under study have an average market-to-book ratio of 1.56 and, therefore, the average earnings-price ratio alone will understate the cost of equity for the sample groups. However, I do not use the earnings-price ratio alone as an indicator of equity capital cost rates. Because of the relationship among the

earnings-price ratio, the market-to-book ratio and the investor-expected return on equity described mathematically in Schedule 9, I have modified the earnings-price ratio analysis by including expected returns on equity for the companies under study. It is that modified analysis that I will use to assist in estimating an appropriate range of equity capital costs in this proceeding.

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

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

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

When market-to-book ratios are above one, the expected equity return exceeds and the earnings-price ratio understates the cost of equity capital. When market-to-book ratios are below one, the expected equity return understates and the earnings-price ratio exceeds the

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

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

Q. IS THERE OTHER THEORETICAL SUPPORT FOR THE USE OF AN EARNINGS-PRICE RATIO IN CONJUNCTION WITH AN EXPECTED RETURN ON EQUITY AS AN INDICATOR OF THE COST OF EQUITY CAPITAL?

A. Elton and Gruber, Modern Portfolio Theory and Investment Analysis (New York University, Wiley & Sons, New York, 1995, pp. 401-404) provide support for reliance on my modified earnings price ratio analysis.

Elton and Gruber posit the following formula,

$$k = (1-b)E/(1-cb)P, \text{ where} \qquad (3)$$

"k" is the cost of equity capital, "b" is the retention ratio, "E" is earnings, "P" is market price and "c" is the ratio of the expected return on equity to the cost of equity capital (ROE/k). This formula shows that when ROE = k, "c" equals 1.0 and the cost of equity capital equals

the earnings-price ratio. Moreover, in that case, ROE is greater than "k" (as it is in today's market), "c" is greater than 1.0 and the earnings-price ratio will understate the cost of equity. Also, the more that ROE exceeds "k" the more the earnings price ratio will understate "k." In other words, as I noted previously, those two parameters, the earnings-price ratio and the expected return on equity (ROE) orbit around the cost of equity capital, with the cost of equity as the locus, and fluctuate so that their mid-point approximates the cost of equity capital.

Assuming an industry average retention ratio of about 30% (i.e., 70% of earnings are paid out as dividends), the stochastic relationship between the expected return (ROE) and the earnings price ratio can be determined from Equation (3), above, as shown in Table A below. Most importantly, Table A shows that the average of the EPR and ROE (which is my MEPR analysis) will approximate "k", the cost of equity capital.

Table A

SUPPORT FOR THE MODIFIED EARNINGS PRICE RAITO ANALYSIS

Cost of Equity	Retention Ratio	ROE	ROE/k	Earnings Price Ratio	M.E.P.R. (ROE+EPR)/2
[1]	[2]	[3]	[4]=[3]/[1]	[5]	[6]=([3]+[5])/2
10.00%	35.00%	13.00%	1.3	8.38%	10.69%
10.00%	35.00%	12.00%	1.2	8.92%	10.46%
10.00%	35.00%	11.00%	1.1	9.46%	10.23%
10.00%	35.00%	10.00%	1.0	10.00%	10.00%
10.00%	35.00%	9.00%	0.9	10.54%	9.77%
10.00%	35.00%	8.00%	0.8	11.08%	9.54%
10.00%	35.00%	7.00%	0.7	11.62%	9.31%

[5] From Equation (3): $E/P = k(1-cb)/(1-b)$

As the data in Table A shows, the average of the expected equity return (ROE) and the earnings price ratio (EPR) produces an estimate of the cost of common equity capital of

sufficient accuracy to serve as a check of other analyses, which is how I use the model in my testimony.

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

A. Schedule 10 shows the IBES projected 2009 per share earnings for each of the firms in the sample groups. Recent average market prices (the same market prices used in my DCF analysis), and Value Line's projected return on equity for 2009 and 2011-2013 for each of the companies are also shown.

The average earnings-price ratio for the electric sample group, 7.39%, is below the cost of equity for those companies due to the fact that their average market-to-book ratio is currently above unity (average electric utility M/B = 1.56). The sample electric companies' 2009 expected book equity return averages 9.89%. For the electric sample group, then, the mid-point of the earnings-price ratio and the current equity return is 8.64%.

Schedule 10, page 1 also shows that the average expected book equity return for the electric utilities over the next three- to five-year period increases slightly to 10.29%. The midpoint of the long-term projected return on book equity (10.29%) and the current earnings-price ratio (7.39%) is 8.84%. That longer-term analysis provides another forward-looking estimate of the equity capital cost rate of electric utility firms. The results of this MEPR analysis indicate that the DCF equity cost estimate previously derived may be overstated (i.e., too high).

D. MARKET-TO-BOOK RATIO ANALYSIS

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

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

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

$$P = D/(k-g). \quad (4)$$

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

$$D = E(1-b). \quad (5)$$

Substituting Equation (5) into Equation (4), we have

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

The earnings (E) are equal to the return on equity (r) times the book value of that equity (B). Making that substitution into Equation (6), we have

$$P = \frac{rB(1-b)}{k-g} . \quad (7)$$

Dividing both sides of Equation (7) by the book value (B) and noting from Equation (iii) in Appendix B that g = br+sv,

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

Finally, solving Equation (8) for the cost of equity capital (k) yields the MTB formula:

$$k = \frac{r(1-b)}{P/B} + br + sv. \qquad (9)$$

Equation (9) indicates that the cost of equity capital equals the expected return on equity multiplied by the payout ratio, divided by the market-to-book ratio plus growth. Schedule 11 shows the results of applying Equation (9) to the defined parameters for the electric utility firms in the comparable sample. For the electric utility sample group, page 1 of Schedule 11 utilizes next year (2009) data for the MTB analysis while page 2 utilizes Value Line's 2011-2013 projections.

The MTB cost of equity for the sample of electric utility firms, recognizing a current average market-to-book ratio of 1.56 is 9.16% using the current year data and 9.28% using projected three- to five-year data. Those point-in-time estimates are slightly below, but tend to confirm, my DCF equity cost estimate.

E. SUMMARY

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR EQUITY CAPITAL COST ANALYSES FOR THE SAMPLE GROUP OF SIMILAR-RISK ELECTRIC UTILITY COMPANIES.

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

METHOD	Electric Utility Companies
DCF	9.28%
CAPM	8.75%/9.99%
MEPR	8.64%/8.84%
MTB	9.16%/9.28%

For the electric utility sample group, the DCF results are 9.28%. In addition, the corroborating cost of equity analyses (MEPR, MTB, and CAPM), indicate that the DCF result is reasonable. Averaging the lowest and highest results of all the corroborative analyses for the electric companies produces an equity cost range of 8.85% to 9.37%, with a mid-point of 9.11%, 17 basis points below the DCF result. Therefore, weighing all the evidence presented herein (including the consideration that the next interest rate move by the Fed will probably be upward), my best estimate of the cost of equity capital for a company like AmerenUE, facing similar risks as this group of electric utilities, ranges from 9.00% to 9.75%, with a mid-point of 9.375%.

Q. ARE THERE OTHER FACTORS TO BE CONSIDERED BEFORE DETERMINING A POINT-ESTIMATE FOR AMERENUE WITHIN A REASONABLE RANGE FOR SIMILAR-RISK FIRMS?

A. Yes. First, the electric sample group companies have similar operating (business) risk to AmerenUE. The S&P business risk score of my sample of electric utilities ranges from "Satisfactory" to "Excellent, " and the median value is "Strong"—the same score as AmerenUE.[15] Therefore, on that basis alone, there would be no reason to adjust the equity return from the mid-point of a reasonable range. However, because the capital structure I recommend for ratesetting purposes contains considerably more common equity and less debt than average for the sample group, AmerenUE, prospectively will have less financial risk than the sample group and should be awarded an equity return below the mid-point of a reasonable range. That rationale is borne out in S&P's financial risk rank for AmerenUE, which is "Intermediate", while the median for the sample group is "Aggressive"—a higher

[15] Standard and Poor's Ratings Direct, "U.S. Electric Utility Companies, Strongest to Weakest," November 30, 2007.

risk category. Also AmerenUE's senior secured debt is rated "BBB+" by S&P, while the median for the sample group is "BBB". That lower financial risk, alone, indicates a point-estimate cost of equity for AmerenUE below the 9.375% mid-point of a reasonable range for my sample group of electric companies.

However, AmerenUE does not currently have a fuel adjustment clause and, as this Commission recognized in its recent decision in its Report and Order in the Empire District Electric Company rate proceeding (Case No. ER-2008-0093, July 30, 2008, pp. 24, 25), most electric utilities do have fuel adjustment clauses, and those clauses lower investment risk. Absent such a clause, AmerenUE would have a cost of equity capital somewhat above the average for the sample group. Therefore, an equity return of 9.50%, above the mid-point of a reasonable range of equity cost for similar-risk firms, would be reasonable for ratemaking purposes in this proceeding.

Q. DOES YOUR 9.50% EQUITY COST ESTIMATE INCLUDE AN INCREMENT FOR FLOTATION COSTS?

A. No, it does not.

Q. CAN YOU PLEASE EXPLAIN WHY AN EXPLICIT ADJUSTMENT TO THE COST OF EQUITY CAPITAL FOR FLOTATION COSTS IS UNNECESSARY?

A. An explicit adjustment to "account for" flotation costs is unnecessary for several reasons. First, it is often said that flotation costs associated with common stock issues are exactly like flotation costs associated with bonds. That is not a correct statement because bonds have a fixed cost and common stock does not. Moreover, even if it were true, the current relationship between the electric utility sample group's stock price and its book value would indicate a flotation cost reduction to the market-based cost of equity, not an increase.

When a bond is issued at a price that exceeds its face (book) value, and that difference between market price and the book value is greater than the flotation costs incurred during the issuance, the embedded cost of that debt (the cost to the company) is *lower* than the coupon rate of that debt.

In the current economic environment for the electric utility common stocks studied to determine the cost of equity in this proceeding, those stocks are selling at a market price 56% above book value. (Exhibit__(SGH-1), Schedule 5, p. 1) The difference between the market price of electric utility stocks and book value dwarfs any issuance expense the companies might incur. If common equity flotation costs were exactly like flotation costs with bonds and if an explicit adjustment to the cost of common equity were, therefore necessary, then the adjustment should be downward, not upward.

Second, flotation cost adjustments are usually predicated on the prevention of the dilution of stockholder investment. However, the reduction of the book value of stockholder investment due to issuance expenses can occur only when the utility's stock is selling at a market price at or below its book value. As noted, the companies under review are selling at a substantial premium to book value. Therefore, every time a new share of that stock is sold, existing shareholders realize an *increase* in the per share book value of their investment. No dilution occurs, even without any explicit flotation cost allowance.

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

In addition, the amount of the underwriter's fees are prominently displayed on the front page of every stock offering prospectus and, as a result, the investors who participate in those offerings (e.g., brokerage firms) are quite aware that a portion of the price they pay does not go to the company but goes, instead, to the underwriters. By electing to buy the stock with that understanding, those investors have effectively accounted for those issuance costs in their risk-return framework by paying the offering price. Therefore, they do not need any additional adjustments to the allowed return of the regulated firm to "account" for those costs.

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

Fifth, research has shown that a specific adjustment for issuance expenses is unnecessary.[16] There are other transaction costs which, when properly considered, eliminate the need for an explicit issuance expense adjustment to equity capital costs. The transaction cost that is improperly ignored by the advocates of issuance expense adjustments is brokerage fees. Issuance expenses occur with an initial issue of stock in a primary market offering. Brokerage fees occur in the much larger secondary market where pre-existing shares are traded daily. Brokerage fees tend to increase the price of the stock to the investor to levels above that reported in the Wall Street Journal, i.e., the market price analysts use in a DCF analysis. Therefore, if brokerage fees were included in a DCF cost of capital estimate they would raise the effective market price, lower the dividend yield and lower the investors' required return. If one considers transaction costs that, supposedly, raise the required return

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

(issuance expenses), then a symmetrical treatment would require that costs that lower the required return (brokerage fees) should also be considered. As shown by the research noted above, those transaction costs essentially offset each other and no specific equity capital cost adjustment is warranted.

Q. WHAT IS THE OVERALL COST OF CAPITAL FOR AMERENUE'S INTEGRATED UTILITY OPERATIONS, BASED ON AN ALLOWED EQUITY RETURN OF 9.50%?

A. Schedule 12 attached to my testimony shows that an equity return of 9.50%, operating through a ratemaking capital structure of 50.928% common equity, 1.776% preferred stock, 46.558% long-term debt and 0.739% short-term debt, and the Company's embedded capital cost rates, produces an overall return of 7.642% for AmerenUE. Schedule 12 also shows that a 7.642% overall cost of capital affords the Company an opportunity to achieve a pre-tax interest coverage level of 4.06 times.

In Standard & Poor's May 28, 2008 credit report on AmerenUE, that rating agency noted that ratings stability for the Company mirrors that of its parent, Ameren. That same report also shows that Ameren's pre-tax interest coverage over the past five years has averaged 3.64 times and was 3.3 times in 2007. By that measure, the return I recommend would tend to improve the Company's current financial position and its current credit rating. Therefore, the equity return I recommend fulfills the legal requirement of Hope and Bluefield of providing the Company the opportunity to earn a return which is commensurate with the risk of the operation and serves to support and maintain the Company's ability to attract capital.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY, MR. HILL?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. ER-2008-0318

AFFIDAVIT OF STEPHEN G. HILL

STATE OF WEST VIRGINIA)
) ss.
COUNTY OF PUTNAM)

Stephen G. Hill, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 47 pages to be presented in the above case; that the answers in the foregoing Direct 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.

Stephen G. Hill

Subscribed and sworn to before me this 21st day of August, 2008.

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
ANDREW J. BENNETT
102 CANDLEWYCK DRIVE
HURRICANE, WV 25526
My commission expires August 16, 2014

APPENDIX A

EDUCATION AND EMPLOYMENT HISTORY

OF

STEPHEN G. HILL

EDUCATION

Auburn University - Auburn, Alabama - Bachelor of Science in Chemical Engineering (1971); Honors - member Tau Beta Pi national engineering honorary society, Dean's list, candidate for outstanding engineering graduate; Organizations - Engineering Council, American Institute of Chemical Engineers

Tulane University - New Orleans, Louisiana - Masters in Business Administration (1973); concentration: Finance; awarded scholarship; Organizations - member MBA curriculum committee, Vice-President of student body, academic affairs

Continuing Education - NARUC Regulatory Studies Program at Michigan State University

EMPLOYMENT

West Virginia Air Pollution Control Commission (1975)
Position: Engineer ; Responsibility: Overseeing the compliance of all chemical companies in the State with the pollution guidelines set forth in the Clean Air Act.

West Virginia Public Service Commission-Consumer Advocate (1982)
Position: Rate of Return Analyst ; Responsibility: All rate of return research and testimony promulgated by the Consumer Advocate; also, testimony on engineering issues, when necessary.

Hill Associates (1989)
Position: Principal; Responsibility: Expert testimony regarding financial and economic issue in regulated industries.

PUBLICATIONS

"The Market Risk Premium and the Proper Interpretation of Historical Data,"
Proceedings of the Fourth NARUC Biennial Regulatory Information Conference, Volume I, pp. 245-255.

"Use of the Discounted Cash Flow Has Not Been Invalidated," Public Utilities Fortnightly, March 31, 1988, pp. 35-38.

"Private Equity Buyouts of Public Utilities: Preparation for Regulators," National Regulatory Research Institute, Paper 07-11, December 2007.

MEMBERSHIPS

American Institute of Chemical Engineers; Society of Utility and Regulatory Financial Analysts (Certified Rate of Return Analyst, Member of the Board of Directors)

APPENDIX B

Fundamental Growth Rate Analysis

Q. PLEASE PROVIDE AN EXAMPLE WHICH DESCRIBES THE DETERMINANTS OF LONG-TERM SUSTAINABLE GROWTH.

A. Assume that a hypothetical regulated firm had a first period common equity or book value per share of $10, the investor-expected return on that equity was 10% and the stated company policy was to pay out 60% of earnings in dividends. The first period earnings per share are expected to be $1.00 ($10/share book equity x 10% equity return) and the expected dividend is $0.60. The amount of earnings not paid out to shareholders ($0.40), the retained earnings, raises the book value of the equity to $10.40 in the second period. The table below continues the hypothetical for a five year period and illustrates the underlying determinants of growth.

TABLE A.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	GROWTH
BOOK VALUE	$10.00	$10.40	$10.82	$11.25	$11.70	4.00%
EQUITY RETURN	10%	10%	10%	10%	10%	-
EARNINGS/SH.	$1.00	$1.040	$1.082	$1.125	$1.170	4.00%
PAYOUT RATIO	0.60	0.60	0.60	0.60	0.60	-
DIVIDENDS/SH.	$0.60	$0.624	$0.649	$0.675	$0.702	4.00%

We see that under steady-state conditions, the earnings, dividends and book value all grow at the same rate. Moreover, the key to this growth is the amount of earnings retained or reinvested in the firm and the return on that new portion of equity. If we let "b" equal the retention ratio of the firm (1 – the payout ratio) and let "r" equal the firm's expected return on equity, the DCF growth rate "g" (also referred to as the internal or sustainable growth rate) is equal to their product, or

$$g = br. \qquad \text{(i)}$$

Professor Myron Gordon, who developed the Discounted Cash Flow technique and first introduced it into the regulatory arena, has determined that Equation (i) embodies the underlying

fundamentals of growth and, therefore, is a primary measure of growth to be used in the DCF model. Professor Gordon's research also indicates that analysts' growth rate projections are useful in estimating investors' expected sustainable growth.

I should note here that the above hypothetical does not allow for the existence of external sources of equity financing, i.e., sales of common stock. Stock financing will cause investors to expect additional growth if the company is expected to issue new shares at a market price that exceeds book value. The excess of market over book would inure to current shareholders, increasing their per share equity value. Therefore, if the company is expected to continue to issue stock at a price that exceeds book value, the shareholders would continue to expect their book value to increase and would add that growth expectation to that stemming from earnings retention or internal growth. Conversely, if a company were expected to issue new equity at a price below book value, that would have a negative effect on shareholder's current growth rate expectations. In such a situation, shareholders would perceive an overall growth rate less than that produced by internal sources (retained earnings). Finally, with little or no expected equity financing or a market-to-book ratio near unity, investors would expect the sustainable growth rate for the company to equal that derived from Equation (i), "g = br." Dr. Gordon[1] identifies the growth rate which includes both expected internal and external financing as:

$$g = br + sv, \qquad \text{(ii)}$$

where,

g = DCF expected growth rate,
r = return on equity,
b = retention ratio,
v = fraction of new common stock sold that accrues to the current shareholder,
s = funds raised from the sale of stock as a fraction of existing equity.

[1]Gordon, M.J., The Cost of Capital to a Public Utility, MSU Public Utilities Studies, East Lansing, Michigan, 1974, pp., 30–33.

Additionally,

$$v = 1 - BV/MP, \qquad \text{(iii)}$$

where,

MP = market price,
BV = book value.

I have used Equation (iii) as the basis for my examination of the investor expected long-term growth rate (g) in this proceeding.

Q. IN YOUR PREVIOUS EXAMPLE, EARNINGS AND DIVIDENDS GREW AT THE SAME RATE (br) AS DID BOOK VALUE. WOULD THE GROWTH RATE IN EARNINGS OR DIVIDENDS, THEREFORE, BE SUITABLE FOR DETERMINING THE DCF GROWTH RATE?

A. No, not necessarily. Rates of growth derived from earnings or dividends alone can be unreliable due to extraneous influences on those parameters such as changes in the expected rate of return on common equity or changes in the payout ratio. That is why it is necessary to examine the underlying determinants of growth through the use of a sustainable growth rate analysis.

If we take the hypothetical example previously stated and assume that, in year three, the expected return on equity rises to 15%, the resultant growth rate for earnings and dividends far exceeds that which the company could sustain indefinitely. The potential error in using those growth rates to estimate "g" is illustrated in the following table.

TABLE B.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	GROWTH
BOOK VALUE	$10.00	$10.40	$10.82	$11.47	$12.157	5.00%
EQUITY RETURN	10%	10%	15%	15%	15%	10.67%
EARNINGS/SH.	$1.00	$1.040	$1.623	$1.720	$1.824	16.20%
PAYOUT RATIO	0.60	0.60	0.60	0.60	0.60	-
DIVIDENDS/SH.	$0.60	$0.624	$0.974	$1.032	$1.094	16.20%

What has happened is a shift in steady-state growth paths. For years one and two, the sustainable rate of growth (g=br) is 4.00%, just as in the previous hypothetical. Then, in the last three years, the sustainable growth rate increases to 6.00% (g=br = 0.4x15%). If the regulated firm were expected to continue to earn a 15% return on equity and retain 40% of its earnings, then a growth rate of 6.0% would be a reasonable estimate of the long-term sustainable growth rate. However, the compound annual growth rate for dividends and earnings exceeds 16% which is the result only of an increased equity return rather than the intrinsic ability of the firm to grow continuously at a 16% annual rate. Clearly, this type of estimate of future growth cannot be used with any reliability at all. In the case of the hypothetical, to utilize a 16% growth rate in a DCF model would be to expect the company's return on common equity to increase by 50% every five years into the indefinite future. This would be a ridiculous forecast for any regulated firm and underscores the importance of utilizing the underlying fundamentals of growth in the DCF model.

It can also be demonstrated that a change in our hypothetical regulated firm's payout ratio makes the past rate of growth in dividends an unreliable basis for predicting "g". If we assume our regulated firm consistently earns its expected equity return (10%) but in the third year, changes its payout ratio from 60% to 80% of earnings, the results are shown in the table below.

TABLE C.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	GROWTH
BOOK VALUE	$10.00	$10.40	$10.82	$11.036	$11.26	3.01%
EQUITY RETURN	10%	10%	10%	10%	10%	-
EARNINGS/SH.	$1.00	$1.040	$1.082	$1.104	$1.126	3.01%
PAYOUT RATIO	0.60	0.60	0.80	0.80	0.80	7.46%
DIVIDENDS/SH.	$0.60	$0.624	$0.866	$0.833	$0.900	10.67%

What we see here is that, although the company has registered a high dividend growth rate (10.67%), it is, again, not at all representative of the growth that could be sustained indefinitely, as called for in the DCF model. In actuality, the sustainable growth rate has declined from 4.0% the first two years to only 2.0% (g=br = 0.2x10%) during the last three years due to the increased payout ratio. To utilize a 10% growth rate in a DCF analysis of this hypothetical regulated firm would 1) assume the payout ratio of the firm would continue to increase 33% every five years into the indefinite future, 2) lead to the highly implausible result that the firm intends to consistently pay out more in dividends than it earns and 3) grossly overstate the cost of equity capital.

APPENDIX C

INDIVIDUAL COMPANY GROWTH RATE ANALYSES

ELECTRIC UTILITIES

CV – Central Vermont Public Service - CV's sustainable growth rate has averaged 1.43% over the most recent five year period (2003-2007), including a set-back with low growth in 2005. In the most recent two years, the company's sustainable growth averaged approximately 4%. VL expects CV's sustainable growth to rise above that historical growth rate level and reach 3.3% by the 2011-2013 period. CV's book value growth rate is expected to be 3.5% over the next five years, higher than the historical growth of 2%. CV's earnings per share are projected to increase at a 7.5% (VL) rate (IBES and Zack's do not publish growth rate expectations for this company). Over the past five years, CV's earnings growth was -2.5% but its dividends increased at a 1% rate. Investors can reasonably expect long-term sustainable growth rate in the future to be higher than the past but not as high as the company's current earnings growth projections; a growth rate of **4.75%** is reasonable for CV.

Regarding share growth, CV's shares outstanding decreased at a 3.5% rate over the past five years. The growth the number of shares is projected by VL to increase 1% through the 2011-13 period. An expectation of share growth of **0.25%** for this company is reasonable.

FE – FirstEnergy Corp. - FE's sustainable growth rate averaged 4.38% over the five-year historical period, with negative results in 2003. Absent those results, the company's historical sustainable growth averaged 6%. VL projects that the internal growth will increase through 2011-13; bringing sustainable growth to 8.5%. FE's book value, which increased at a 4.5% rate during the most recent five years, however, is expected to increase to a 7.5% rate in the future. FE's earnings per share are projected to increase at 11 % (VL) to 9% (IBES), and 6.5% (Zack's) rates. FE's dividends are expected to grow at an 8.5% rate, increasing long-term growth expectations to some extent. Historically FE's earnings grew at a 6% rate, according to Value Line, and its dividends showed 4.5% growth over the past five years. The projected sustainable growth, earnings and book value growth rate data indicate that investors can expect the growth from FE in the future to be higher than that which has existed in the past. Investors can reasonably expect a sustainable growth rate of **6.75%** for FE.

Regarding share growth, FE's shares outstanding showed about a 2% decline over the past five years. However, FE's growth rate in shares outstanding is expected to stabilize and show a 0% rate of increase through 2011-13. An expectation of share growth of **0%** for this company is reasonable.

NU – Northeast Utilities – NU's sustainable growth rate has averaged 2.31% over the most recent five-year period, with 4.3% growth in the most recent year. VL expects NU's sustainable growth to rise to approximately 5.4% through the 2011-13 period. NU's book value growth rate is expected to be 6% over the next five years, up from the 2.5% rate of growth experienced over the past five years, similar to sustainable growth projections. Also, NU's earnings per share are projected to increase at 13.5% according to Value Line (9.8% IBES, 10% Zacks). Part of that increase is due to an expectation of a near doubling of the company's earned return, which is unlikely to continue into the indefinite future. Value Line also projects a 6% growth in dividends, considerably lower than the rate of dividend growth for the previous five years (which was inflated due to the initiation of dividend payments). Also Value Line shows historical earnings growth of 8.5%. The 5-year compound historical growth rate of earnings growth for this company is 7.7%. Investors can reasonably expect a higher sustainable growth rate in the future — **6.0%** for NU is reasonable.

Regarding share growth, NU's shares outstanding increased at approximately a 5% rate over the past five years, due to an equity issuance in 2006. Prior to that equity issuance, shares grew at a 1.5% rate. Also between 1992 and 2005 NU's shares outstanding showed essentially zero growth. The number of shares is expected to grow at a 0.25% rate through 2011-13. An expectation of share growth of **0.5%** for this company is reasonable.

AEE – Ameren Corp. - AEE's sustainable growth rate has averaged 1.33% over the most recent five year period published by Value Line (2003-2007). VL expects AEE's sustainable growth to improve a bit over recent low growth rate levels and reach 2.70% by the 2011-2013 period. AEE's book value growth rate is expected to be 3% over the next five years, below the 5.5% rate of growth experienced over the past five years, but above internal growth projections. Also, AEE's earnings per share are projected to increase at a 3.5% (VL) rate. IBES and Zacks project 4% and 5% earnings growth for AEE, respectively. AEE's dividends

are expected to show no growth over the next five years, after growing at a 0% rate the previous five years, according to Value Line. Over the past five years, AEE's earnings growth was –1.5%. Based on projected earnings and sustainable growth, investors can reasonably expect long-term sustainable growth rate in the future to be higher than the internal growth projections published by Value Line; a growth rate of **3.5%** is reasonable for AEE.

Regarding share growth, AEE's shares outstanding increased at a 6.4% rate over the past five years due to a series of equity issuances. The growth the number of shares is projected by VL to increase at about a 1.24% rate between 2007 and the 2011-13 period. An expectation of share growth of **2%** for this company is reasonable.

AEP- American Electric Power- AEP's sustainable growth rate has averaged 5.2% over the most recent five-year period. VL expects AEP's sustainable growth to decrease to a growth rate level of 4.8% by the 2011-2013 period. However, AEP's book value growth rate is expected to increase to 6% over the next five years, well above the –2.5% rate of growth experienced over the past five years, pointing to higher growth. Also, AEP's earnings per share are projected to increase at 6.0% (VL and IBES), to 5.4% (Zack's) rate—all above the indicated projected internal growth rate. Also, AEP's dividends are expected to grow at 7.5%, as dividends recover from historical growth of –9.5%. Investors can reasonably expect a sustainable growth rate in the future of **5.5%** for AEP.

Regarding share growth, AEP's shares outstanding increased at a 0.35% rate over the past five years. The number of shares outstanding in 2011-2013 is expected to show about a 0.75% increase from 2007 levels. An expectation of share growth of **0.75%** for this company is reasonable.

CNL – Cleco Corp. - CNL's sustainable growth rate averaged 3.33% for the five-year period, with the results in the most recent years below that average. VL expects sustainable growth to continue at about a 3.7% level through the 2011-13 period. CNL's book value growth is expected to increase at a 7% rate, above the historical level of 5.5%, due to the building of a new power plant. CNL's earnings and dividends per share are projected to show 7.5% growth over the next five years, according to Value Line (IBES projects 14% earnings growth & Zacks projects 9.5% earnings growth). Historically CNL's earnings increased at a

0% rate and its dividends increased at a 1% rate of growth, according to Value Line (4.48% on a compound growth basis). These data indicate that future growth will be above prior growth rate averages and moderate future growth expectations somewhat. Investors can reasonably expect sustainable growth from CNL to be above past averages, a sustainable internal growth rate of **5.75%** is reasonable for this company.

Regarding share growth, CNL's shares outstanding grew at approximately a 6.2% rate over the past five years, due to an equity issuance in 2006; prior to that CNL's shares have grown at about a 1% rate. The growth in the number of shares is expected by VL to be 1.6% through 2011-13. An expectation of share growth of **2.0%** for this company is reasonable.

EDE – Empire District Electric - EDE's sustainable internal growth rate averaged –1% over the five-year historical period, with several negative growth years. VL projects EDE's sustainable growth to rise to a level of 3.3% through 2011-13—a substantial improvement over historical results. EDE's book value growth rate is expected to continue in the future at 2.5%, above the historical level of 2%. However, EDE's earnings per share are projected to increase at 10% according to VL (based on a near doubling of ROE, which is unsustainable), while the analysts' surveyed by IBES project earnings growth at 6%. EDE's dividends are expected to grow at a 1.5% rate over the next five years moderating long-term growth expectations. Sustainable growth has been relatively inconsistent for this company, historically and is expected to trend upward in the future. Dividend growth has been non-existent historically, but the company has continued to pay its dividend. From 2003 through the mid-point of the 2011-2013 period, Value Line's projected earnings per share indicate a 5% growth rate. Investors can reasonably expect a sustainable growth rate of **3.75%** from EDE.

Regarding share growth, EDE's shares outstanding rose at about a 7.7% rate over the past five years. The level of share growth is expected by VL to be 1.38% from 2007 through 2011-13. However, from 2008 through 2011-2013 the growth is expected to be only 0.2%. An expectation of share growth of **2%** for this company is reasonable.

ETR – Entergy Corp. - ETR's internal sustainable growth rate has averaged 6.6% over the most recent five year period (2003-2007). Sustainable growth is expected to increase to about

6.8% by the 2011-2013 period. Also, ETR's book value growth rate is expected to be 8% over the next five years—an increase from the 3% rate of growth experienced over the past five years—pointing to higher growth expectations for the future. ETR's earnings per share are projected to increase at a rate of from about 8% (VL) to 13.3% (Zack's) to 12.7% (IBES), through an increasing return on equity. ETR's dividends are expected to grow at a high 10.5% rate, supporting higher sustainable growth expectations. Over the past five years, ETR's earnings grew at a 9.5% rate according to Value Line. These data indicate that investors can reasonably expect a sustainable growth rate in the future above past averages. Therefore, **8%** is a reasonable long-term growth expectation for ETR.

Regarding share growth, ETR's shares outstanding grew at a –4.6% rate over the past five years. The number of shares outstanding is projected by VL to increase at approximately a 0.6% rate through 2011-13. An expectation of share growth of **–1%** for this company is reasonable.

WR – Westar, Inc.- WR's sustainable growth rate has averaged 3.85% over the most recent five-year period. Value Line expects WR's sustainable growth to decline to approximately 2.9% by the 2011-2013 period. WR's book value growth rate is expected to be 3.5% over the next five years, up substantially from the –4.5% rate of growth experienced over the past five years, and above sustainable growth projections. Also, WR's earnings per share are projected to increase at a rate of from 1.5% (Value Line), to 5.7% (IBES), to 5% (Zack's). Over the past five years, WR's earnings growth was 32% according to Value Line, including negative earnings in the base years. Compound 5-year historical earnings growth for WR was only 1.5%. Historically, dividends grew at a -5% rate, and Value Line expects that rate to increase to +5% over the next five years. Investors can reasonably expect a higher sustainable growth over the long term — **3.5%** for WR is reasonable.

Regarding share growth, WR's shares outstanding increased at a 6.99% rate over the past five years. The number of shares is expected to increase at a 1.4% rate through 2011-13. An expectation of share growth of **2.5%** for this company is reasonable.

HE – Hawaiian Electric - HE's sustainable growth rate has averaged 0.88% over the most recent five year period (2003-2007), with negative growth in the most recent year. However,

VL expects HE's sustainable growth to increase from that historical growth rate level to reach 3% by the 2011-2013 period. HE's book value growth rate is expected to be 2.5% over the next five years, up from the 2% rate of growth experienced over the past five years. HE's earnings per share are projected to increase at a 5% (Value Line) to 4.2% (Zack's) to 3% (IBES) rate. The company's dividends are expected to show 0% growth over the next five years. Over the past five years, HE's earnings grew at a -3% rate while its dividends showed no increase, though the company maintained its dividend payment to investors. Investors can reasonably expect a sustainable growth rate in the future of **3.25%** for HE.

Regarding share growth, HE's shares outstanding grew at a 2.41% rate over the past five years. The number of shares is projected by VL to show a 1% rate of increase through the 2011-13 period. An expectation of share growth of **1.5%** for this company is reasonable.

IDA – IDACORP - IDA's internal sustainable growth rate has averaged 1.63% over the most recent five year period (2003-2007). Sustainable growth is expected to increase to about 3.7% by the 2011-2013 period. Also, IDA's book value growth rate is expected to be 2.5% over the next five years—identical to the 2.5% rate of growth experienced over the past five years—pointing to stable growth expectations for the future. IDA's earnings per share are projected to increase at a rate of from 3% (Value Line) to 6% (Zack's and IBES). IDA's dividends are expected to show 0% growth. Over the past five years, IDA's earnings grew at a -7% rate according to Value Line (but 17% on a compound growth basis) while its dividends showed –8.5% growth. These data indicate that investors can reasonably expect a sustainable growth rate in the future above past averages. Therefore, **4.0%** is a reasonable long-term growth expectation for IDA.

Regarding share growth, IDA's shares outstanding grew at a 4.12% rate over the past five years. The number of shares outstanding is projected by Value Line to continue to increase at approximately a 2.75% rate through 20011-13. An expectation of share growth of **3%** for this company is reasonable.

Pinnacle West – PNW - PNW's sustainable growth rate has averaged 2.31% over the most recent five-year period with no discernable trend. However, VL expects PNW's sustainable growth to fall below that historical average growth rate level to 1.23% by the 2011-2013

period. PNW's book value growth rate is expected to be 1.5% over the next five years, below the 3.5% rate of growth experienced over the past five years, indicating relatively lower growth expectations for this firm. PNW's earnings per share is projected to increase at a 1.5% (VL) to 4.13% (IBES) to 6.7% (Zack's) rate—all but VL projections above the indicated internal growth rate. PNW's dividends are expected to grow at a 3.5% rate, supporting moderate long-term growth rate expectations. Over the past five years, PNW's earnings growth was –2.5% while its dividends increased at a 5.5% rate. Investors can reasonably expect a sustainable growth rate in the future of **3.5%** for PNW.

Regarding share growth, PNW's shares outstanding increased at a 2.4% rate over the past five years due to a share issuance in 2005. The number of shares outstanding in 2011-2013 is expected to show a 1.2% increase from 2007 levels. An expectation of share growth of **1.5%** for this company is reasonable.

UNS – Unisource Energy - UNS's sustainable growth rate has averaged 4.21% over the most recent five year period. VL expects UNS's sustainable growth to decline below that historical growth rate level, to about 3%, by the 2011-2013 period. UNS's book value growth rate is expected to be 4% over the next five years, below the very high 8.5% rate of growth experienced over the past five years. UNS's earnings per share are projected to increase at a rate of 3% (VL). Zack's and IBES do not report projected earnings growth for this company. UNS's dividends are expected to grow more rapidly, at a 6.5% rate—catching up from a re-institution of the dividend in 2000. Over the past five years, UNS's earnings growth was 3%, according to VL. Investors can reasonably expect a sustainable growth rate in the future to be similar to that of the past and **4.25%** is reasonable for UNS.

Regarding share growth, UNS's shares outstanding increased at approximately a 1.1% rate over the past five years. That rate of increase is expected to decline in the future to a 1.3% rate through 2011-2013. An expectation of share growth of **1.25%** for this company is reasonable.

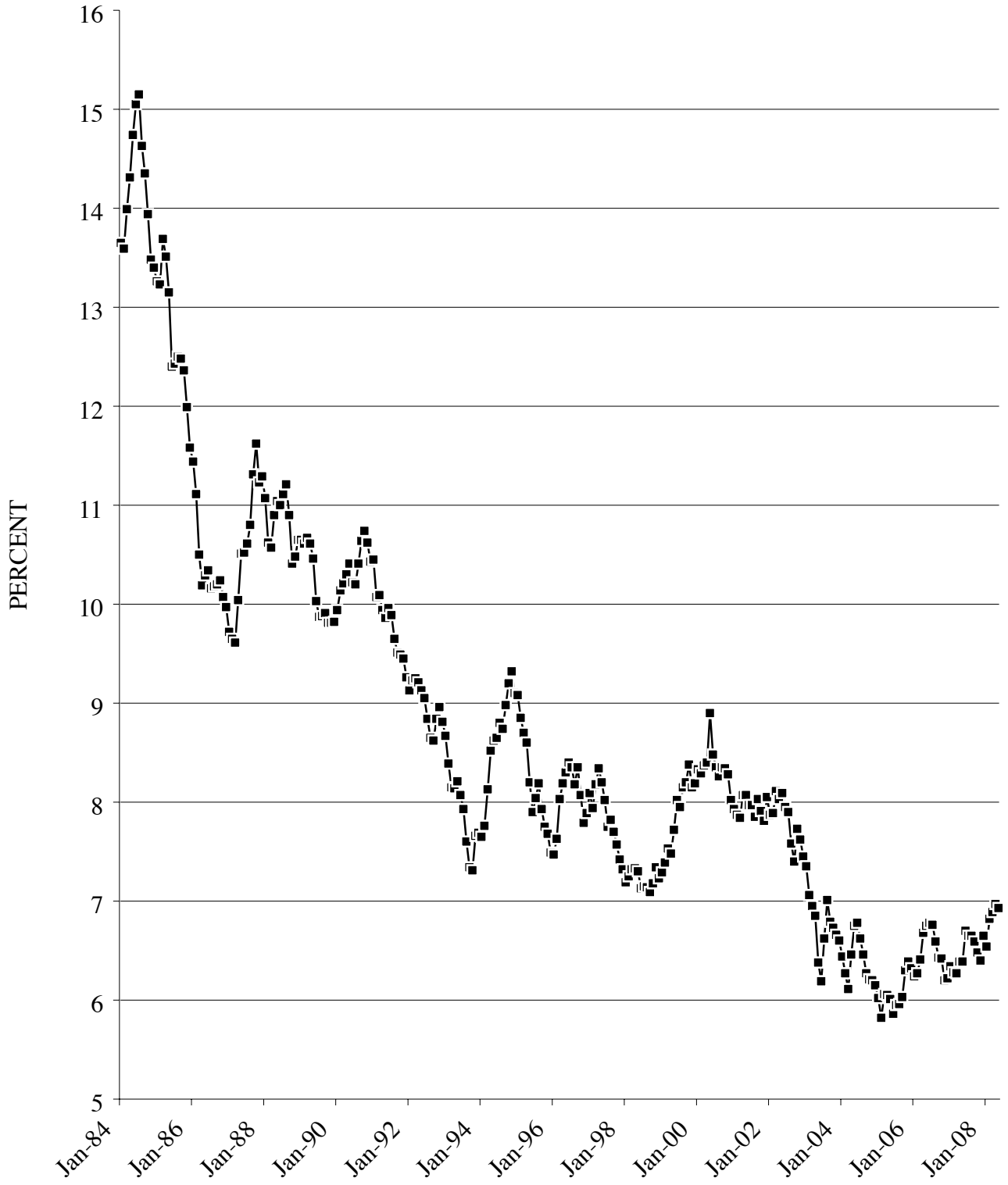
XEL – Xcel Energy, Inc. - XEL's sustainable growth rate has averaged 3.29% over the most recent five-year period. VL expects XEL's sustainable growth to increase to approximately 4.7% by the 2011-2013 period. XEL's book value growth rate is expected to be 4.5% over the

next five years, up substantially from the –1.5% rate of growth experienced over the past five years, pointing to increased growth in the future. Also, XEL's earnings per share are projected to increase at a rate of from 7.5% (Value Line), to 7% (IBES), to 5.4% (Zack's). Over the past five years, XEL's earnings growth was –2% according to Value Line. Historically, dividends grew at a -8.5% rate (dividends were cut, but not eliminated in 2003) and VL expects that rate to increase to 4.5% over the next five years. Investors can reasonably expect a higher sustainable growth over the long term — **4.5%** for XEL is reasonable.

Regarding share growth, XEL's shares outstanding increased at a 1.8% rate over the past five years. The number of shares is expected to decline to a 0.43% rate through 2011-13. An expectation of share growth of **1%** for this company is reasonable.

AMERENUE

MOODY'S BAA BOND YIELDS
1984-2008

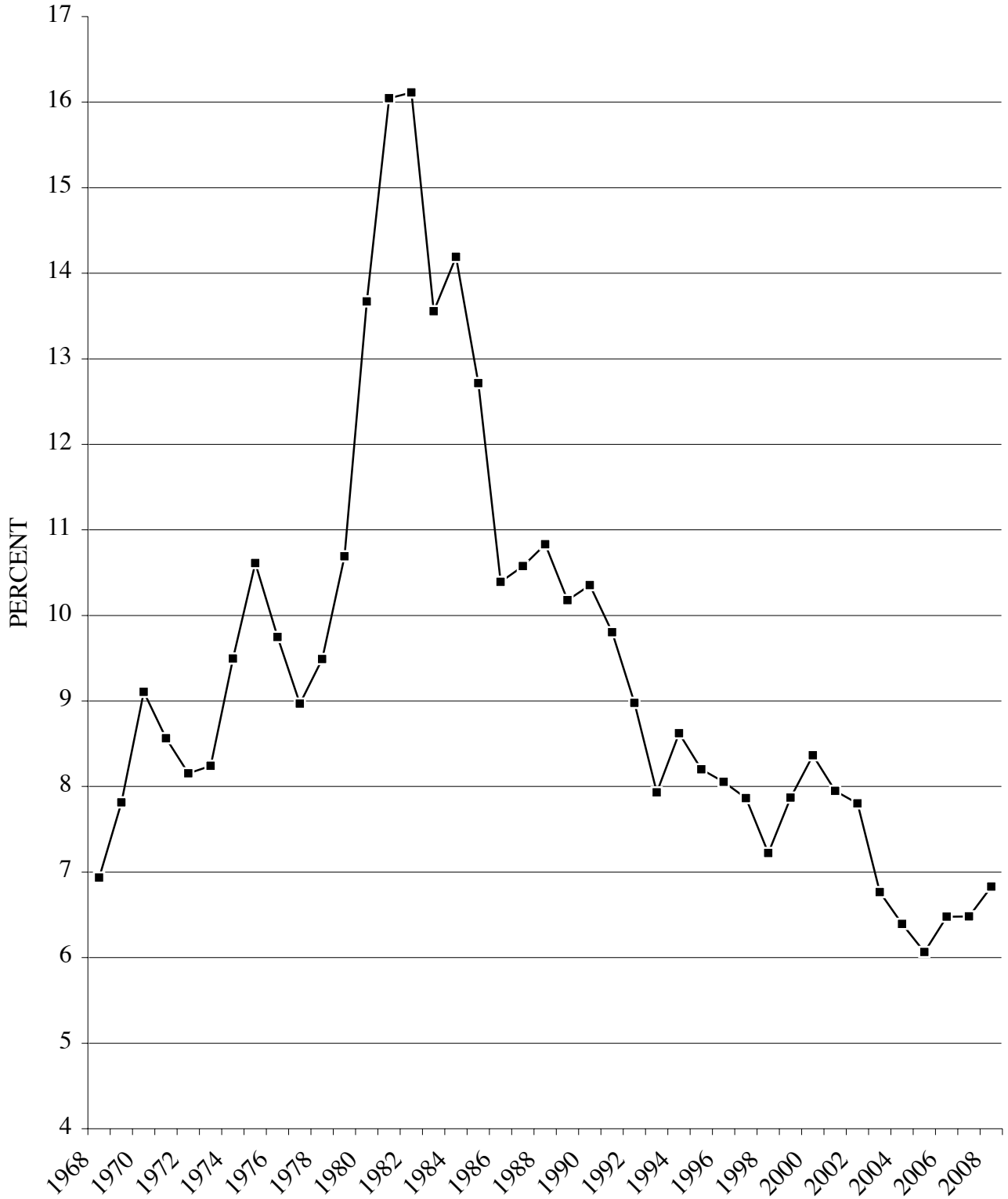


Data from Federal Reserve Release H.15.

AMEREN UE

MOODY'S BAA BOND YIELDS

1968-2008



Data from Federal Reserve Release H.15.

AMERENUE
HISTORICAL CAPITAL STRUCTURE

AMOUNT (000,000)

Type of Capital	Mar-07 [1]	Jun-07 [2]	Sep-07 [3]	Dec-07 [4]	Mar-08 [5]	**Average [6]**
1) Common Equity	$2,991.0	$3,029.0	$3,106.0	$3,488.0	$3,422	**$3,207**
2) Preferred Stock	$113.0	$113.0	$113.0	$113.0	$113.0	**$113**
3) Long-term Debt	$2,939.0	$3,364.0	$3,364.0	$3,360.0	$3,360	**$3,277**
4) Short-term Debt	$662.0	$463.0	$149.0	$82.0	$330	**$337**
5) TOTAL	$6,705.0	$6,969.0	$6,732.0	$7,043.0	$7,225.0	**$6,935**

PERCENTAGE

Type of Capital	Mar-07	Jun-07	Sep-07	Dec-07	Mar-08	**5 Quarter Average**
6) Common Equity	44.61%	43.46%	46.14%	49.52%	47.36%	**46.25%**
7) Preferred Stock	1.69%	1.62%	1.68%	1.60%	1.56%	**1.63%**
8) Long-term Debt	43.83%	48.27%	49.97%	47.71%	46.51%	**47.26%**
9) Short-term Debt	9.87%	6.64%	2.21%	1.16%	4.57%	**4.86%**
10) TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	**52.12%**

Data from Company response to MPSC 099 and S.E.C. filings.

AMERENUE
ANNUAL COST OF CAPITAL STRUCTURE DIFFERENCES

RATE CASE CAPITAL STRUCTURE

	Type of Capital	Percent	Cost Rate	Wt. Average Cost Rate	Pre-tax Wt. Av. Cost Rate†
1)	Common Equity	50.93%	10.90%	5.55%	9.25%
2)	Preferred Stock	1.78%	5.19%	0.09%	0.15%
3)	Long-term Debt	46.56%	5.77%	2.69%	2.69%
4)	Short-term Debt	0.74%	3.38%	0.03%	0.03%
5)	TOTAL	100.00%			12.12%

CAPITAL STRUCTURE INCLUDING AVERAGE SHORT-TERM DEBT

	Type of Capital	Percent	Cost Rate	Wt. Average Cost Rate	Pre-tax Wt. Av. Cost Rate†
6)	Common Equity	48.74%	10.90%	5.31%	8.85%
7)	Preferred Stock	1.70%	5.19%	0.09%	0.15%
8)	Long-term Debt	44.56%	5.77%	2.57%	2.57%
9)	Short-term Debt	5.00%	3.38%	0.17%	0.17%
10)	TOTAL	100.00%			11.74%

OVERALL COST OF CAPITAL DIFFERENCE = 0.38%

COMPANY REQUESTED GAS AND ELECTRIC RATE BASE* = $5.899 Billion

ANNUAL RATE IMPACT OF CAPITAL STRUCTURE DIFFERENCE = $22,138,031

† Assumes combined tax ratre of 40%.
* Weiss Schedule GSW-18

AMERENUE
ELECTRIC UTILITY INDUSTRY COMMON EQUITY RATIOS

ELECTRIC COMPANIES	EQUITY RATIO
Allegheny Energy	39%
American Electric Power	39%
Central Vermont P.S.	51%
Cleco Corporation	51%
DPL, Inc.	35%
Edison International	43%
El Paso Electric Co.	52%
FirstEnergy Corp.	41%
FPL Group	43%
Great Plains Energy	50%
Hawaiian Electric Industries	29%
IDACORP	46%
Maine & Maritimes Corp.	49%
OGE Energy	48%
Otter Tail Power	52%
Pinnacle West Capital Corp.	49%
Portland General Electric	63%
Progerss Energy	46%
Southern Co.	41%
UIL Holdings	44%
Westar Energy	43%
Electric Company Average	45%
Electric Company Median	46%
Combination Gas & Electric Average	46%
Combination Gas & Electric Median	46%
INDUSTRY AVERAGE	**46%**

Data from AUS Utility Reports, June 2008, pp. 8, 12.

COMBINATION GAS & ELECTRIC COMPANIES	EQUITY RATIO
ALLETE	60%
Alliant Energy	59%
Ameren Corp.	47%
Aquilla	55%
Avista Corp.	47%
Black Hills Corporation	55%
CenterPoint Energy	16%
CH Energy Group	53%
CMS Energy Corp.	24%
Consolidated Edison	49%
Constellation Energy	54%
Dominion Resources	39%
DTE Energy Company	45%
Duke Energy	64%
Empire District Electric	45%
Energy East Corp.	45%
Entergy Corp.	40%
Excelon Corp.	44%
Florida Pub. Utilities	50%
Integrys Energy Group	57%
MDU Resources	63%
MGE Resources	55%
NiSource Inc.	45%
Northeast Utilities	42%
Northwestern Corp.	49%
NSTAR	40%
Pepco Holdings	46%
PG&E Corp.	50%
PNM Resources	47%
PPL Corp.	41%
Public Service Ent. Group	50%
Puget Energy	49%
SCANA Corp.	43%
SEMPRA Energy	57%
Sierra Pacific Resources	41%
TECO Energy	39%
UniSource Energy	27%
Unitil Corp.	36%
Vectren Corp.	44%
Wisconsin Energy Corp.	42%
Xcel Energy Inc.	43%

AMERENUE
RATEMAKNG CAPITAL STRUCTURE

Type of Capital	AMOUNT	PERCENT	COST RATE*	WT. AVG. COST RATE
Common Equity	$3,283,398,137	50.928%	-	-
Preferred Stock	$114,502,040	1.776%	5.189%	0.092%
Long-term Debt	$3,001,633,545	46.558%	5.774%	2.688%
Short-term Debt	$47,612,601	0.739%	3.384%	0.025%
Totals	$6,447,146,323	100.000%		

*Cost rates from O'Bryan updated Direct, Schedule MGO-E5

AMERENUE
ELECTRIC UTILITY SAMPLE GROUP SELECTION

	Company Name	Revenues % Electric	Pending Merger?	Recent Div. Cut?	Generation Assets?	Stable Book Value?	Bond Rating S&P	Bond Rating Moody's	Selected
	SCREEN	**≥70%**	**no**	**no**	**yes**	**yes**	**A- to BBB-**		
EAST									
e	Allegheny Energy	81	no	yes	yes	no	BBB+	Baa2	
e+g	CH Energy	48	no	no	yes	yes	A	A2	
e	Central Vermont P. S.	100	no	no	yes	yes	BBB+	NR	√
e+g	Consolidated Edison	62	no	no	no	yes	A	A1	
e+g	Constellation Energy	13	no	no	yes	yes	BBB+	Baa2	
e+g	Dominion Resources	38	no	no	yes	no	A-	Baa1	
e+g	Duke Energy	63	no	no	yes	no	A	A3	
e+g	Energy East Corp.	56	yes	no	no	yes	A-	A3	
e+g	Excelon Corp.†	56	no	no	yes	yes	A-	A3	
e	FPL Group	75	no	no	yes	yes	A	Aa3	
e	FirstEnergy Corp.	88	no	no	yes	yes	BBB	Baa2	√
e+g	Northeast Utilities	84	no	no	yes	yes	BBB+	Baa1	√
e+g	NSTAR	79	no	no	no	yes	AA-	A1	
e+g	PPL Corporation†	62	no	no	yes	no	A-	A3	
e+g	Pepco Holdings, Inc.	56	no	no	no	no	BBB+	Baa1	
e	Progress Energy	100	no	no	yes	yes	A-	A2	
e+g	Public Service Ent. Gp.†	66	no	no	yes	yes	A-	A3	
e+g	SCANA Corp.	42	no	no	yes	yes	A-	A2	
e	Southern Company	99	no	no	yes	yes	A	A2	
e+g	TECO Energy	62	no	yes	yes	no	BBB-	Baa2	
e	UIL Holdings Corp.	100	no	no	no	yes	BBB-	Baa2	
CENTRAL									
e	ALLETE	87	no	no	yes	no	A-	Baa1	
e+g	Alliant Energy	69	no	no	yes	yes	A-	A2	
e+g	Ameren Corp.	83	no	no	yes	yes	BBB	Baa2	√
e	American Eelectric Power	89	no	no	yes	yes	BBB	Baa1	√
e+g	Aquila, Inc.	57	no	yes	yes	yes	B+	Ba3	
e+g	CMS Energy Corp.	54	no	yes	yes	no	BBB	Baa1	
e+g	CenterPoint Energy	17	no	no	no	no	NR	Baa2	
e	Cleco Corporation	96	no	no	yes	yes	BBB	A3	√
e	DPL Inc.	100	no	no	yes	yes	A-	A2	
e+g	DTE Energy†	59	no	no	yes	yes	A-	A3	
e+g	Empire District Electric	87	no	no	yes	yes	BBB+	Baa1	√
e+g	Entergy Corp.	76	no	no	yes	yes	A-	Baa2	√
e	Great Plains Energy	40	no	no	yes	yes	BBB	A3	
e+g	Intergrys Energy	11	no	no	yes	yes	A-	A1	
e+g	MGE Energy	61	no	no	yes	yes	AA-	Aa2	
e+g	NiSource Inc.	16	no	no	yes	yes	BBB-	Baa2	
e	OGE Energy Corp.	48	no	no	yes	yes	BBB +	Baa2	
e	Otter Tail Corp.†	27	no	no	yes	yes	BBB+	A3	
e+g	Vectren Corp.	22	no	no	yes	yes	A	A3	
e	Westar Energy	72	no	no	yes	yes	BBB-	Baa2	√
e+g	Wisconsin Energy	62	no	no	yes	yes	A-	Aa3	
WEST									
e+g	Avista Corp.	50	no	no	yes	yes	BBB+	Baa2	
e+g	Black Hills Corp.†	30	no	no	yes	yes	BBB	Baa1	
e	Edison International	80	no	yes	yes	yes	A	A2	
e	El Paso Electric	98	no	yes	yes	yes	BBB	Baa2	
e	Hawaiian Electric	81	no	no	yes	yes	BBB	Baa2	√
e	IDACORP, Inc.	100	no	no	yes	yes	A-	A3	√
e+g	MDU Resources Group†	4	no	no	yes	yes	BBB+	A2	
e+g	PG&E Corp.	72	no	yes	yes	no	BBB+	A3	
e+g	PNM Resources	100	no	no	yes	yes	BB+	Baa3	
e	Pinnacle West Capital	84	no	no	yes	yes	BBB-	Baa2	√
e	Portland General	99	no	yes	yes	no	A	Baa1	
e+g	Puget Energy, Inc.	64	yes	no	yes	yes	BBB+	Baa2	
e+g	Sempra Energy	29	no	no	yes	yes	A+	A1	
e+g	Sierra Pacific Resources	94	no	yes	yes	no	BB+	Baa3	
e+g	UniSource Energy	85	no	no	yes	yes	BBB	Baa2	√
e+g	Xcel Energy, Inc.	78	no	no	yes	yes	A-	A3	√

e= electric company; e+g=combination electric and gas company

Data from Value Line Ratings and Reports, August 11, September 1, and 29, 2006 ; AUS Utility Reports, October 2006.

AMERENUE
DCF GROWTH RATE PARAMETERS
ELECTRIC UTILITIES

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
CV	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.3759	08.1%	3.04%	17.89	11.81	
2004	0.2640	06.8%	1.80%	18.49	12.19	
2005	-10.5000	00.5%	-5.25%	17.70	12.28	
2006	0.4356	10.1%	4.40%	17.70	10.13	
2007	0.3826	08.2%	3.14%	18.43	10.24	
AVERAGE GROWTH			1.43%	2.00%		-3.50%
2008	0.4065	08.0%	3.25%		10.40	1.56%
2009	0.4065	08.0%	3.25%		10.50	1.26%
2011-2013	0.4424	07.5%	3.32%	3.50%	10.80	1.07%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
FE	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	-0.0204	05.4%	-0.11%	25.13	329.84	
2004	0.3105	10.6%	3.29%	26.04	329.84	
2005	0.3979	10.2%	4.06%	27.86	329.84	
2006	0.5157	13.9%	7.17%	28.30	319.21	
2007	0.5142	14.6%	7.51%	29.45	304.84	
AVERAGE GROWTH			4.38%	4.50%		-1.95%
2008	0.4767	13.5%	6.44%		304.85	0.00%
2009	0.5196	15.0%	7.79%		304.85	0.00%
2011-2013	0.5481	15.5%	8.50%	7.50%	304.85	0.00%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
NU	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.5323	06.9%	3.67%	17.73	127.70	
2004	0.3077	05.1%	1.57%	17.80	129.03	
2005	0.3061	05.1%	1.56%	18.46	131.59	
2006	0.1098	04.3%	0.47%	18.14	154.23	
2007	0.5094	08.4%	4.28%	18.65	156.22	
AVERAGE GROWTH			2.31%	2.50%		5.17%
2008	0.5389	09.0%	4.85%		158.20	1.27%
2009	0.5487	08.5%	4.66%		178.00	6.74%
2011-2013	0.5708	09.5%	5.42%	6.00%	158.20	0.25%

AMERENUE
DCF GROWTH RATE PARAMETERS
ELECTRIC UTILITIES

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
AEE	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.1911	11.6%	2.22%	26.73	162.90	
2004	0.0993	09.1%	0.90%	29.71	195.20	
2005	0.1885	09.7%	1.83%	31.09	204.70	
2006	0.0451	08.1%	0.37%	31.86	206.60	
2007	0.1477	09.0%	1.33%	32.35	208.73	
AVERAGE GROWTH			1.33%	5.50%		6.39%
2008	0.1806	09.5%	1.72%		210.00	0.61%
2009	0.2185	09.5%	2.08%		212.00	0.78%
2011-2013	0.2845	09.5%	2.70%	3.00%	222.00	1.24%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
AEP	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.3478	12.4%	4.31%	19.93	395.02	
2004	0.4636	12.2%	5.66%	21.32	395.86	
2005	0.4621	11.3%	5.22%	23.08	393.72	
2006	0.4755	12.0%	5.71%	23.73	396.67	
2007	0.4495	11.4%	5.12%	25.15	400.50	
AVERAGE GROWTH			5.20%	-2.50%		0.35%
2008	0.4698	11.5%	5.40%		404.00	0.87%
2009	0.4545	11.5%	5.23%		407.00	0.81%
2011-2013	0.4000	12.0%	4.80%	6.00%	416.00	0.76%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
CNL	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.2857	12.5%	3.57%	10.09	47.18	
2004	0.3182	11.9%	3.79%	10.83	49.62	
2005	0.3662	10.7%	3.92%	13.69	49.99	
2006	0.3382	08.3%	2.81%	15.22	57.57	
2007	0.3182	08.0%	2.55%	16.85	60.00	
AVERAGE GROWTH			3.33%	5.50%		6.19%
2008	0.4375	09.0%	3.94%		61.00	1.67%
2009	0.4857	09.5%	4.61%		62.00	1.65%
2011-2013	0.3333	11.0%	3.67%	7.00%	65.00	1.61%

AMERENUE
DCF GROWTH RATE PARAMETERS
ELECTRIC UTILITIES

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
EDE	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.0078	07.8%	0.06%	15.17	24.98	
2004	-0.4884	05.8%	-2.83%	14.76	25.70	
2005	-0.3913	06.0%	-2.35%	15.08	26.08	
2006	0.0922	08.5%	0.78%	15.49	30.25	
2007	-0.1743	06.2%	-1.08%	16.04	33.61	
AVERAGE GROWTH			-1.08%	2.00%		7.70%
2008	0.1172	08.5%	1.00%		35.60	5.92%
2009	0.2000	09.5%	1.90%		36.00	3.49%
2011-2013	0.3000	11.0%	3.30%	2.50%	36.00	1.38%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
ETR	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.5664	09.8%	5.55%	38.02	228.90	
2004	0.5191	11.0%	5.71%	38.26	216.83	
2005	0.5091	11.9%	6.06%	35.71	207.50	
2006	0.5970	13.5%	8.06%	40.45	202.67	
2007	0.5393	14.4%	7.77%	40.71	193.12	
AVERAGE GROWTH			6.63%	3.00%		-4.16%
2008	0.5455	16.5%	9.00%		187.00	-3.17%
2009	0.5286	15.0%	7.93%		193.00	-0.03%
2011-2013	0.4878	14.0%	6.83%	8.00%	199.00	0.60%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
WR	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.4122	10.3%	4.25%	14.23	72.84	
2004	0.3162	07.1%	2.25%	16.13	86.03	
2005	0.4065	09.5%	3.86%	16.31	86.84	
2006	0.4787	10.7%	5.12%	17.62	87.39	
2007	0.4130	09.2%	3.80%	19.14	95.46	
AVERAGE GROWTH			3.85%	-4.50%		6.99%
2008	0.2750	08.0%	2.20%		100.00	4.76%
2009	0.2941	08.5%	2.50%		100.60	2.66%
2011-2013	0.3231	09.0%	2.91%	3.50%	102.40	1.41%

AMERENUE
DCF GROWTH RATE PARAMETERS
ELECTRIC UTILITIES

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
HE	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.2152	10.8%	2.32%	14.36	75.84	
2004	0.0882	08.9%	0.79%	15.01	80.69	
2005	0.1507	09.7%	1.46%	15.02	80.98	
2006	0.0677	09.9%	0.67%	13.44	81.46	
2007	-0.1171	07.2%	-0.84%	15.29	83.43	
AVERAGE GROWTH			0.88%	2.00%		2.41%
2008	0.1448	09.5%	1.38%		85.50	2.48%
2009	0.1733	09.5%	1.65%		86.00	1.53%
2011-2013	0.2914	10.5%	3.06%	2.50%	87.50	0.96%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
IDA	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	-0.7708	04.2%	-3.24%	22.54	38.34	
2004	0.3684	07.2%	2.65%	23.88	42.22	
2005	0.3143	06.2%	1.95%	24.04	42.66	
2006	0.4894	08.9%	4.36%	25.77	43.63	
2007	0.3548	06.8%	2.41%	26.79	45.06	
AVERAGE GROWTH			1.63%	2.50%		4.12%
2008	0.4419	08.0%	3.53%		46.40	2.97%
2009	0.4667	08.0%	3.73%		47.70	2.89%
2011-2013	0.4894	07.5%	3.67%	2.50%	51.60	2.75%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
PNW	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.3135	08.1%	2.54%	31.00	91.29	
2004	0.2907	08.0%	2.33%	32.14	91.79	
2005	0.1384	06.5%	0.90%	34.57	99.08	
2006	0.3596	09.2%	3.31%	34.47	99.96	
2007	0.2905	08.5%	2.47%	35.15	100.49	
AVERAGE GROWTH			2.31%	3.50%		2.43%
2008	0.1520	07.0%	1.06%		100.70	0.21%
2009	0.1698	07.5%	1.27%		100.90	0.20%
2011-2013	0.1541	08.0%	1.23%	1.50%	107.00	1.26%

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DCF GROWTH RATE PARAMETERS
ELECTRIC UTILITIES

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
UNS	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.5385	08.4%	4.52%	15.97	33.79	
2004	0.5115	07.9%	4.04%	16.95	34.26	
2005	0.4154	07.5%	3.12%	17.68	34.87	
2006	0.5459	10.6%	5.79%	18.59	35.19	
2007	0.4194	08.5%	3.56%	19.54	35.32	
AVERAGE GROWTH			4.21%	8.50%		1.11%
2008	0.4182	08.0%	3.35%		35.70	1.08%
2009	0.4171	08.5%	3.55%		36.20	1.24%
2011-2013	0.3684	08.0%	2.95%	4.00%	37.70	1.31%

COMPANY	INTERNAL GROWTH				EXTERNAL GROWTH	
XEL	RETENTION RATIO	EQUITY RETURN	"g"	BOOK VALUE ($/SHARE)	SHARES OUTST (MILLIONS)	SHARE GROWTH
2003	0.3902	09.8%	3.82%	12.95	398.96	
2004	0.3622	10.0%	3.62%	12.99	400.46	
2005	0.2917	09.2%	2.68%	13.37	403.39	
2006	0.3481	09.7%	3.38%	14.28	407.30	
2007	0.3259	09.1%	2.97%	14.70	428.78	
AVERAGE GROWTH			3.29%	-1.50%		1.82%
2008	0.3667	10.0%	3.67%		430.00	0.28%
2009	0.3613	10.0%	3.61%		432.00	0.37%
2011-2013	0.4250	11.0%	4.68%	4.50%	438.00	0.43%

Data from Value Line Ratings and Reports, March 28, May 9, May 30, 2008.

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DCF GROWTH RATES
ELECTRIC UTILITIES

COMPANY	br	+	sv=g*(1-(1/(M/B)))		=	g
CV	4.75%	+	0.25%	(1 - (1/ 1.63)))	=	4.85%
FE	6.75%	+	0.00%	(1 - (1/ 2.47)))	=	6.75%
NU	6.00%	+	0.50%	(1 - (1/ 1.35)))	=	6.13%
AEE	3.50%	+	2.00%	(1 - (1/ 1.37)))	=	4.04%
AEP	5.50%	+	0.75%	(1 - (1/ 1.61)))	=	5.78%
CNL	5.75%	+	2.00%	(1 - (1/ 1.39)))	=	6.32%
EDE	3.75%	+	2.00%	(1 - (1/ 1.26)))	=	4.16%
ETR	8.00%	+	-1.00%	(1 - (1/ 2.79)))	=	7.36%
WR	3.50%	+	2.50%	(1 - (1/ 1.22)))	=	3.95%
HE	3.25%	+	1.50%	(1 - (1/ 1.72)))	=	3.88%
IDA	4.00%	+	3.00%	(1 - (1/ 1.15)))	=	4.40%
PNW	3.50%	+	1.50%	(1 - (1/ 0.95)))	=	3.42%
UNS	4.25%	+	1.25%	(1 - (1/ 1.60)))	=	4.72%
XEL	4.50%	+	1.00%	(1 - (1/ 1.38)))	=	4.78%

Average Market-to-Book Ratio = 1.56

CV	=	Central Vermont P. S.
FE	=	FirstEnergy Corp.
NU	=	Northeast Utilities
AEE	=	Ameren Corp.
AEP	=	American Electric Power
CNL	=	Cleco Corporation
EDE	=	Empire District Electric
ETR	=	Entergy Corp.
WR	=	Westar
HE	=	Hawaiian Electric
IDA	=	Idacorp
PNW	=	Pinnacle West Capital
UNS	=	Unisource Energy
XEL	=	Xcel Energy

g*= expected growth in number of shares outstanding

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GROWTH RATE COMPARISON
ELECTRIC UTILITIES

	DCF	Value Line Projected			IBES	Value Line Historic			IBES & VL	5-yr Compound Hist.		
COMPANY	Growth	EPS	DPS	BVPS	EPS	EPS	DPS	BVPS	AVGS.	EPS	DPS	BVPS
CV	4.85%	7.50%	0.00%	3.50%	n/a	-2.50%	1.00%	2.00%	1.92%	1.91%	0.89%	-5.90%
FE	6.75%	11.00%	8.50%	7.50%	9.00%	6.00%	4.50%	4.50%	7.29%	23.95%	8.45%	4.62%
NU	6.13%	13.50%	6.00%	6.00%	9.81%	8.50%	10.00%	2.50%	8.04%	7.74%	7.43%	2.18%
AEE	4.04%	3.50%	0.00%	3.00%	4.00%	-1.50%	0.00%	5.50%	2.07%	-0.26%	0.00%	4.43%
AEP	5.78%	6.00%	7.50%	6.00%	6.00%	3.00%	-9.50%	-2.50%	2.36%	4.48%	0.24%	6.10%
CNL	6.32%	7.50%	7.50%	7.00%	13.97%	0.00%	1.00%	5.50%	6.07%	4.89%	0.00%	11.90%
EDE	4.16%	10.00%	1.50%	2.50%	6.00%	2.00%	0.00%	2.00%	3.43%	2.37%	0.00%	1.63%
ETR	7.36%	8.00%	10.50%	8.00%	12.70%	9.50%	12.50%	3.00%	9.17%	12.33%	13.40%	2.20%
WR	3.95%	1.50%	5.00%	3.50%	5.71%	32.00%	-5.00%	-4.50%	5.46%	1.57%	5.92%	6.39%
HE	3.88%	5.00%	0.00%	2.50%	3.00%	-3.00%	0.00%	2.00%	1.36%	-1.70%	0.00%	1.34%
IDA	4.40%	3.00%	0.00%	2.50%	6.00%	-7.00%	-8.50%	2.50%	-0.21%	17.50%	-6.73%	3.83%
PNW	3.42%	1.50%	3.50%	1.50%	4.13%	-2.50%	5.50%	3.50%	2.45%	-0.16%	4.15%	2.78%
UNS	4.72%	3.00%	6.50%	4.00%	n/a	3.00%	15.50%	8.50%	6.75%	4.88%	9.86%	5.02%
XEL	4.78%	7.50%	4.50%	4.50%	7.00%	-2.00%	-8.50%	-1.50%	1.64%	4.05%	4.84%	3.39%
		6.32%	4.36%	4.43%		3.25%	1.32%	2.36%		5.97%	3.46%	3.57%
AVERAGES	5.04%		5.04%		7.28%		2.31%		4.13%		4.33%	

Zack's growth rates: CV-n/a, FE-6.5%, NU-10%, AEE-5.0%, AEP-5.4%, CNL-9.5%, EDE-n/a, ETR-13.3%, WR-5.0%, HE-4.2%, IDA-6.0%, PNW-6.7%, UNS-n/a, and XEL-5.4%. Zack's average earnings growth = 7.0%.

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STOCK PRICE, DIVIDENDS, YIELDS
ELECTRIC UTILITIES

COMPANY	AVG. STOCK PRICE 5/1/08-6/12/08 (PER SHARE)		ANNUALIZED DIVIDEND (PER SHARE)	DIVIDEND YIELD
CV	$21.58		$0.92	4.26%
FE	$77.66		$2.20	2.83%
NU	$26.60		$0.85	3.20%
AEE	$45.43		$2.54	5.59%
AEP	$43.22		$1.64	3.79%
CNL	$24.68		$0.90	3.65%
EDE	$20.72		$1.28	6.18%
ETR	$118.27		$3.00	2.54%
WR	$23.61		$1.16	4.91%
HE	$26.35		$1.24	4.71%
IDA	$31.36		$1.20	3.83%
PNW	$33.70	*	$2.17	6.45%
UNS	$32.69		$0.96	2.94%
XEL	$21.15	*	$0.96	4.56%
			AVERAGE	**4.25%**

* Dividend increased by (1+g), derived on Schedule 5.

AMERENUE

DCF COST OF EQUITY CAPITAL
ELECTRIC UTILITIES

COMPANY	DIVIDEND YIELD Schedule 6	GROWTH RATE Schedule 5	DCF COST OF EQUITY CAPITAL
CV	4.26%	4.85%	9.11%
FE	2.83%	6.75%	9.58%
NU	3.20%	6.13%	9.33%
AEE	5.59%	4.04%	9.63%
AEP	3.79%	5.78%	9.58%
CNL	3.65%	6.32%	9.96%
EDE	6.18%	4.16%	10.34%
ETR	2.54%	7.36%	9.89%
WR	4.91%	3.95%	8.86%
HE	4.71%	3.88%	8.58%
IDA	3.83%	4.40%	8.22%
PNW	6.45%	3.42%	9.86%
UNS	2.94%	4.72%	7.66%
XEL	4.56%	4.78%	9.33%
		AVERAGE	**9.28%**
		STANDARD DEVIATION	**0.74%**

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CAPM COST OF EQUITY CAPITAL
ELECTRIC UTILITIES

k = rf + B (rm - rf)

T-BILLS

[rf]* =	1.74%
[rm - rf]† =	6.70% (geometric mean)
[rm - rf]† =	8.50% (arithmetic mean)
[rm - rf]†† =	6.50%
average beta =	0.83

k = 1.74% + 0.83 (6.50%/6.70%/8.50%)
k = 1.74% + 5.38%/5.55%/7.04%
k = 7/13%/7.29%/8.78%

T-BONDS

[rf]* =	4.60%
[rm - rf]† =	5.00% (geometric mean)
[rm - rf]† =	6.50% (arithmetic mean)
[rm - rf]†† =	5.30%
average beta =	0.83

k = 4.60% + 0.83 (5.00%/5.30%/6.50%)
k = 4.60% + 4.14%/4.39%/5.38%
k = 8.75%/8.99%/9.99%

k(mid-point) = 9.37%

*Current T-Bill & T-Bond yields, six-week average yield from Value Line Selection & Opinion (5/9/08-6/13/08)
†Geometric and arithmetric market risk premiums from Morningstar 2007 SBBI Yearbook, p. 28.
†† Mid-point long- and short-term market risk premium from Brealey, R., Meyers, S., Allen, F., Principles

AMERENUE
PROOF

If market price exceeds book value,
the market-to-book ratio is greater than 1.0,
and the earnings-price ratio understates the cost of capital.

MP = market price
BV = book value
i = cost of equity capital
r = earned return
E = earnings

1. At MP = BV, $i = r = \frac{E}{MP}$.
2. E = rBV.
3. Then, $\frac{E}{MP} = \frac{rBV}{MP}$.
4. When BV < MP, i.e., $\frac{BV}{MP} < 1$, then,
   a. $\frac{E}{MP} < r$, since $\frac{E}{MP} = \frac{rBV}{MP} < r$, because $\frac{BV}{MP} < 1$;
   b. $i < r$, since at $\frac{BV}{MP} = 1$, $i = \frac{E}{MP} = \frac{rBV}{MP}$, but if $\frac{BV}{MP} < 1$, then $i < r$; and
   c. $\frac{E}{MP} < i$, since at $\frac{BV}{MP} = 1$, $i = \frac{E}{MP} = \frac{rBV}{MP}$, but if $\frac{BV}{MP} < 1$, then $\frac{E}{MP} < i$, because,
      1) $\frac{BV}{MP} < 1$, through MP increasing, and, if so, $\frac{E}{MP}$ decreases, therefore, $\frac{E}{MP} < i$, or
      2) $\frac{BV}{MP} < 1$, through BV decreasing, and, if so, given E = rBV, $\frac{E}{MP}$ decreases, therefore, $\frac{E}{MP} < i$.
5. Ergo, $\frac{E}{MP} < i < r$, the earnings-price ratio is lower than the cost of capital, which is lower than the earned return.

AMERENUE

MODIFIED EARNINGS-PRICE RATIO ANALYSIS
ELECTRIC UTILITIES

COMPANY	IBES* 2009 Earnings (Per Share) [1]	Market Price (Per share) [2]	Earnings-Price Ratio [3]=[1]/[2]	Current R.O.E. 2009 [4]	Projected R.O.E. 2011-2013 [5]
CV	$1.55	$21.58	7.18%	8.00%	7.50%
FE	$5.12	$77.66	6.59%	15.00%	15.50%
NU	$1.95	$26.60	7.33%	8.50%	9.50%
AEE	$3.25	$45.43	7.15%	9.50%	9.50%
AEP	$3.42	$43.22	7.91%	11.50%	12.00%
CNL	$1.85	$24.68	7.50%	9.50%	11.00%
EDE	$1.63	$20.72	7.87%	9.50%	11.00%
ETR	$7.92	$118.27	6.70%	15.00%	14.00%
WR	$1.95	$23.61	8.26%	8.50%	9.00%
HE	$1.69	$26.35	6.41%	9.50%	10.50%
IDA	$2.29	$31.36	7.30%	8.00%	7.50%
PNW	$2.55	$33.70	7.57%	7.50%	8.00%
UNS	$2.62	$32.69	8.01%	8.50%	8.00%
XEL	$1.62	$21.15	7.66%	10.00%	11.00%
		AVERAGE	7.39%	9.89%	
		CURRENT M.E.P.R.	**8.64%**		
		AVERAGE	7.39%		10.29%
		PROJECTED M.E.P.R.		**8.84%**	

*IBES 2009 earnings for CV, used Value Line estimate.

AMERENUE

MARKET-TO-BOOK RATIO ANALYSIS
ELECTRIC UTILITIES

k = R.O.E.(1-b)/(M/B) + g
[2009]

COMPANY									MARKET-TO-BOOK COST OF EQUITY
CV	k= 8.0%	(1-	0.4065	)/	1.63	+	4.85%	=	7.75%
FE	k= 13.5%	(1-	0.4767	)/	2.47	+	6.75%	=	9.62%
NU	k= 9.0%	(1-	0.5389	)/	1.35	+	6.13%	=	9.21%
AEE	k= 9.5%	(1-	0.1806	)/	1.37	+	4.04%	=	9.73%
AEP	k= 11.5%	(1-	0.4698	)/	1.61	+	5.78%	=	9.57%
CNL	k= 9.0%	(1-	0.4375	)/	1.39	+	6.32%	=	9.95%
EDE	k= 8.5%	(1-	0.1172	)/	1.26	+	4.16%	=	10.12%
ETR	k= 16.5%	(1-	0.5455	)/	2.79	+	7.36%	=	10.05%
WR	k= 8.0%	(1-	0.2750	)/	1.22	+	3.95%	=	8.71%
HE	k= 9.5%	(1-	0.1448	)/	1.72	+	3.88%	=	8.61%
IDA	k= 8.0%	(1-	0.4419	)/	1.15	+	4.40%	=	8.27%
PNW	k= 7.0%	(1-	0.1520	)/	0.95	+	3.42%	=	9.68%
UNS	k= 8.0%	(1-	0.4182	)/	1.60	+	4.72%	=	7.62%
XEL	k= 10.0%	(1-	0.3667	)/	1.38	+	4.78%	=	9.36%
								AVERAGE	**9.16%**
								STANDARD DEVIATION	**0.83%**

Note: Equity returns and retention ratios based on Value Line current year projections.

AMERENUE

MARKET-TO-BOOK RATIO ANALYSIS
ELECTRIC UTILITIES

k = R.O.E.(1-b)/(M/B) + g
[2011-2013]

COMPANY								MARKET-TO-BOOK COST OF EQUITY
CV	k= 7.5%	(1-	0.4424)/	1.63	+	4.85%	=	7.40%
FE	k= 15.5%	(1-	0.5481)/	2.47	+	6.75%	=	9.59%
NU	k= 9.5%	(1-	0.5708)/	1.35	+	6.13%	=	9.16%
AEE	k= 9.5%	(1-	0.2845)/	1.37	+	4.04%	=	9.01%
AEP	k= 12.0%	(1-	0.4000)/	1.61	+	5.78%	=	10.25%
CNL	k= 11.0%	(1-	0.3333)/	1.39	+	6.32%	=	11.58%
EDE	k= 11.0%	(1-	0.3000)/	1.26	+	4.16%	=	10.28%
ETR	k= 14.0%	(1-	0.4878)/	2.79	+	7.36%	=	9.93%
WR	k= 9.0%	(1-	0.3231)/	1.22	+	3.95%	=	8.95%
HE	k= 10.5%	(1-	0.2914)/	1.72	+	3.88%	=	8.21%
IDA	k= 7.5%	(1-	0.4894)/	1.15	+	4.40%	=	7.72%
PNW	k= 8.0%	(1-	0.1541)/	0.95	+	3.42%	=	10.56%
UNS	k= 8.0%	(1-	0.3684)/	1.60	+	4.72%	=	7.87%
XEL	k= 11.0%	(1-	0.4250)/	1.38	+	4.78%	=	9.35%
							AVERAGE	**9.28%**
							STANDARD DEVIATION	**1.20%**

Note: Equity returns and retention ratios based on Value Line three- to five-year projections.

AMERENUE
OVERALL COST OF CAPITAL

Type of Capital	PERCENT [1]	COST RATE [2]	WT. AVG. COST RATE [3]=[1]x[2]
1) Common Equity	50.928%	9.500%	4.838%
2) Preferred Stock	1.776%	5.190%	0.092%
3) Long-term Debt	46.558%	5.770%	2.686%
4) Short-term Debt	0.739%	3.380%	0.025%
Totals	100.000%		**7.642%**

PRE-TAX INTEREST COVERAGE* = 4.06x

*Assuming the Company experiences, prospectively, a combined income tax rate of 40%, the pre-tax overall return would be 10.939% [7.642%-(2.686%+0.025%) =4.930%/(1-40%) = 8.217%+(2.686+0.025%)]. That pre-tax overall return (10.929%), divided by the weighted cost of debt (2.686+0.025%), indicates a pre-tax interest coverage level of 4.06 times.