Exhibit No.:	
Issue(s):	Cost of Capital
Witness/Type of Exhibit:	Burdette/Rebuttal
Sponsoring Party:	Public Counsel
Case No.:	EC-2002-1

REBUTTAL TESTIMONY

OF

MARK BURDETTE

Submitted on Behalf of
the Office of the Public Counsel

UNION ELECTRIC

Case No. EC-2002-1

May 10, 2002

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

STAFF OF THE MISSOURI PUBLIC SERVICE COMMISSION, Complainant,	)	
vs.	)	Case No. EC-2002-1
UNION ELECTRIC COMPANY, d/b/a AmerenUE, Respondent.	)	

AFFIDAVIT OF MARK BURDETTE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Mark Burdette, of lawful age and being first duly sworn, deposes and states:

1. My name is Mark Burdette. I am a Financial Analyst for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my affidavit consisting of pages 1 through 41 and Schedules MB-1 through MB-7.

3. I hereby swear and affirm that my statements contained in the attached affidavit are true and correct to the best of my knowledge and belief.

Mark Burdette

Subscribed and sworn to me this 10th day of May 2002.

Kathleen Harrison
Notary Public

My commission expires January 31, 2006.

REBUTTAL TESTIMONY

OF

MARK BURDETTE

UNION ELECTRIC COMPANY D/B/A AMERENUE

CASE NO. EC-2002-1

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MARK BURDETTE

UNION ELECTRIC COMPANY D/B/A AMERENUE

CASE NO. EC-2002-1

INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Mark Burdette, P.O. Box 7800, Jefferson City, Missouri 65102-7800.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the Office of the Public Counsel of the State of Missouri (OPC or Public Counsel) as a Public Utility Financial Analyst. Also, I am an adjunct faculty member with Columbia College. I teach undergraduate Business Finance and graduate-level Managerial Finance.

A. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

Q. I earned a Bachelor of Science in Electrical Engineering from the University of Iowa in May 1988. I earned a Master's in Business Administration with double emphases in Finance and Investments from the University of Iowa Graduate School of Management in December 1994.

Q. PLEASE DESCRIBE YOUR CONTINUING EDUCATION.

A. I have attended various regulatory seminars presented by the Financial Research Institute, University of Missouri-Columbia and the National Association of State Utility Consumer Advocates. Also, I attended The Basics of Regulation: Practical Skills for a Changing Environment presented by the Center for Public Utilities, New Mexico State University.

Q. DO YOU HAVE ANY PROFESSIONAL AFFILIATIONS?

A. Yes. I am a member of the Society of Utility and Regulatory Financial Analysts (SURFA).

Q. DO YOU HOLD ANY PROFESSIONAL DESIGNATIONS?

A. Yes. I have been awarded the professional designation Certified Rate of Return Analyst (CRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is awarded based upon work experience and successful completion of a written examination.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION (MPSC OR THE COMMISSION)?

A. Yes.

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. I will present a cost-of-capital analysis for Union Electric Company, d/b/a AmerenUE (UE, the Company). I will recommend and testify to the capital structure, fair return on common equity and weighted average cost of capital that should be allowed in this proceeding.

I am adopting the embedded cost rates and levels of long term debt and preferred stock as recommended by Staff witness Ronald L. Bible.

Q. HAVE YOU PREPARED SCHEDULES IN SUPPORT OF YOUR TESTIMONY?

A. Yes. I have prepared an analysis consisting of Schedules that is attached to this testimony (MB-1 through MB-7). This analysis was prepared by me and is correct to the best of my knowledge and belief.

Q. DOES UNION ELECTRIC COMPANY HAVE PUBLICLY TRADED STOCK?

A. No. Union Electric Company is a subsidiary of Ameren Corporation. Ameren's common equity trades under the ticker AEE on the New York Stock Exchange. Therefore, I used market data pertaining to Ameren Corporation as part of my analysis.

SUMMARY OF FINDINGS

Q. PLEASE SUMMARIZE YOUR FINDINGS CONCERNING THE OVERALL COST OF CAPITAL FOR UE.

A. UE should be allowed an overall return of 8.31% to 8.56% on its net original-cost rate base. This return has been determined using Ameren's capital structure and embedded cost rates, and a return on common equity based primarily on a DCF analysis of Ameren Corporation and two proxy groups of electric companies.

ANALYSIS

Q. DID YOU RELY ON DATA FROM AMEREN CORPORATION ONLY IN YOUR ANALYSIS?

A. No. In addition to analyzing Ameren Corporation, I also selected and analyzed a group of five proxy companies. Appendix G, attached to this testimony, shows the selection criteria used to develop this group of traditional electric utilities with financial risk characteristics similar to UE's. The following companies met the selection criteria: 1)DPL Inc.; 2) FirstEnergy Corp; 3) FPL Group, Inc.; 4) Pinnacle West Capital Corp.; and 5) The Southern Company. Schedule MB-1, page 1, shows the list of risk measures and values for Ameren Corp. and my group of proxy companies.

I also analyzed the three proxy companies utilized by Mr. Bible using the same methods I used for Ameren and my proxy companies. The comparison of risk measures for this group as compared to Ameren Corp. is shown on Schedule MB-1, page 2.

CAPITAL STRUCTURE

Q. WHAT CAPITAL STRUCTURE DID YOU UTILIZE IN ORDER TO CALCULATE UE'S OVERALL COST OF CAPITAL?

A. I utilized Ameren's capital structure on 30 September 2001 as calculated by Mr. Bible.

Q. DO YOU BELIEVE THIS CAPITAL STRUCTURE TO BE APPROPRIATE TO USE TO CALCULATE THE OVERALL RATE OF RETURN FOR UNION ELECTRIC COMPANY?

A. Yes, I do. That is the reason I adopted it to use for my calculations.

Q. HOW DOES AMEREN'S CAPITAL STRUCTURE COMPARE WITH THE CAPITAL STRUCTURE OF YOUR GROUP OF PROXY COMPANIES?

A. As shown on Schedule MB-2, page 1, the average common equity ratio for my five proxy companies has averaged 46.8% over the past four years, with a relatively high degree of variability. Ameren's capital structure averaged 52.4% over the same period.

Generally, electric utility holding companies have tended to have more varying capital structures as they take on mergers and acquisitions. Long term debt ratios have similarly been more variable.

The common equity ratios of Ameren Corp. and Mr. Bible's group of proxy companies is shown on Schedule MB-2, page 2.

EMBEDDED COST RATES

Q. WHAT IS THE APPROPRIATE EMBEDDED COST RATE FOR AMEREN'S TRUST PREFERRED STOCK?

A. I utilized the embedded cost of 5.72% for Ameren's preferred stock, as calculated by Mr. Bible.

Q. WHAT IS THE APPROPRIATE EMBEDDED COST RATE FOR AMEREN'S LONG TERM DEBT?

A. The embedded cost rate is 6.82% for Ameren's long term debt as of 31 December 2000.

COST OF COMMON EQUITY

Q. WHAT IS YOUR RECOMMENDED COST OF COMMON EQUITY FOR UE?

UE should be allowed a return on common equity of 9.40% to 9.83%.

Q. HOW DID YOU CALCULATE A FAIR RETURN ON COMMON EQUITY FOR UE?

A. I utilized the standard Discounted Cash Flow (DCF) methodology applied to Ameren Corporation, the group of three publicly traded electric utilities used by Staff witness Bible, and a group of five publicly traded electric utilities selected by me, to calculate a fair return on common equity for UE. I substantiated the results of this analysis using a Capital Asset Pricing Model (CAPM) analysis on Ameren and both proxy groups. The DCF model cannot be applied to UE directly because the company does not have publicly traded stock.

Q. WHY DID YOU USE PROXY GROUPS IN YOUR ANALYSIS OF THE COST OF COMMON EQUITY FOR UNION ELECTRIC COMPANY?

A. A group of proxy companies can provide insight as to the reasonableness of my company-specific return calculation. It can also provide a smoothing effect in calculations that might be affected by aberrations in the financial or market information for a single company.

Q. HOW DOES THE USE OF PROXY COMPANY ANALYSIS PROVIDE INSIGHT AS TO THE REASONABLENESS OF YOUR RECOMMENDATION FOR AMEREN?

A. Because of the basic financial concept of the risk-return trade-off, companies of similar risk will face similar capital costs in the market. Although no two companies have exactly the same overall risk profile, an analysis of other companies operating in the same industry and facing similar risk profiles will allow a zone of reasonableness for returns to be developed. The company-specific calculation of return can be compared against this multiple-company zone of reasonableness. If my calculation of Ameren Corporation's cost of common equity was highly divergent from the results I obtained when analyzing other, similar-risk electrics, that would indicate a need to examine the reason(s) for that divergence. If my

calculation of Ameren's ROE is generally consistent with the ROEs calculated for the similar-risk proxy companies, that indicates consistency within the market regarding the risk-return trade-off and provides support for my recommendation for Ameren Corp.

Q. IS THE APPLICABILITY OF THIS RISK-RETURN COMPARISON DEPENDENT ON THE PROPER SELECTION OF PROXY COMPANIES?

A. Certainly. Only companies of similar risk profiles are appropriate for the proxy group. Some financial analysts attempt to select a group that is of generally different risk, then make an ad hoc adjustment to calculated returns after the fact to account for those risk differences. This method is highly subjective and introduces an opportunity for error that simply isn't necessary. It also allows the analyst to manipulate his return recommendation via his 'interpretation' of the risk differences and resulting adjustment.

For example, this type of unnecessary, subjective error exists when using gas distribution companies as a proxy group in the analysis of returns for an electric utility, then attempting to make an adjustment for the risk differences between gas and electric utilities. Choosing comparable electric utilities in the first place avoids the subjective error and the possibility of manipulation.

Also, an analyst wishing to recommend a higher return on equity will select proxy companies of higher risk, then attempt to make the argument that the company being analyzed also faces this higher risk, thereby 'justifying' the higher recommendation.

DISCOUNTED CASH FLOW MODEL

Q. PLEASE DESCRIBE THE STANDARD DISCOUNTED CASH FLOW (DCF) MODEL YOU USED TO ARRIVE AT THE APPROPRIATE COST OF EQUITY CAPITAL.

A. The model is represented by the following equation:

$$k = D/P + g$$

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

If future dividends are expected to grow at a constant rate (i.e., the constant growth assumption) and dividends, earnings and stock price are expected to increase in proportion to each other, the sum of the current dividend yield (D/P) and the expected growth rate (g) equals the required rate of return, or the cost of equity, to the firm. This form of the DCF model is commonly used in the regulatory arena and is known as the constant growth, or Gordon, DCF model. The constant growth DCF model is based on the following assumptions:

1) A constant rate of growth,

2) The constant growth will continue for an infinite period,

3) The dividend payout ratio remains constant,

4) The discount rate must exceed the growth rate, and

5) The stock price grows proportionately to the growth rate.

Although all of these assumptions do not always hold in a technical sense, the relaxation of these assumptions does not make the model unreliable.

The DCF model is based on two basic financial principals. First; the current market price of any financial asset, including a share of stock, is equivalent to the value of all expected future cash flows associated with that asset discounted back to the present at the appropriate discount rate. The discount rate that equates anticipated future cash flows and the current market price is defined as the rate of return or the company's cost of equity capital.

Cash flows associated with owning a share of common stock can take two forms: selling the stock and dividends. Just as the current value of a share of stock is a function of

future cash flows (dividends), the *future* price of the stock at any time is also a function of future dividends. When a share of stock is sold, what is given up is the right to receive all future dividends. Therefore, the DCF model, using expected future dividends as the cash flows, is appropriate regardless of how long the investor plans to hold the stock. Determination of a holding period and an associated terminal price is unnecessary. The irrelevance of investors' time horizons is emphasized by Brealey and Myers:

> How far out could we look? In principle the horizon period *H* could be infinitely distant. Common Stocks do not expire of old age. Barring such corporate hazards as bankruptcy or acquisition, they are immortal. As *H* approaches infinity, the present value of the terminal price ought to approach zero.... We can, therefore, forget about the terminal price entirely and express today's price as the present value of a perpetual stream of cash dividends. (Principles of Corporate Financing, Fourth Edition, page 52).

The other basic financial principal on which the DCF is grounded is the "time value of money." Investors view a dollar received today as being worth more than a dollar received in the future because a dollar today can immediately be invested. Therefore, future cash flows are discounted. The rate used by investors to discount future cash flows to the present is the discount rate or opportunity cost of capital.

GROWTH RATE

Q. TO WHAT DOES THE GROWTH COMPONENT OF THE DCF FORMULA REFER?

A. The growth rate variable, g, in the traditional DCF model is the dividend growth rate investors expect to continue into the *indefinite future* (i.e., the sustainable growth rate).

Q. HOW IS THE SUSTAINABLE GROWTH RATE DETERMINED?

A. The sustainable growth rate is determined by analyzing historical and projected financial information for the Company. Historical growth rates can provide an indication of how the

company has done in the past, but they are relevant to a forward-looking cost of capital analysis only to the extent that future economic conditions will mimic historical conditions.

It is important to recognize the fundamentals of long-term investor-expected growth when developing a sustainable growth rate. Future dividends will be generated by future earnings and the primary source of growth in future earnings is the reinvestment of present earnings back into the firm. This reinvestment of earnings also contributes to the growth in book value. Furthermore, it is the earned return on reinvested earnings and existing capital (i.e., book value) that ultimately determines the basic level of future cash flows. Therefore, one proxy for the future growth rate called for in the DCF formula is found by multiplying the future expected earned return on book equity (r) by the percentage of earnings expected to be retained in the business (b). This calculation, known as the "b*r" method, or *retention* growth rate, results in one measure of the sustainable growth rate called for in the Discounted Cash Flow formula. While the retention growth rate can be calculated using historical data on earnings retention and equity returns, this information is relevant only to the extent that it provides a meaningful basis for determining the future sustainable growth rate. Consequently, projected data on earnings retention and return on book equity are generally more representative of investors' expectations.

Q. CAN YOU PROVIDE AN EXAMPLE THAT ILLUSTRATES THE FUNDAMENTALS OF RETENTION GROWTH AS A PROXY FOR SUSTAINABLE GROWTH?

A. Yes. To better understand the principles of sustainable growth, it is helpful to compare the growth in a utility's cash flows to the fundamental causes of growth in an individual's passbook account. For an individual who has $1,000 in a passbook account paying 5.0% interest, earnings will be $50 for the first year. If this individual leaves 100% of the earnings in the passbook account (retention ratio equals 100%), the account balance at the end of the first year will be $1,050. Total earnings in the second year will be $52.50

($1,050 x 5.0%), and the growth rate of the account in year two is 5.0% [100%(b) x 5%(r)]. On the other hand, if the individual withdraws $30 of the earnings from the first year and reinvests only $20 (retention ratio equals 40%) earnings in the second year will be only $51.00 ($1,020 x 5.0%), with growth equaling 2.0% [($1,020-$1,000)/$1,000 = 2.0% = 40%(b) x 5%(r)]. In both cases, the return, along with the level of earnings retained, dictate future earnings.

These exact principles regarding growth apply to a utility's common stock. When earnings are retained, they are available for additional investment and, as such, generate future growth. When earnings are distributed in the form of dividends, they are unavailable for reinvestment in those assets that would ultimately produce future growth. Either way, for both a utility's common stock or an individual's passbook account, the level of earnings retained, along with the rate of return, determine the level of sustainable growth.

Q. ARE THERE ANY OTHER FACTORS THAT INFLUENCE INVESTOR-EXPECTED SUSTAINABLE GROWTH?

A. Yes. Stock financing will cause investors to expect additional growth if a company is expected to issue new shares at a price above book value. The excess of market price over book value would benefit current shareholders, increasing their per share book equity. Therefore, if stock financing is expected at prices above book value, shareholders will expect their book value to increase, and that adds to the growth expectation stemming from earnings retention, or "b*r" growth. A more thorough explanation of "external" growth is included in Appendix (I). This external growth factor has been included in all historical and projected retention growth rate calculations for the group of comparable utilities.

Q. WHAT GROWTH RATE PARAMETERS ARE SOMETIMES USED BY ANALYSTS TO MEASURE GROWTH?

A. Methods sometimes used as a proxy for determining the investor-expected sustainable growth rate utilized in the DCF model include: 1) *historical* growth rates, and 2) analysts' *projections* of expected growth rates. Three commonly-employed historical growth parameters are: 1) earnings per share (EPS), 2) dividends per share (DPS), and 3) book value per share (BVPS). Additionally, analysts' projections of future growth in earnings per share, dividends per share, and book value per share are sometimes used as an estimate of the sustainable growth rate.

As a matter of completeness, **all** of the above-mentioned techniques for measuring growth were utilized in order to calculate a sustainable growth rate.

Q. DID YOU RELY ON DATA FROM AMEREN OR UE ONLY TO ARRIVE AT A RECOMMENDATION OF SUSTAINABLE GROWTH FOR UE?

A. No. In addition to analyzing Ameren Corporation, I also analyzed the growth rates for the group of five proxy electric utilities selected by me as well as the group of three proxy companies used by Mr. Bible, to provide some insight as to the reasonableness of a sustainable growth rate recommendation for UE. Schedules MB-3, pages 1 and 2 summarize the growth rate calculations for all the companies. Schedules MB-3, pages 3-11, contain the growth rate calculations for individual companies.

Q. WHAT GROWTH RATE PARAMETERS HAVE YOU EXAMINED IN ORDER TO ESTABLISH INVESTOR-EXPECTED GROWTH FOR UE?

A. The following growth parameters have been reviewed for Ameren, my group of proxy companies and Mr. Bible's group of three companies: 1) my calculations of historical compound growth in earnings, dividends, and book value based on data from Value Line; 2) average of five-year and ten-year historical growth in earnings, dividends, and book

value from Value Line; 3) projected growth rate in earnings, dividends, and book value; 4) historical retention growth rate; and, 5) projected retention growth rate.

Q. PLEASE EXPLAIN IN MORE DETAIL HOW THE HISTORICAL GROWTH RATES OF EARNINGS, DIVIDENDS, AND BOOK VALUE WERE DETERMINED.

A. Historical rates of growth in earnings per share (EPS), dividends per share (DPS), and book value per share (BVPS) were analyzed using two methods. First, compound growth rates were calculated for the five-year periods ending 1999, 2000 and 2001. These three five-year compound growth rates were then averaged and are labeled "Ave. Compound Gr." on line (16) of Schedule MB-3, pages 3-11.

The second measure of historical growth was taken from Value Line. I averaged Value Line's calculated 5-year and 10-year historical growth rates when both were available. If only one was available, I used that one. The historical rates of growth furnished by Value Line are included in this analysis because:

1) The Value Line growth rates are readily available for investor use;

2) The Value Line rates of growth reflect both a five-year and ten-year time frame; and

3) The Value Line rates are measured from an average of three base years to an average of three ending years, smoothing the results and limiting the impact of nonrecurring events.

Value Line historical growth measurements for EPS, DPS and BVPS appear on line (19) of Schedule MB-3, pages 3-11.

Q. PLEASE DISCUSS YOUR ANALYSIS OF PROJECTED GROWTH RATE DATA.

A. Projected growth rates in EPS, DPS, and BVPS were taken from Value Line and are found on line 30 of Schedule MB-3, pages 3-11. Projected growth in EPS was also taken from First Call Corporation (line 32). If First Call did not issue a projection for a particular

company, that space contains n/a. Information from First Call is available to the average investor. The projected growth in EPS found on line 36 is the average of earnings growth projections furnished by Value Line and First Call. Value Line's projected growth in dividends and book value are listed again on line 36.

Q. PLEASE DISCUSS YOUR ANALYSIS OF HISTORICAL AND PROJECTED RETENTION GROWTH RATES.

A. Historical retention growth was determined using the product of return (r) and retention rate (b) for the years 1997-2001, and the average was calculated (line 10, final column). The projected retention growth data, found on lines 25-27 of Schedule MB-3, pages 3-11 is based on information from Value Line. Projected retention growth was calculated for 2002, 2003 and the period 2005-07. The average of these growth rates appears on line 30.

Investors' expectations regarding growth from external sources (i.e. sales of additional stock at prices above book value) has been included in the determination of both historical and projected growth. These values appear on line 13 for historical growth and line 33 for projected growth.

AMEREN CORP. GROWTH RATES

Q. PLEASE SUMMARIZE YOUR GROWTH RATE ANALYSIS FOR AMEREN CORP.

A. The overall average of all growth rates is 2.18% (Schedule MB-3, page 1). The average historical growth rate is 1.84%. The average projected growth is 2.79%. The highest calculated growth rate is 4.35%, which is the *historical* retention growth. The lowest growth rate is 0.37%, which is historical compound dividend per share growth. All my calculated growth rates for Ameren Corp. are shown in the table below:

	EPS	DPS	BVPS
Historical Compound Growth	3.80%	0.37%	0.84%
Historical Value Line Growth	0.75%	1.75%	1.00%
Projected Growth	3.75%	0.50%	3.50%

	Historical	Projected
Retention Growth	4.35%	3.39%

PROXY GROUPS' GROWTH RATES

Q. PLEASE SUMMARIZE YOUR GROWTH RATE ANALYSIS FOR YOUR PROXY GROUP OF COMPANIES.

A. The overall average of all growth rates for all five companies is 4.69%. The average historical growth is 4.41% and the average projected growth is 5.31%. All growth rates are shown on Schedule MB-3, page 1.

Q. PLEASE SUMMARIZE YOUR GROWTH RATE ANALYSIS FOR THE GROUP OF PROXY COMPANIES USED BY MR. BIBLE.

A. The overall average of all growth rates for all three companies is 2.94%. The average historical growth is 2.44% and the average projected growth is 3.73%. All growth rates are shown on Schedule MB-3, page 2.

AMEREN CORPORATION'S SUSTAINABLE GROWTH

Q. WHICH GROWTH RATE DO YOU CONSIDER TO BE REFLECTIVE OF THE INVESTOR-EXPECTED SUSTAINABLE GROWTH FOR AMEREN?

A. I believe investors expect Ameren Corporation's sustainable growth rate to be, at most, 3.75%. This value is the third-highest value I calculated for Ameren, out of 11 growth rate calculations, and is the highest projected growth rate in my analysis. Only historical Value Line EPS and historical compound EPS were higher (although compound EPS was only slightly higher, at 3.80%).

DIVIDEND YIELD

Q. WHAT IS THE APPROPRIATE DIVIDEND YIELD TO USE IN THE DCF?

A. The appropriate dividend yield to use in the DCF is the *expected* dividend yield calculated from the expected dividend and current stock price.

Q. PLEASE EXPLAIN YOUR CALCULATION OF THE DIVIDEND YIELD.

A. The appropriate dividend yield to use in the DCF equation is equal to the *expected* dividend divided by *current* stock price. Schedule MB-4, page 1, shows average stock price over a recent six week period, expected dividends for 2002 and calculations of dividend yields, for Ameren Corp. and my group of proxy companies. The same information and calculations for Mr. Bible's group are shown on Schedule MB-4, page 2..

I used a six-week period for determining the average stock price because I believe that period of time is long enough to avoid daily fluctuations and recent enough so that the stock price captured is representative of current expectations. Non-current stock prices simply do not capture investor's current expectations and are inappropriate to use in the DCF.

Also, for comparison, I calculated a three-month average stock price for Ameren Corp. (Schedule MB-4, page 3) and used this value to calculate a dividend yield (Schedule MB-4, page 1). I performed this analysis to check that Ameren's dividend yield had not changed significantly.

Q. IS THE METHOD YOU USED TO CALCULATE THE DIVIDEND YIELD CONSISTENT WITH DCF PRINCIPLES?

A. Yes. The DCF equation calls for the dividend yield calculated from expected dividends and current market prices of stock, both of which I utilized in my calculation.

AMEREN CORPORATION'S DIVIDEND YIELD

Q. WHAT DIVIDEND YIELD DID YOU CALCULATE FOR AMEREN CORP.?

A. As shown on Schedule MB-4, page 1, I calculated an expected dividend yield for Ameren Corp. of 6.01% using an expected dividend of $2.54 and a six-week average stock price of $42.47. I used this dividend yield to calculate the average cost of equity and the low point of my range of values for Ameren.

I calculated a 6.07% dividend yield using an expected dividend of $2.54 and a three-month average stock price of $41.87. I used this dividend yield to calculate the top of my cost of equity range for Ameren.

PROXY GROUPS' DIVIDEND YIELD

Q. WHAT DIVIDEND YIELD DID YOU CALCULATE FOR YOUR GROUP OF PROXY COMPANIES?

A. I calculated an average dividend yield of 4.09% for this group of five electric companies. This calculation is shown on Schedule MB-4, page 1.

Q. WHAT DIVIDEND YIELDS DID YOU CALCULATE FOR MR. BIBLE'S PROXY GROUP OF COMPANIES?

A. I calculated an average dividend yield of 5.40% for the group of three companies selected by Mr. Bible. This calculation is shown on Schedule MB-4, page 2.

DCF COST OF EQUITY

Q. WHAT COST OF COMMON EQUITY RANGE DID YOU CALCULATE FOR AMEREN CORP.?

A. The following table, using data from Schedule MB-5, page 1, outlines the total cost of equity range for Ameren Corp.:

	Dividend Yield	Growth	Cost of Equity
Low	6.01%	0.37%	6.48%
Average	6.01%	2.18%	8.19%
High	6.07%	4.35%	10.42%

Using Ameren Corp.'s *average projected* growth rate of 2.79% (Schedule MB-3, page 1) and the 6.01% dividend yield produces a cost of equity estimate of 8.80%.

Using Ameren's *projected retention growth* of 3.39% and the 6.01% dividend yield produces a DCF cost of equity of 9.40%.

Ameren's *maximum projected growth rate* is 3.75% for projected dividends per share. This value, combined with each of the two dividend yields of 6.01% and 6.07%, produces DCF costs of equity of 9.76% and 9.83%, respectively.

Q. WHAT COST OF COMMON EQUITY RANGE DID YOU CALCULATE FOR YOUR GROUP OF PROXY COMPANIES?

A. The following table, using data from Schedule MB-5, page 1, outlines the total cost of equity range for my group of five proxy companies:

	Dividend Yield	Growth	Cost of Equity
Low	4.09%	0.30%	4.40%
Average	4.09%	4.69%	8.78%
High	4.09%	9.42%	13.51%

The average cost of equity is 9.40% using the average projected growth rate of 5.31% and average dividend yield of 4.09%.

Q. WHAT COST OF COMMON EQUITY RANGE DID YOU CALCULATE FOR MR. BIBLE'S GROUP OF PROXY COMPANIES?

A. The following table, using data from Schedule MB-5, page 2, outlines the total cost of equity range for Bible's group:

	Dividend Yield	Growth	Cost of Equity
Low	5.40 %	-0.66%	4.73%
Average	5.40%	3.42%	8.82%
High	5.40%	8.62%	14.02%

The cost of equity is 9.31% using the average projected growth rate of 3.73% and the dividend yield of 5.40%.

Q. WHAT CAN YOU SAY GENERALLY ABOUT THE COST OF EQUITY FOR ELECTRIC UTILITIES AS EVIDENCED FROM YOUR ANALYSIS?

A. In general, the calculations – and certainly the averages - show that the cost of equity capital for electric utilities is in the general area of less than 10.0%. The only company-specific calculations producing values greater than 10.0% are the result of much greater-than-average growth rates that are not representative of the industry overall and certainly not applicable to Union Electric Company.

Q. WHAT RETURN ON COMMON EQUITY DO YOU RECOMMEND FOR THE UNION ELECTRIC COMPANY MISSOURI-JURISDICTIONAL ELECTRIC OPERATIONS OF AMEREN CORPORATION?

A. I recommend the MPSC consider a range of 9.40% to 9.83% for UE's cost of equity. This range agrees very favorably with the upper half of the cost of equity range recommended by Mr. Bible.

CAPITAL ASSET PRICING MODEL

Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL YOU USED TO SUBSTANTIATE YOUR RECOMMENDED RETURN ON COMMON EQUITY.

A. The Capital Asset Pricing Model (CAPM) is described by the following equation:

$$K = R_f + \beta(R_m - R_f)$$

where,

K = the cost of common equity for the security being analyzed,

R_f = the risk free rate,

β = beta = the company or industry-specific beta risk measure,

R_m = market return, and

$(R_m - R_f)$ = market premium.

The formula states that the cost of common equity is equal to the risk free rate of interest, plus, beta multiplied by the difference between the return on the market and the risk free rate (the market premium).

The formula says that the cost of common equity is equal to the risk free rate plus some proportion of the market premium - that proportion being equal to beta. The market overall has a beta of 1.0. Firms with beta less than 1.0 are assumed to be less risky than the market; firms with beta greater than 1.0 are assumed to be more risky than the market. The appropriate beta to use in the CAPM formula is the beta that represents the risk of the industry (or project) being analyzed.

Q. DO YOU SUBSCRIBE TO THE CAPM AS AN ACCURATE MEASURE OF MARKET-BASED COST OF EQUITY?

A. I believe the CAPM - and its dependence on the single risk measure, beta - has limitations in its ability to accurately take into account the risk factors faced by a company, and therefore that company's cost of equity. However, some investors continue to rely on the

CAPM. Therefore, I included the analysis as a check on and to provide support for my DCF analysis.

My CAPM calculations for Ameren Corp. and my group of proxy companies are shown on Schedule MB-6, page 1. CAPM calculations for Mr. Bible's proxy group are shown on Schedule MB-6, page 2.

Q. HOW DID YOU ARRIVE AT THE VALUES OF THE RISK FREE RATE AND THE MARKET RETURN (OR MARKET PREMIUM) USED IN YOUR ANALYSIS?

A. I used 5.36% as the risk free rate, which is the average of the rate on 10-year U.S. Government securities (5.09%) and the rate on the 30-year U.S. Government Bond (5.62%), as reported by Value Line's Selection & Opinion, 3 May 2002. I believe the 30-year U.S. Government Bond is losing favor as the indication of the risk free rate to the length of its maturity as compared to how quickly the economy and market can change.

I used a market premium of 7.3% as calculated and reported by Ibbotson & Associates.

Q. WHAT DOES YOUR CAPM ANALYSIS SHOW?

A. Ameren's CAPM cost of equity is 9.37%. The average CAPM cost of common equity for my proxy group is 9.19%. The average CAPM cost of equity for Mr. Bible's proxy group is 9.50%.

Given the CAPM's reliance on the single risk-measure beta, I believe this analysis lends support to and shows the reasonableness of my recommended cost of common equity of 9.40% to 9.83% for UE.

WEIGHTED AVERAGE COST OF CAPITAL

Q. WHAT OVERALL, OR WEIGHTED AVERAGE, COST OF CAPITAL (WACC) IS INDICATED BY YOUR ANALYSIS?

A. The weighted average cost of capital I calculated for UE is from 8.31% to 8.56%. This calculation is shown on Schedule MB-7. These returns are based on a 9.40% and 9.83% return on equity, respectively.

Q. WHAT PRE-TAX COVERAGE RATIO IS IMPLIED BY YOUR RECOMMENDATION?

A. Based on a WACC of 8.56% and an assumed overall tax factor of 1.63, the pre-tax coverage ratio is 4.79 times. Based on a WACC of 8.31%, the pre-tax coverage ratio is 4.63 times. The derivation of pre-tax coverage is shown on Schedule MB-7.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

APPENDIX A

DEVELOPMENT & PURPOSES OF REGULATION

Q. WHY ARE PUBLIC UTILITIES REGULATED?

A. The nature of public utility services generally requires a monopolistic mode of operation. Only a limited number of companies (and quite often only one) are normally allowed to provide a particular utility service in a specific geographic area. Public utilities are often referred to as "natural" monopolies; a state created by such powerful economies of scale or scope that only one firm can or should provide a given service. Even when a utility is not a pure monopoly, it still has substantial market power over at least some of its customers.

In order to secure the benefits arising from monopolistic-type operations, utilities are generally awarded an exclusive franchise (or certificate of public convenience) by the appropriate governmental body. Since an exclusive franchise generally protects a firm from the effects of competition, it is critical that governmental control over the rates and services provided by public utilities is exercised. Consequently, a primary objective of utility regulation is to produce market results that closely approximate the conditions that would be obtained if utility rates were determined competitively. Based on this competitive standard, utility regulation must: 1) secure safe and adequate service; 2) establish rates sufficient to provide a utility with the opportunity to cover all reasonable costs, including a fair rate of return on the capital employed; and 3) restrict monopoly-type profits.

APPENDIX B

CALCULATION OF THE WEIGHTED AVERAGE COST OF CAPITAL

Q. PLEASE EXPLAIN HOW THE WEIGHTED AVERAGE COST OF CAPITAL IS USED IN TRADITIONAL RATEMAKING AND HOW IT IS DERIVED.

A. The basic standard of rate regulation is the revenue-requirement standard, often referred to as the rate base-rate of return standard. Simply stated, a regulated firm must be permitted to set rates which will cover operating costs and provide an opportunity to earn a reasonable rate of return on assets devoted to the business. A utility's total revenue requirement can be expressed as the following formula:

$$R = O + (V - D + A)r$$

where R = the total revenue required,

O = cost of operations,

V = the gross value of the property,

D = the accrued depreciation, and

A = other rate base items,

r = the allowed rate of return/weighted average cost of capital.

This formula indicates that the process of determining the total revenue requirement for a public utility involves three major steps. First, allowable operating costs must be ascertained. Second, the net depreciated value of the tangible and intangible property, or net investment in property, of the enterprise must be determined. This net value, or investment (V - D), along with other allowable items is referred to as the rate base. Finally, a "fair rate of return" or weighted average cost of capital (WACC) must be determined. This rate, expressed as a percentage, is multiplied by the rate base. The weighted average cost of capital (WACC) is applied to the rate base (V-D+A) since it is generally recognized

the rate base is financed with the capital structure and these two items are normally similar in size. The allowed rate of return, or WACC, is typically defined as follows:

$$r = i(D/C) + l(P/C) + k(E/C)$$

where i = embedded cost of debt capital,

D = amount of debt capital,

l = embedded cost of preferred stock,

P = amount of preferred stock,

k = cost of equity capital,

E = amount of equity capital, and

C = amount of total capital.

This formula indicates that the process of determining WACC involves separate determinations for each type of capital utilized by a utility. Under the weighted cost approach, a utility company's total invested capital is expressed as 100 percent and is divided into percentages that represent the capital secured by the issuance of long-term debt, preferred stock, common stock, and sometimes short-term debt. This division of total capital by reference to its major sources permits the analyst to compute separately the cost of both debt and equity capital. The cost rate of each component is weighted by the appropriate percentage that it bears to the overall capitalization. The sum of the weighted cost rates is equal to the overall or weighted average cost of capital and is used as the basis for the fair rate of return that is ultimately applied to rate base.

APPENDIX C

ECONOMIC PRINCIPLES OF REGULATION

Q. BRIEFLY DESCRIBE THE ECONOMIC RATIONALE FOR RATE BASE-RATE OF RETURN REGULATION.

A. Rate base-rate of return regulation is based, in part, on basic economic and financial theory that applies to both regulated and unregulated firms.

> Although it is well recognized that no form of economic regulation can ever be a perfect substitution for competition in determining market prices for goods and services, there is nearly unanimous acceptance of the principle that regulation should act as a substitute for competition in utility markets. (Parcell, The Cost of Capital Manual p.1-4).

It is the interaction of competitive markets forces that holds the prices an unregulated firm can charge for its products or services in line with the actual costs of production. In fact, competition between companies is generally viewed as the mechanism that allows consumers to not only purchase goods and services at prices consistent with the costs of production but also allows consumers to receive the highest quality product. Since regulated utilities are franchised monopolies generally immune to competitive market forces, a primary objective of utility regulation is to produce results that closely approximate the conditions that would exist if utility rates were determined in a competitive atmosphere.

Under basic financial theory, it is generally assumed the goal for all firms is the maximization of shareholder wealth. Additionally, capital budgeting theory indicates that, in order to achieve this goal, an unregulated firm should invest in any project which, given a certain level of risk, is expected to earn a rate of return at or above its weighted average cost of capital.

Competition, in conjunction with the wealth maximization goal, induces firms to increase investment as long as the expected rate of return on an investment is greater that the cost of capital. Competitive equilibrium is achieved when the rate of return on the last investment project undertaken just equals the cost of capital. When competitive equilibrium is achieved, the price ultimately received for goods or services reflects the full costs of production. Therefore, not only does competition automatically drive unregulated firms to minimize their capital costs (investment opportunities are expanded and competitive position is enhanced when capital costs can be lowered), it also ensures that the marginal return on investment just equals the cost of capital.

Given that regulation is intended to emulate competition and that, under competition, the marginal return on investment should equal the cost of capital, it is crucial for regulators to set the authorized rate of return equal to the **actual** cost. If this is accomplished, the marginal return on prudent and necessary investment just equals cost and the forces of competition are effectively emulated.

APPENDIX D

LEGAL REQUIREMENT FOR A FAIR RATE OF RETURN

Q. IS THERE A JUDICIAL REQUIREMENT RELATED TO THE DETERMINATION OF THE APPROPRIATE RATE OF RETURN FOR A REGULATED UTILITY?

A. Yes. The criteria established by the U.S. Supreme Court closely parallels economic thinking on the determination of an appropriate rate of return under the cost of service approach to regulation. The judicial background to the regulatory process is largely contained in two seminal decisions handed down in 1923 and 1944. These decisions are,

> Bluefield Water Works and Improvement Company v. Public Service Commission, 262 U.S. 679 (1923), and
>
> FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944)

In the Bluefield Case, the Court states,

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally.

Together, Hope and Bluefield have established the following standards,

1). A utility is entitled to a return similar to that available to other enterprises with similar risks;

2). A utility is entitled to a return level reasonably sufficient to assure financial soundness and support existing credit, as well as raise new capital; and

3). A fair return can change along with economic conditions and capital markets.

Furthermore, in Hope, the Court makes clear that regulation does not guarantee utility profits and, in Permian Basin Area Rate Cases, 390 US 747 (1968), that, while investor interests (profitability) are certainly pertinent to setting adequate utility rates, those interests do not exhaust the relevant considerations.

APPENDIX E

REGULATION IN MISSOURI

Q. WHAT IS THE ORIGIN AND RATIONALE FOR THE REGULATION OF PUBLIC UTILITIES IN THE STATE OF MISSOURI?

A. All investor owned public utilities operating in the state of Missouri are subject to the Public Service Commission Act, as amended. The Public Service Commission Act was initially passed by the Forty-Seventh General Assembly on April 15, 1913. (Laws of 1913 pp.557-651, inclusive).

In State ex rel Kansas City v. Kansas City Gas Co. 163 S.W. 854 (Mo.1914), the case of first impression pertaining to the Public Service Commission Act, the Missouri Supreme Court described the rationale for the regulation of public utilities in Missouri as follows:

> That act (Public Service Commission Act) is an elaborate law bottomed on the police power. It evidences a public policy hammered out on the anvil of public discussion. It apparently recognizes certain generally accepted economic principles and conditions, to wit: That a public utility (like gas, water, car service, etc.) is in its nature a monopoly; that competition is inadequate to protect the public, and, if it exists, is likely to become an economic waste; that regulation takes the place of and stands for competition; that such regulation to command respect from patron or utility owner, must be in the name of the overlord, the state, and, to be effective, must possess the power of intelligent visitation and the plenary supervision of every business feature to be finally (however invisible) reflected in rates and quality of service. (Kansas City Gas Co. at 857-58).

The General Assembly has determined that the provisions of the Public Service Commission Act "shall be liberally construed with a view to the public welfare, efficient facilities and substantial justice between patrons and public utilities" (See: 386.610 RSMo 1978). Pursuant to the above legislative directive, when developing the cost of equity capital for a public utility operating in Missouri, it is appropriate to do so with a view

toward the public welfare; giving the utility an amount that will allow for efficient use of its facilities and the proper balance of interests between the ratepayers and the utility.

APPENDIX F

MARKET-TO-BOOK RATIO ILLUSTRATION

Q. COULD YOU PROVIDE AN EXAMPLE ILLUSTRATING THE IMPORTANCE OF MARKET-TO-BOOK RATIOS AND THEIR RELATIONSHIP TO THE COST OF EQUITY CAPITAL?

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

Now, assume the investors' required return is 10%. Investors would be drawn to a utility stock in a risk class for which they require a 10% return but was expected to pay out a 12% return. The increased demand by investors would result in an increase in the market price of the stock until the total share yield equaled the investors' required return. In our example, that point would be $12 per share ($1.20 dividends/$12 market price = 10%). As such, the allowed/expected return (12%) is greater than the required return (10%) and the per share market price ($12/share) exceeds book value ($10/share), producing a market-to-book ratio greater than one ($12/$10 = 1.20). Consequently, when the market-to-book ratio for a given utility is greater than one, the earned or projected return on book equity is greater than the cost of capital.

APPENDIX G

DEVELOPMENT OF A PROXY GROUP

Q. PLEASE EXPLAIN HOW YOU DEVELOPED A GROUP OF ELECTRIC UTILITIES WITH RISK CHARACTERISTICS SIMILAR TO UE.

A. The following selection criteria have been used to develop a group of proxy utilities:

1). Publicly traded company;

2). No Missouri-regulated operations;

3). Greater than 70% of total revenues from regulated sales of electricity. In fact, only one company, FirstEnergy, fails to earn at least 87% of revenues from the regulated sale of electricity.

4). Standard & Poor's Bond Rating at least BBB. FirstEnergy is the only BBB company. One company is BBB+, and three are in the A range.

5). Covered by Value Line;

Q. HAVE YOU MADE ANY RISK EVALUATIONS FOR THE INDUSTRY GROUP?

A. Yes. As shown on Schedule MB-, I have examined several measures that typically act as indicators of relative risk.

The beta coefficient;

Fixed charge coverage;

Value Line Safety rating;

Bond Rating from Standard & Poor's;

Average common equity ratio;

Value Line Financial Strength.

Also, many of the selection criteria also act as risk measures, such as the level of revenues from regulated electric operations.

APPENDIX H

EFFICIENT NATURE OF THE CAPITAL MARKETS

Q. IS THE DISCOUNTED CASH FLOW MODEL INHERENTLY CAPABLE OF ADJUSTING FOR THE LEVEL OF REAL OR PERCEIVED RISKINESS TO A GIVEN SECURITY?

A. Yes. It is impossible for any one analyst to systematically interpret the impact that each and every risk variable facing an individual firm has on the cost of equity capital to that firm. Fortunately, this type of risk-by-risk analysis is not necessary when determining the appropriate variables to be plugged into the DCF formula.

As stated earlier, the DCF model can correctly identify the cost of equity capital to a firm by adding the current dividend yield (D/P) to the correct determination of investor-expected growth (g). Thus, the difficult task of determining the cost of equity capital is made easier, in part, by the relative ease of locating dividend and stock price information and the efficient nature of the capital markets.

Q. PLEASE EXPLAIN THAT STATEMENT.

A. The DCF model is based on the assumption that investors (1) calculate intrinsic values for stocks on the basis of their interpretation of available information concerning future cash flows and risk, (2) compare the calculated intrinsic value for each stock with its current market price, and (3) make buy or sell decisions based on whether a stock's intrinsic value is greater or less than its market price.

Only if its market price is equal to or lower than its intrinsic value as calculated by the marginal investor will a stock be demanded by that investor. If a stock sells at a price significantly above or below its calculated intrinsic value, buy or sell orders will quickly push the stock towards market equilibrium. The DCF model takes on the following form when used by investors to calculate the intrinsic value of a given security,

$P^{\wedge} = D/k-g$

where $P^{\wedge}$= the intrinsic value of the security,

D = the current dividend,

g = the expected growth rate, and

k = the required return on the security

Since the required rate of return for any given investor is based on both the perceived riskiness of the security and return opportunities available in other segments of the market, it can be easily demonstrated that when perceived riskiness is increased, the investors' required return is also increased and the market value of the investment falls as it is valued less by the marginal investor. Returning to the form of the DCF model used to determine the cost of equity capital to the firm,

$k = D/P + g$

we see that the required return rises as an increase in the perceived risk associated with a given security drives the price down. Within this context, the DCF formula incorporates all known information, including information regarding risks, into the cost of equity capital calculation. This is known as the "efficient market" hypothesis.

Q. IS THE "EFFICIENT MARKET" HYPOTHESIS SUPPORTED IN THE FINANCIAL LITERATURE?

A. Yes. Modern investment theory maintains that the U.S. capital markets are efficient and, at any point in time, the prices of publicly traded stocks and bonds reflect all available information about those securities. Additionally, as new information is discovered, security prices adjust virtually instantaneously. This implies that, at any given time, security prices reflect "real" or intrinsic values. This point is further clarified by Brealey and Myers in Principles of Corporate Finance, Fourth Edition:

When economists say that the security market is efficient, they are not talking about whether the filing is up-to-date or whether the desktops are tidy. They mean that information is widely and cheaply available to investors and that all relevant and ascertainable information is already reflected in security prices. (pg. 290)

Suppose, e.g., that you wish to sell an antique painting at an auction but you have no idea of its value. Can you be sure of receiving a fair price? The answer is that you can if the auction is sufficiently competitive. In other words, you need to satisfy yourself that it is to be properly conducted (that includes no collusion among bidders), that there is no substantial cost involved in submitting a bid, and that the auction is attended by a reasonable number of skilled potential bidders, each of whom has access to the available information. In this case, no matter how ignorant *you* may be, competition among experts will ensure that the price you realize fully reflects the value of the painting.

In just the same way, competition among investment analysts will lead to a stock market in which prices at all times reflect true value. But what do we mean by *true value*? It is a potentially slippery phrase. True value does not mean ultimate *future* value -- we do not expect investors to be fortune-tellers. It means an equilibrium price which incorporates *all* the information available to investors at that time. That was our definition of an efficient market. (pg. 293-294)

APPENDIX I

DETERMINATION OF RETENTION (BR + SV) GROWTH & SUSTAINABLE GROWTH VS. EARNINGS AND DIVIDEND GROWTH RATES

Q. PREVIOUSLY YOU STATED THAT IT IS CRITICAL TO UNDERSTAND THE SOURCES OF GROWTH WHEN DEVELOPING A SUSTAINABLE GROWTH RATE RECOMMENDATION. PLEASE PROVIDE AN EXAMPLE THAT ILLUSTRATES HOW SUSTAINABLE GROWTH IS MEASURED.

A. To understand how investors develop a growth rate expectation, it is helpful to look at an illustration that shows how expected growth is measured. To do this, assume that a hypothetical utility has a first period common equity, or book value per share of $20.00; the investor-expected return on that equity is 12 percent; and the stated company policy is to pay out 50 percent of earnings in dividends. The first period earnings per share are expected to be $2.40 ($20 per share book equity x 12% equity) and the expected dividend is $1.20. The amount of earnings not paid out to shareholders ($1.20), referred to as retained earnings, raises the book value of the equity to $21.20 in the second period. The following table continues the hypothetical for a three-year period and illustrates the underlying determinants of growth.

	Year 1	Year 2	Year 3	Gr.
Book Value	$20.00	$21.20	$22.47	6.00%
Equity Return	12%	12%	12%	
Earnings/Sh.	$2.40	$2.54	$2.67	6.00%
Payout Ratio	50%	50%	50%	
Dividend/Sh.	$1.20	$1.27	$1.34	6.00%

As can be seen, earnings, dividends, and book value all grow at the same rate when the payout ratio and return on equity remain stable. Moreover, key to this growth is the amount of earnings retained or reinvested in the firm and the return on equity.

Letting "b" equal the retention ratio of the firm (or 1 minus the payout ratio) and letting "r" equal the firm's expected return on equity, the DCF growth rate "g" (also referred to as the sustainable growth rate) is equal to their product, or

$$g = br.$$

As shown in the example, the growth rate for the hypothetical company is 6.00 percent (12% ROE x 50% payout ratio).

Dr. Gordon has determined that this equation embodies the underlying fundamentals of growth and, therefore, is a primary measure of growth to be used in the DCF model (Gordon, The Cost of Capital to a Public Utility, 1974, p.81). It should be noted, however, Dr. Gordon's research also indicates that analysts' growth rate projections are useful in estimating investors' expectations. As a result, analysts' published growth rate projections, along with other historical and projected growth rates, are considered in this analysis for the purpose of reaching an accurate estimation of the expected sustainable growth rate.

Q. CAN THE RETENTION GROWTH RATE MODEL BE FURTHER REFINED IN ORDER TO BEST REPRESENT INVESTORS' EXPECTATIONS?

A. Yes. The above hypothetical example 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 additional shares at a market price which exceeds book value.

The excess of market value over book value per share would benefit current shareholders by increasing their per share equity value. Therefore, if the company is expected to continue to issue stock at a price that exceeds book value per share, the shareholders would continue to expect their book value to increase and would add that growth expectation to that stemming from the retention of earnings, or internal growth.

On the other hand, if a company is expected to issue new common equity at a price below book value, that would have a negative effect on shareholders' current growth rate expectations. Finally, with little or no expected equity financing or a market-to-book ratio at or near one, investors would expect the long-term sustainable growth rate for the company to equal the growth from earnings retention.

Dr. Gordon identifies the growth rate which includes both expected internal and external financing as,

$$g = br + sv$$

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.

Additionally,

$$v = 1 - BV/MP$$

where,

MP = market price,
BV = book value.

The second term (sv), which represents the external portion of the expected growth rate, does not normally represent a major source of growth when compared to the expected growth attributed to the retention of earnings. For example, the FERC Generic Rate of Return Model estimates the (sv) component in the range of 0.1% to 0.2%. However, I have used this equation as the basis for determining sustainable growth for the comparable group.

Q. IS HISTORICAL OR PROJECTED GROWTH IN EARNINGS OR DIVIDENDS APPROPRIATE FOR DETERMINING THE DCF GROWTH RATE?

A. No, not always. As I have stated, growth derived from earnings or dividends alone can be unreliable for ratemaking purposes due to external influences on these parameters such as changes in the historical or expected rate of return on common equity or changes in the payout ratio. An extended example will demonstrate this point.

If we take the example above and assume that, in year two, the expected return on equity rises from 12 percent to 15 percent, the resulting growth rate in earnings and dividends per share dramatically exceeds what the company could sustain indefinitely. The error that can result from exclusive reliance on earnings or dividends growth is illustrated in the following table:

	Year 1	Year 2	Year 3	Gr.
Book Value	$20.00	$21.20	$22.79	6.75%
Equity Return	12%	15%	15%	
Earnings/Sh.	$2.40	$3.18	$3.42	19.37%
Payout Ratio	50%	50%	50%	
Dividends/Sh.	$1.20	$1.59	$1.71	19.37%

Due to the change in return on equity in year two, the compound growth rate for dividends and earnings is greater than 19 percent, which is the result only of a short-term increase in the equity return rather than the intrinsic ability of the firm to grow continuously at a 19 percent annual rate.

For year one, the sustainable rate of growth (g=br) is 6.00 percent, just as it was in the previous example. On the other hand, in years two and three, the sustainable growth rate increases to 7.50 percent. (15% ROE x 50% retention rate = 7.50%). Consequently, if the utility is expected to continually earn a 15 percent return on equity and retain 50 percent of earnings for reinvestment, a growth rate of 7.50 percent would be a reasonable estimate

of the long-term sustainable growth rate. However, the compound growth rate in earnings and dividends, which is over 19 percent, dramatically exceeds the actual investor-expected growth rate.

As can be seen in the hypothetical, the 19 percent growth rate is simply the result of the change in return on equity from year one to year two, not the firm's ability to grow sustainably at that rate. Consequently, this type of growth rate cannot be relied upon to accurately measure investors' sustainable growth rate expectations. In this instance, to rely on either earnings or dividend growth would be to assume the return on equity could continue to increase indefinitely. This, of course, is a faulty assumption; the recognition of which emphasizes the need to analyze the fundamentals of actual growth.

Q. IS HISTORICAL GROWTH IN DIVIDENDS AN ACCURATE INDICATOR OF INVESTORS' GROWTH EXPECTATIONS WHEN THE HISTORICAL PAYOUT RATIO HAS BEEN ERRATIC OR TRENDED DOWNWARD OVER TIME?

A. As stated, no. It can also be demonstrated that a change in our hypothetical utility's payout ratio makes the past rate of growth in dividends an unreliable basis for predicting investor-expected growth. If we assume the hypothetical utility consistently earns its expected equity return but in the second year changes its payout ratio from 50 percent to 75 percent, the resulting growth rate in dividends far exceeds a reasonable level of sustainable growth.

	Year 1	Year 2	Year 3	Gr.
Book Value	$20.00	$21.20	$21.84	4.50%
Equity Return	12%	12%	12%	
Earnings/Sh.	$2.40	$2.54	$2.62	4.50%
Payout Ratio	50%	75%	75%	
Dividends/Sh.	$1.20	$1.91	$1.97	28.13%

Although the company has registered a high dividend growth rate (28.13%), it is not representative of the growth that could be sustained, as called for in the DCF model. In actuality, the sustainable growth rate (br) has declined due to the increased payout ratio. To

utilize a 28 percent growth rate in a DCF analysis for this hypothetical utility would be to assume that the payout ratio could continue to increase indefinitely and lead to the unlikely result that the firm could consistently pay out more in dividends than it earns. The problems associated with sole reliance on historical dividend growth has been recognized in the financial literature. According to Brigham and Gapenski,

> If earnings and dividends are growing at the same rate, there is no problem, but if these two growth rates are unequal, we do have a problem. First, the DCF model calls for the expected dividend growth rate. However, if EPS and DPS are growing at different rates, something is going to have to change: these two series cannot grow at two different rates indefinitely (Intermediate Financial Management, p.145).

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Common Equity

	2001	2000	1999	1998	Average
Ameren Corp.	**49.5%**	**51.8%**	**53.5%**	**54.8%**	**52.4%**
Value Line Composite Index	**42.5%**	**40.5%**	**41.9%**	**44.4%**	**42.3%**

Comparable Companies' Common Equity

	2001	2000	1999	1998	Average
DPL Inc.	25.0%	27.2%	51.6%	56.0%	40.0%
FirstEnergy	36.5%	41.5%	39.8%	37.8%	38.9%
FPL Group, Inc.	57.5%	57.1%	59.2%	66.6%	60.1%
Pinnacle West	52.5%	54.9%	50.0%	50.2%	51.9%
Southern Company	42.0%	50.6%	37.8%	42.9%	43.3%
				Overall Average	**46.8%**

Note: Calculations do not include short term debt

Source: Value Line Investment Survey

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Common Equity

	2001	2000	1999	1998	Average
Ameren	**49.5%**	**51.8%**	**53.5%**	**54.8%**	**52.4%**
Value Line Composite Index *Electric Utility (Central)*	**42.5%**	**40.7%**	**41.9%**	**44.6%**	**42.4%**

Bible's Proxy Companies' Common Equity

	2001	2000	1999	1998	Average
Allegheny Energy	48.5%	39.8%	42.1%	46.4%	44.2%
Alliant Energy	47.5%	50.2%	57.4%	49.2%	51.1%
Cinergy Corp.	48.5%	48.2%	46.3%	48.5%	47.9%
				Overall average:	**47.7%**

Note: Calculations do not include short term debt
Source: Value Line Investment Survey

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Risk Measures

	Public	(millions) Revenue	% Rev Elec.	S&P	Missouri Regulation?
DPL Inc.	Yes	$1,199.70	99.0%	BBB+	No
FirstEnergy	Yes	$8,041.50	71.0%	BBB	No
FPL Group, Inc.	Yes	$8,475.00	88.0%	A	No
Pinnacle West	Yes	$4,644.80	97.0%	A-	No
Southern Company	Yes	$10,195.80	87.0%	A+	No
Average		**$6,511.36**	**88.4%**	**A-**	
Ameren Corp.	Yes	**$4,505.90**	**92.0%**	**A+**	**Yes**

	Beta	Payout Ratio	Common Equity	Safety	MTB	Long Term Interest Earned	Fixed Charge Coverage	Financial Strength
DPL Inc.	0.65	55.0%	25.0%	2.0	3.68	2.9	250%	B+
FirstEnergy	0.55	52.0%	38.0%	3.0	1.52	3.5	243%	B+
FPL Group, Inc.	0.60	50.0%	47.0%	2.0	1.7	-	403%	A
Pinnacle West	0.45	42.0%	46.0%	1.0	1.47	4.7	384%	A+
Southern Company	-	83.0%	38.0%	2.0	2.28	5.5	232%	A
Average	**0.53**	**58.3%**	**43.7%**	**1.7**	**1.72**	**5.1**	**340%**	**A**
Ameren Corp.	**0.55**	**74.0%**	**46.0%**	**1.0**	**1.70**	**5.0**	**459%**	**A+**

Note: Common equity ratio includes current maturities of long term debt and all short term debt, as reported by C.A. Turner.
Source: C.A. Turner Utility Reports; Value Line Investment Survey

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Risk Measures

	Public	(millions) Revenue	% Rev Elec.	S&P	Missouri Regulation?
Allegheny Energy	Yes	$11,016.00	22.0%	A+	No
Alliant Energy	Yes	$2,777.30	62.0%	A	No
Cinergy Corp.	Yes	$12,922.50	62.0%	A-	No
Average		**$7,849.90**	**48.7%**	**A**	
Ameren	Yes	**$4,505.90**	**92.0%**	**A+**	**Yes**

	Beta	Payout Ratio	Common Equity	Safety	MTB	Long Term Interest Earned	Fixed Charge Coverage	Financial Strength
Allegheny Energy	0.60	46.0%	36.0%	1.0	1.74	5.2	301%	A
Alliant Energy	0.55	93.0%	36.0%	2.0	1.46	2.8	312%	B++
Cinergy Corp.	0.55	65.0%	36.0%	2.0	1.85	4.6	365%	A
Average	**0.57**	**68.0%**	**36.0%**	**1.7**	**1.72**	**4.2**	**326%**	**A**
Ameren	**0.55**	**74.0%**	**44.0%**	**1.0**	**1.70**	**5.0**	**459%**	**A+**

Note: Common equity ratio includes current maturities of long term debt and all short term debt, as reported by C.A. Turner.

Source: C.A. Turner Utility Reports; Value Line Investment Survey

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Summary - Discounted Cash Flow Growth - Ameren and Proxy Group

Historical Growth

		Compound Growth			Value Line		
COMPANY	br + sv	EPS	DPS	BVPS	EPS	DPS	BVPS
DPL Inc.	2.29%	7.41%	1.98%	-0.09%	4.75%	3.50%	3.00%
FirstEnergy	8.68%	7.16%	0.00%	6.63%	3.75%	-2.50%	3.50%
FPL Group, Inc.	5.68%	6.39%	4.09%	5.66%	4.75%	-0.25%	4.25%
Pinnacle West	6.64%	8.26%	8.59%	5.56%	8.50%	15.50%	4.50%
Southern Company	3.29%	2.56%	1.56%	-0.13%	3.25%	2.50%	3.00%
Average	**5.32%**	**6.36%**	**3.24%**	**3.53%**	**5.00%**	**3.75%**	**3.65%**
Ameren	**4.35%**	**3.80%**	**0.37%**	**0.84%**	**0.75%**	**1.75%**	**1.00%**

Projected Growth

		Value Line/First Call		
COMPANY	br + sv	EPS	DPS	BVPS
DPL Inc.	-	9.50%	1.00%	3.00%
FirstEnergy	6.85%	7.00%	4.00%	-
FPL Group, Inc.	7.43%	5.50%	3.50%	2.50%
Pinnacle West	6.06%	6.25%	6.50%	7.00%
Southern Company	5.31%	6.00%	3.00%	5.00%
Average	**6.41%**	**6.85%**	**3.60%**	**4.38%**
Ameren	**3.39%**	**3.75%**	**0.50%**	**3.50%**

Averages/Ranges

	Overall			Hi/Low		Average	Average
COMPANY	Average	Low	High	Average	Median	Historical	Projected
DPL Inc.	3.63%	-0.09%	9.50%	4.70%	3.00%		
FirstEnergy	4.51%	-2.50%	8.68%	3.09%	5.32%		
FPL Group, Inc.	4.50%	-0.25%	7.43%	3.59%	4.75%		
Pinnacle West	7.58%	4.50%	15.50%	10.00%	6.64%		
Southern Company	3.21%	-0.13%	6.00%	2.93%	3.00%		
Average	**4.69%**	**0.30%**	**9.42%**	**4.86%**	**4.54%**	**4.41%**	**5.31%**
Ameren	**2.18%**	**0.37%**	**4.35%**	**2.36%**	**1.75%**	**1.84%**	**2.79%**

BURDETTE - Rebuttal
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Summary - Discounted Cash Flow Growth - Ameren & Bible's Proxy Group

Historical Growth

		Compound Growth			Value Line		
COMPANY	br + sv	EPS	DPS	BVPS	EPS	DPS	BVPS
Allegheny Energy	4.96%	8.42%	0.50%	-0.73%	2.75%	1.00%	-0.50%
Alliant Energy	7.41%	2.28%	0.38%	7.87%	-1.50%	1.50%	4.75%
Cinergy Corp.	2.99%	5.14%	1.05%	1.00%	0.25%	1.25%	0.50%
Average	**5.12%**	**5.28%**	**0.64%**	**2.71%**	**0.50%**	**1.25%**	**1.58%**
Ameren Corp.	**4.35%**	**3.80%**	**0.37%**	**0.84%**	**0.75%**	**1.75%**	**1.00%**

Projected Growth

		Value Line/First Call		
COMPANY	br + sv	EPS	DPS	BVPS
Allegheny Energy	8.88%	9.25%	1.50%	12.00%
Alliant Energy	3.08%	6.00%	0.00%	3.00%
Cinergy Corp.	5.53%	5.75%	0.50%	6.00%
Average	**4.30%**	**5.88%**	**0.25%**	**4.50%**
Ameren Corp.	**3.39%**	**3.75%**	**0.50%**	**3.50%**

Averages/Ranges

	Overall			Hi/Low		Average	Average
COMPANY	Average	Low	High	Average	Median	Historical	Projected
Allegheny Energy	4.37%	-0.73%	12.00%	5.63%	2.75%		
Alliant Energy	3.16%	-1.50%	7.87%	3.18%	3.00%		
Cinergy Corp.	2.72%	0.25%	6.00%	3.13%	1.25%		
Average	**2.94%**	**-0.63%**	**6.93%**	**3.15%**	**2.13%**	**2.44%**	**3.73%**
Ameren Corp.	**2.18%**	**0.37%**	**4.35%**	**2.36%**	**1.75%**	**1.84%**	**2.79%**

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Discounted Cash Flow Growth Parameters
Ameren Corp.

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS		Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1995	2.95	2.46	22.71		0.166		
2	1996	2.86	2.51	23.06		0.122		
3	1997	2.44	2.54	22.00		-0.041	11.10%	-0.45%
4	1998	2.82	2.54	22.27		0.099	12.60%	1.25%
5	1999	2.81	2.54	22.52		0.096	12.50%	1.20%
6	2000	3.33	2.54	23.30		0.237	14.30%	3.39%
7	2001	3.41	2.54	24.25		0.255	14.00%	3.57%
8								
9		Compound Growth Rates					Ave. Internal	
10	1995-99	-1.21%	0.80%	-0.21%			Growth (br):	1.79%
11								
12	1996-00	3.88%	0.30%	0.26%			ADD: External	
13							Growth (sv):	2.56%
14	1997-01	8.73%	0.00%	2.46%				
15							Historical	
16	Ave.Compound Gr.	**3.80%**	**0.37%**	**0.84%**	#		"br + sv" Gr.	**4.35%**
17								
18	Value Line	EPS	DPS	BVPS				
19	Historical Gr.	**0.75%**	**1.75%**	**1.00%**				
20	(Avg of 5 and 10 yr. if both are available)							
21								
22	**Projected Growth**							
23	*Retention Growth Calculation*					Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS		Ratio (b)	Return (r)	(b*r)
25	2002	$3.30	$2.54	$25.05		0.230	13.00%	2.99%
26	2003	3.40	2.54	25.90		0.253	13.00%	3.29%
27	2005-07	3.65	2.66	28.70		0.271	12.50%	3.39%
28								
29	*Analyst's Estimates*						Projected	
30	Value Line	3.00%	0.50%	3.50%			Growth (br):	3.22%
31								
32	First Call	4.50%					ADD: External	
33							Growth (sv):	0.00%
34								
35	Average						Projected	
36	Proj'd Growth	**3.75%**	**0.50%**	**3.50%**			"br + sv" Gr.	**3.39%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
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Discounted Cash Flow Growth Parameters
DPL Inc.

Historical Growth

		Compound Growth			Retention Growth		
	Historical Data	EPS	DPS	BVPS	Retention Ratio (b)	Equity Return (r)	Growth (b*r)
1	1995	1.09	0.83	7.28	0.239		
2	1996	1.15	0.87	7.55	0.243		
3	1997	1.20	0.91	8.03	0.242	14.00%	3.38%
4	1998	1.24	0.94	8.58	0.242	13.60%	3.29%
5	1999	1.35	0.94	9.20	0.304	14.00%	4.25%
6	2000	1.49	0.94	6.80	0.369	22.90%	8.45%
7	2001	1.76	0.94	6.90	0.466	27.00%	12.58%
8							
9		Compound Growth Rates				Ave. Internal	
10	1995-99	5.49%	3.16%	6.03%		Growth (br):	6.39%
11							
12	1996-00	6.69%	1.95%	-2.58%		ADD: External	
13						Growth (sv):	-4.10%
14	1997-01	10.05%	0.81%	-3.73%			
15						Historical	
16	Ave.Compound Gr.	**7.41%**	**1.98%**	**-0.09%**		"br + sv" Gr.	**2.29%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**4.75%**	**3.50%**	**3.00%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	**Projected Growth**						
23	*Retention Growth Calculation*				Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
25	2002	$1.85	$0.94	$7.50	0.492	*25.50%*	12.54%
26	2003	1.95	0.94	8.25	0.518	*24.50%*	12.69%
27	2005-07	2.50	1.00	10.15	0.600	*26.00%*	15.60%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	9.00%	1.00%	3.00%		Growth (br):	13.61%
31							
32	First Call	10.00%				ADD: External	
33						Growth (sv):	0.75%
34							
35	Average					Projected	
36	Proj'd Growth	**9.50%**	**1.00%**	**3.00%**		"br + sv" Gr.	***16.35%***

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
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Discounted Cash Flow Growth Parameters
FirstEnergy Corp.

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS	Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1995	2.05	1.50	15.78	0.268		
2	1996	2.10	1.50	16.41	0.286		
3	1997	1.94	1.50	18.07	0.227	7.40%	1.68%
4	1998	1.95	1.50	18.77	0.231	9.90%	2.28%
5	1999	2.50	1.50	19.63	0.400	12.50%	5.00%
6	2000	2.69	1.50	20.72	0.442	12.90%	5.71%
7	2001	2.84	1.50	24.85	0.472	9.00%	4.25%
8							
9		Compound Growth Rates				Ave. Internal	
10	1995-99	5.09%	0.00%	5.61%		Growth (br):	3.78%
11							
12	1996-00	6.39%	0.00%	6.00%		ADD: External	
13						Growth (sv):	4.89%
14	1997-01	10.00%	0.00%	8.29%			
15						Historical	
16	Ave.Compound Gr.	**7.16%**	**0.00%**	**6.63%**		"br + sv" Gr.	**8.68%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**3.75%**	**-2.50%**	**3.50%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	**Projected Growth**						
23	*Retention Growth Calculation*				Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
25	2002	$3.55	$1.50	$26.85	0.577	13.00%	7.51%
26	2003	3.90	1.60	29.05	0.590	13.00%	7.67%
27	2005-07	4.50	1.90	35.75	0.578	12.50%	7.22%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	-	4.00%	-		Growth (br):	7.47%
31							
32	First Call	7.00%				ADD: External	
33						Growth (sv):	-0.37%
34							
35	Average					Projected	
36	Proj'd Growth	**7.00%**	**4.00%**	-		"br + sv" Gr.	**6.85%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
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Discounted Cash Flow Growth Parameters
FPL Group

Historical Growth

		Compound Growth			Retention	Retention Growth Equity	Growth
	Historical Data	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
1	1995	3.16	1.76	23.78	0.443		
2	1996	3.33	1.84	25.12	0.447		
3	1997	3.57	1.92	26.65	0.462	12.80%	5.92%
4	1998	3.85	2.00	28.37	0.481	13.00%	6.25%
5	1999	4.07	2.08	30.07	0.489	13.00%	6.36%
6	2000	4.14	2.16	31.82	0.478	12.60%	6.03%
7	2001	4.69	2.24	32.20	0.522	13.50%	7.05%
8							
9		Compound Growth Rates				Ave. Internal	
10	1995-99	6.53%	4.26%	6.04%		Growth (br):	6.32%
11							
12	1996-00	5.59%	4.09%	6.09%		ADD: External	
13						Growth (sv):	-0.64%
14	1997-01	7.06%	3.93%	4.84%			
15						Historical	
16	Ave.Compound Gr.	**6.39%**	**4.09%**	**5.66%**		"br + sv" Gr.	**5.68%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**4.75%**	**-0.25%**	**4.25%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	**Projected Growth**						
23	*Retention Growth Calculation*				Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
25	2002	$4.80	$2.32	$33.00	0.517	13.50%	6.98%
26	2003	4.90	2.40	33.50	0.510	13.50%	6.89%
27	2005-07	5.25	2.65	35.50	0.495	15.00%	7.43%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	4.00%	3.50%	2.50%		Growth (br):	7.10%
31							
32	First Call	7.00%				ADD: External	
33						Growth (sv):	0.00%
34							
35	Average					Projected	
36	Proj'd Growth	**5.50%**	**3.50%**	**2.50%**		"br + sv" Gr.	**7.43%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
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Discounted Cash Flow Growth Parameters
Pinnacle West

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS		Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1995	2.22	0.93	21.49		0.581		
2	1996	2.47	1.03	22.51		0.583		
3	1997	2.76	1.13	23.90		0.591	11.60%	6.85%
4	1998	2.85	1.23	25.50		0.568	11.20%	6.37%
5	1999	3.18	1.33	26.00		0.582	12.20%	7.10%
6	2000	3.35	1.43	28.09		0.573	11.90%	6.82%
7	2001	3.68	1.53	30.30		0.584	12.00%	7.01%
8								
9		Compound Growth Rates					Ave. Internal	
10	1995-99	9.40%	9.36%	4.88%			Growth (br):	6.83%
11								
12	1996-00	7.92%	8.55%	5.69%			ADD: External	
13							Growth (sv):	-0.19%
14	1997-01	7.46%	7.87%	6.11%				
15							Historical	
16	Ave.Compound Gr.	**8.26%**	**8.59%**	**5.56%**	#		"br + sv" Gr.	**6.64%**
17								
18	Value Line	EPS	DPS	BVPS				
19	Historical Gr.	**8.50%**	**15.50%**	**4.50%**				
20	(Avg of 5 and 10 yr. if both are available)							
21								
22	**Projected Growth**							
23	*Retention Growth Calculation*					Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS		Ratio (b)	Return (r)	(b*r)
25	2002	$3.80	$1.63	$32.40		0.571	11.50%	6.57%
26	2003							
27	2005-07	4.30	1.93	39.30		0.551	11.00%	6.06%
28								
29	*Analyst's Estimates*						Projected	
30	Value Line	5.50%	6.50%	7.00%			Growth (br):	6.31%
31								
32	First Call	7.00%					ADD: External	
33							Growth (sv):	0.00%
34								
35	Average						Projected	
36	Proj'd Growth	**6.25%**	**6.50%**	**7.00%**			"br + sv" Gr.	**6.06%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
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Discounted Cash Flow Growth Parameters
Southern Company

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS		Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1995	1.66	1.22	13.09		0.265		
2	1996	1.68	1.26	13.61		0.250		
3	1997	1.58	1.30	14.08		0.177	11.20%	1.98%
4	1998	1.73	1.34	14.02		0.225	12.20%	2.75%
5	1999	1.83	1.34	13.82		0.268	13.60%	3.64%
6	2000	2.01	1.34	15.67		0.333	12.30%	4.10%
7	2001	1.62	1.34	11.30		0.173	14.00%	2.42%
8								
9		Compound Growth Rates					Ave. Internal	
10	1995-99	2.47%	2.37%	1.37%			Growth (br):	2.98%
11								
12	1996-00	4.59%	1.55%	3.59%			ADD: External	
13							Growth (sv):	0.31%
14	1997-01	0.63%	0.76%	-5.35%				
15							Historical	
16	Ave.Compound Gr.	**2.56%**	**1.56%**	**-0.13%**	#		"br + sv" Gr.	**3.29%**
17								
18	Value Line	EPS	DPS	BVPS				
19	Historical Gr.	**3.25%**	**2.50%**	**3.00%**				
20	(Avg of 5 and 10 yr. if both are available)							
21								
22	**Projected Growth**							
23	*Retention Growth Calculation*					Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS		Ratio (b)	Return (r)	(b*r)
25	2002	$1.75	$1.34	$11.90		0.234	14.50%	3.40%
26	2003	1.85	1.38	12.55		0.254	14.50%	3.68%
27	2005-07	2.30	1.59	15.25		0.309	15.00%	4.63%
28								
29	*Analyst's Estimates*						Projected	
30	Value Line	7.00%	3.00%	5.00%			Growth (br):	3.90%
31								
32	First Call	5.00%					ADD: External	
33							Growth (sv):	0.68%
34								
35	Average						Projected	
36	Proj'd Growth	**6.00%**	**3.00%**	**5.00%**			"br + sv" Gr.	**5.31%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Discounted Cash Flow Growth Parameters
Allegheny Energy

Historical Growth

		Compound Growth				Retention Growth	
	Historical Data	EPS	DPS	BVPS	Retention Ratio (b)	Equity Return (r)	Growth (b*r)
1	1995	2.04	1.65	17.65	0.191		
2	1996	1.73	1.69	17.80	0.023		
3	1997	2.30	1.72	18.43	0.252	12.50%	3.15%
4	1998	2.15	1.72	16.61	0.200	12.90%	2.58%
5	1999	2.70	1.72	15.35	0.363	18.10%	6.57%
6	2000	2.11	1.72	15.76	0.185	13.40%	2.48%
7	2001	3.74	1.72	21.75	0.540	16.50%	8.91%
8							
9		Compound Growth Rates				Ave. Internal	
10	1995-99	7.26%	1.04%	-3.43%		Growth (br):	4.74%
11							
12	1996-00	5.09%	0.44%	-3.00%		ADD: External	
13						Growth (sv):	0.22%
14	1997-01	12.92%	0.00%	4.23%			
15						Historical	
16	Ave.Compound Gr.	**8.42%**	**0.50%**	**-0.73%**		"br + sv" Gr.	**4.96%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**2.75%**	**1.00%**	**-0.50%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	**Projected Growth**						
23	*Retention Growth Calculation*				Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
25	2002	$3.70	$1.76	$23.75	0.524	15.50%	8.13%
26	2003	3.95	1.80	26.30	0.544	15.00%	8.16%
27	2005-07	4.80	1.92	35.45	0.600	13.50%	8.10%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	11.00%	1.50%	12.00%		Growth (br):	8.13%
31							
32	First Call	7.50%				ADD: External	
33						Growth (sv):	0.78%
34							
35	Average					Projected	
36	Proj'd Growth	**9.25%**	**1.50%**	**12.00%**		"br + sv" Gr.	**8.88%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

Schedule MB- 3

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Discounted Cash Flow Growth Parameters
Alliant Energy

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS	Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1995	2.33	1.94	19.42	0.167		
2	1996	2.27	1.97	19.74	0.132		
3	1997	1.90	2.00	19.73	-0.053	10.10%	-0.53%
4	1998	1.26	2.00	20.69	-0.587	6.00%	-3.52%
5	1999	2.19	2.00	27.29	0.087	8.00%	0.69%
6	2000	2.47	2.00	25.79	0.190	9.60%	1.83%
7	2001	2.42	2.00	26.65	0.174	8.00%	1.39%
8							
9		Compound Growth Rates				Ave. Internal	
10	1995-99	-1.54%	0.76%	8.88%		Growth (br):	-0.03%
11							
12	1996-00	2.13%	0.38%	6.91%		ADD: External	
13						Growth (sv):	7.44%
14	1997-01	6.23%	0.00%	7.81%			
15						Historical	
16	Ave.Compound Gr.	**2.28%**	**0.38%**	**7.87%**		"br + sv" Gr.	**7.41%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**-1.50%**	**1.50%**	**4.75%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	**Projected Growth**						
23	*Retention Growth Calculation*				Retention	Equity	Growth
24	Value Line	EPS	DPS	BVPS	Ratio (b)	Return (r)	(b*r)
25	2002	$2.55	$2.00	$27.20	0.216	9.50%	2.05%
26	2003	2.65	2.00	27.85	0.245	9.50%	2.33%
27	2005-07	2.95	2.00	30.45	0.322	9.50%	3.06%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	6.00%	0.00%	3.00%		Growth (br):	2.48%
31							
32	First Call	6.00%				ADD: External	
33						Growth (sv):	0.02%
34							
35	Average					Projected	
36	Proj'd Growth	**6.00%**	**0.00%**	**3.00%**		"br + sv" Gr.	**3.08%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

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Discounted Cash Flow Growth Parameters
Cinergy Corp.

Historical Growth

	Historical Data	Compound Growth EPS	DPS	BVPS	Retention Ratio (b)	Retention Growth Equity Return (r)	Growth (b*r)
1	1994	1.30	1.72	15.56	-0.323		
2	1995	2.22	1.72	16.17	0.225		
3	1996	2.19	1.74	16.39	0.205	13.40%	2.75%
4	1997	2.30	1.80	16.10	0.217	18.10%	3.93%
5	1998	1.97	1.80	16.02	0.086	12.30%	1.06%
6	1999	2.10	1.80	16.70	0.143	12.60%	1.80%
7	2000	2.75	1.80	17.36	0.345	14.50%	5.01%
8							
9		Compound Growth Rates				Ave. Internal	
10	1994-98	10.95%	1.14%	0.73%		Growth (br):	2.91%
11							
12	1995-99	-1.38%	1.14%	0.81%		ADD: External	
13						Growth (sv):	0.08%
14	1996-00	5.86%	0.85%	1.45%			
15						Historical	
16	Ave.Compound Gr.	**5.14%**	**1.05%**	**1.00%**		"br + sv" Gr.	**2.99%**
17							
18	Value Line	EPS	DPS	BVPS			
19	Historical Gr.	**0.25%**	**1.25%**	**0.50%**			
20	(Avg of 5 and 10 yr. if both are available)						
21							

Projected Growth

Retention Growth Calculation

	Value Line	EPS	DPS	BVPS	Retention Ratio (b)	Equity Return (r)	Growth (b*r)
25	2001 est'd	$2.75	$1.80	$18.50	0.345	15.00%	5.18%
26	2002 est'd	2.90	1.80	19.65	0.379	15.00%	5.69%
27	2004-06 est'd	3.10	1.88	23.40	0.394	13.00%	5.12%
28							
29	*Analyst's Estimates*					Projected	
30	Value Line	6.00%	0.50%	6.00%		Growth (br):	5.33%
31							
32	First Call	5.50%				ADD: External	
33						Growth (sv):	0.41%
34							
35	Average					Projected	
36	Proj'd Growth	**5.75%**	**0.50%**	**6.00%**		"br + sv" Gr.	**5.53%**

SOURCE: The Value Line Investment Survey; C.A. Turner Utility Reports; First Call Corporation

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EC-2002-1 Union Electric Company

Stock Prices and Dividend Yields

Stock Price

	Fri 03/28/2002	Fri 04/05/2002	Mon 04/12/2002	Fri 04/19/2002	Fri 04/26/2002	Fri 05/03/2002	**Average**
Ameren Corp. (AEE)	$42.75	$42.17	$42.19	$42.58	$41.90	$42.00	**$42.27**
DPL Inc.	$25.55	$25.55	$25.85	$26.50	$25.96	$26.50	**$25.99**
FirstEnergy	$34.58	$33.20	$33.03	$32.95	$33.02	$33.29	**$33.35**
FPL Group, Inc.	$59.55	$60.39	$59.73	$62.45	$61.82	$62.77	**$61.12**
Pinnacle West	$45.35	$45.38	$43.75	$45.80	$44.74	$43.80	**$44.80**
Southern Company	$26.49	$26.49	$26.74	$28.29	$27.65	$28.17	**$27.31**

Expected Dividend and Dividend Yield

	Average Stk. Price	Expected 2003 Dividend	Expected Dividend Yield	3-month Stock Price Average	Expected 2003 Dividend	Expected Dividend Yield
Ameren Corp. (AEE)	$42.27	$2.54	**6.01%**	$41.87	$2.54	6.07%
DPL Inc.	$25.99	$0.94	**3.62%**			
FirstEnergy	$33.35	$1.50	**4.50%**			
FPL Group, Inc.	$61.12	$2.32	**3.80%**			
Pinnacle West	$44.80	$1.63	**3.64%**			
Southern Company	$27.31	$1.34	**4.91%**			
Proxy company average:			**4.09%**			

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EC-2002-1 Union Electric Company

Stock Prices and Dividend Yields - Bible's Proxy Group

Stock Price

	Fri 03/28/2002	Fri 04/05/2002	Mon 04/12/2002	Fri 04/19/2002	Fri 04/26/2002	Fri 05/03/2002	Average
Ameren Corp. (AEE)	$42.75	$42.17	$42.19	$42.58	$41.90	$42.00	**$42.27**
Allegheny Energy	$41.35	$41.67	$41.80	$43.29	$41.70	$39.68	**$41.58**
Alliant Energy	$30.22	$29.60	$29.56	$30.83	$28.07	$27.94	**$29.37**
Cinergy Corp.	$35.75	$35.72	$34.82	$35.50	$34.62	$35.57	**$35.33**

Expected Dividend and Dividend Yield

	Average Stk. Price	Expected 2002 Dividend	Expected Dividend Yield	Two Month Average	Expected 2003 Dividend	Expected Dividend Yield
Ameren Corp. (AEE)	$42.27	$2.54	**6.01%**	$41.87	$2.54	6.07%
Allegheny Energy	$41.58	$1.78	**4.28%**			
Alliant Energy	$29.37	$2.00	**6.81%**			
Cinergy Corp.	$35.33	$1.80	**5.09%**			
Comparable company average:			**5.40%**			

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Ameren Corp.

Average Stock Price - 3 month period

Date			
02/01/2002	$43.00	03/19/2002	$41.17
02/04/2002	$43.15	03/20/2002	$41.20
02/05/2002	$42.58	03/21/2002	$41.69
02/06/2002	$42.45	03/22/2002	$41.56
02/07/2002	$42.30	03/25/2002	$41.48
02/08/2002	$42.50	03/26/2002	$41.60
02/11/2002	$42.33	03/27/2002	$42.23
02/12/2002	$42.37	03/28/2002	$42.75
02/13/2002	$42.29	04/01/2002	$42.16
02/14/2002	$41.79	04/02/2002	$42.24
02/15/2002	$42.00	04/03/2002	$42.20
02/19/2002	$41.14	04/04/2002	$42.35
02/20/2002	$40.97	04/05/2002	$42.17
02/21/2002	$40.53	04/08/2002	$42.46
02/22/2002	$40.40	04/09/2002	$42.15
02/25/2002	$39.92	04/10/2002	$42.90
02/26/2002	$39.50	04/11/2002	$42.10
02/27/2002	$40.60	04/12/2002	$42.19
02/28/2002	$40.74	04/15/2002	$41.80
03/01/2002	$41.42	04/16/2002	$42.05
03/04/2002	$42.06	04/17/2002	$42.14
03/05/2002	$42.45	04/18/2002	$42.39
03/06/2002	$43.35	04/19/2002	$42.58
03/07/2002	$42.26	04/22/2002	$42.54
03/08/2002	$41.54	04/23/2002	$42.85
03/11/2002	$41.58	04/24/2002	$42.73
03/12/2002	$41.25	04/25/2002	$42.32
03/13/2002	$41.37	04/26/2002	$41.90
03/14/2002	$41.25	04/29/2002	$41.60
03/15/2002	$40.84	04/30/2002	$41.76
03/18/2002	$40.90	05/01/2002	$41.88

Average: $41.87

Source: Lycos Finance

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EC-2002-1 Union Electric Company

DCF Cost of Common Equity Calculations

	Dividend	Growth			Cost of Equity		
	Yield	Low	Average	High	Low	Average	High
Ameren Corp.	6.01%	0.37%	2.18%	4.35%	**6.38%**	**8.19%**	**10.36%**
DPL Inc.	3.62%	-0.09%	3.63%	9.50%	3.52%	7.25%	13.12%
FirstEnergy	4.50%	-2.50%	4.51%	8.68%	2.00%	9.01%	13.17%
FPL Group, Inc.	3.80%	-0.25%	4.50%	7.43%	3.55%	8.30%	11.22%
Pinnacle West	3.64%	4.50%	7.58%	15.50%	8.14%	11.22%	19.14%
Southern Company	4.91%	-0.13%	3.21%	6.00%	4.77%	8.12%	10.91%
Average	**4.09%**	**0.30%**	**4.69%**	**9.42%**	**4.40%**	**8.78%**	**13.51%**

Source: Schedules MB-3,4.

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EC-2002-1 Union Electric Company

DCF Cost of Common Equity Calculations

	Dividend	Growth			Cost of Equity		
	Yield	Low	Average	High	Low	Average	High
Ameren Corp.	6.01%	0.37%	2.18%	4.35%	**6.38%**	**8.19%**	**10.36%**
Allegheny Energy	4.28%	-0.73%	4.37%	12.00%	3.55%	8.65%	16.28%
Alliant Energy	6.81%	-1.50%	3.16%	7.87%	5.31%	9.97%	14.67%
Cinergy Corp.	5.09%	0.25%	2.72%	6.00%	5.34%	7.82%	11.09%
Average	**5.40%**	**-0.66%**	**3.42%**	**8.62%**	**4.73%**	**8.81%**	**14.02%**

Source: Schedules MB-3, 4.

BURDETTE - Rebuttal
EC-2002-1 Union Electric Company

Capital Assest Pricing Model (CAPM) Cost of Common Equity (Ke)

Formula: Ke = Rf + beta(Rm - Rf)

Risk Free Rate (Rf) = 5.36%
Market Premium (Rm - Rf) = 7.30%

	Beta	CAPM Ke
Ameren Corp.	0.55	**9.37%**
DPL Inc.	0.65	10.10%
FirstEnergy	0.55	9.37%
FPL Group, Inc.	0.45	8.64%
Pinnacle West	0.45	8.64%
Southern Company	-	-
Average CAPM cost of equity:		**9.19%**

Source: Value Line Investment Survey; Ibottson Associates;

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EC-2002-1 Union Electric Company

Capital Assest Pricing Model (CAPM) Cost of Common Equity (Ke)

Formula: Ke = Rf + beta(Rm - Rf)

Risk Free Rate (Rf) = 5.36%
Market Premium (Rm - Rf) = 7.30%

	Beta	CAPM Ke
Ameren Corp.	0.55	**9.37%**
Allegheny Energy	0.60	**9.74%**
Alliant Energy	0.55	**9.37%**
Cinergy Corp.	0.55	**9.37%**
Average CAPM cost of equity:		**9.49%**

Source: Value Line Investment Survey; Ibottson Associates;

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EC-2002-1 Union Electric Company

Union Electric Company

Weighted Average Cost of Capital - 30 September 2001

	Percent	Cost Rate	Weighted Cost	Cost Rate	Weighted Cost
Common Stock	59.08%	***9.83%***	5.81%	***9.40%***	5.55%
Preferred Stock	3.52%	5.72%	0.20%	5.72%	0.20%
Long-Term Debt	37.40%	6.82%	2.55%	6.82%	2.55%
	100.00%		**8.56%**		**8.31%**

Pre-Tax Interest Coverage Tax factor = 1.63

	Weighted Cost	Pre-tax Weighted Cost	Weighted Cost	Pre-tax Weighted Cost
Common Stock	5.81%	9.47%	5.55%	9.05%
Preferred Stock	0.201%	0.20%	0.201%	0.20%
Long-Term Debt	2.55%	2.55%	2.55%	2.55%
Total	8.56%	12.22%	8.31%	11.80%
Pre-tax wtd. cost:		12.22%	Pre-tax weighted cost:	11.80%
Cost of Debt		2.55%	Cost of Debt:	2.55%
Pre-tax Interest Coverage		**4.79**		**4.63**

Source: Schedules MB-4, 5.