

EXHIBIT

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DIRECT TESTIMONY OF MARK BURDETTE

Submitted on Behalf of
the Office of the Public Counsel

UNION ELECTRIC COMPANY
d/b/a AmerenUE

Case No. GR-2000-512

August 8, 2000

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Date 10-11-00 Case No. GR-2000-512
Reporter xx

**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 Gas Service)
Provided to Customers in the Company's)
Missouri Service Area)

Case No. GR-2000-512

AFFIDAVIT OF MARK BURDETTE

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

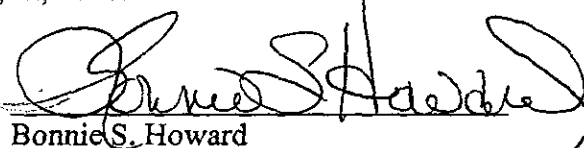
Mark Burdette, of lawful age and being first duly sworn, deposes and states:

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 direct testimony consisting of pages 1 through 40, Schedules 1 through 8.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.



Mark Burdette

Subscribed and sworn to me this 8th day of August, 2000.



Bonnie S. Howard
Notary Public

My commission expires May 3, 2001

DIRECT TESTIMONY

OF

MARK BURDETTE

UNION ELECTRIC COMPANY D/B/A AMERENUE

CASE NO. GR-2000-512

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Analyst (CRRRA) 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?

A. Yes.

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. I will present a cost-of-capital analysis for the natural gas operations of Union Electric Company (UE, AmerenUE, the Company). I will recommend and testify to the capital structure, embedded cost rates for long term debt and preferred stock, fair return on common equity, and weighted average cost of capital that should be allowed in this proceeding.

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

A. Yes. I have prepared an analysis consisting of 8 schedules that is attached to this testimony (MB-1 through MB-8). 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). Ameren's stock trades on the New York Stock Exchange under the ticker symbol AEE.

SUMMARY OF FINDINGS

Q. PLEASE SUMMARIZE YOUR FINDINGS CONCERNING RATE OF RETURN (ROR) FOR UNION ELECTRIC.

A. UE should be allowed an overall return of 8.90% on its net original-cost rate base at my midpoint return-on-equity (ROE) recommendation of 10.375%.

CAPITAL STRUCTURE

Q. HOW IS UE CURRENTLY CAPITALIZED?

A. AmerenUE's actual capital structure on 30 June 1999 (the end of the test year in this case) as reported by the Company consists of 56.65% common equity (\$2,410,967,251), 39.72% long term debt (\$1,690,457,143) and 3.62% preferred stock (\$154,124,324). This is the capital structure I used to calculate a rate of return for the natural gas operations of AmerenUE. This capital structure is shown on schedule MB-1. The capital structure levels and percentages will be updated to 30 April 2000.

Q. DID YOU FORMULATE A GROUP OF NATURAL GAS COMPANIES THAT YOU BELIEVE IS COMPARABLE TO UE'S GAS OPERATIONS?

A. Yes, I did. The following companies are included in my comparable group: 1) AGL Resources; 2) Cascade Natural Gas Corp.; 3) New Jersey Resources Corp.; 4) NICOR, Inc.; 5) Northwest Natural Gas Co.; 6) People's Energy Corp; 7) Piedmont Natural Gas Co.; and 8) Washington Gas Light Company.

On average, these companies earn 88.5% of revenues from natural gas operations. New Jersey Resources (NJR) earns somewhat less of it's revenues from pure gas operations (71%) than the others. The overall average not counting NJR's lower number is 91% of revenues from pure gas operations. The risk associated with these companies does therefore include approximately 10% - 12% of revenues from non-gas operations.

Q. HOW DOES UE'S CAPITAL STRUCTURE COMPARE WITH THE CAPITAL STRUCTURES OF YOUR GROUP OF COMPARABLE COMPANIES?

A. The yearly average level of common equity for all eight comparable companies for the years 1995 through 1999 tends to be lower than UE's level of common equity. However, individual companies within the group maintain their common equity at a level similar to UE's, and UE's is easily under the average plus one standard deviation (see Schedule MB-

2). Based on capital structure and financial risk, I believe these companies represent a fair and reasonable group to use for comparison and corroboration of my recommended return on common equity for UE.

EMBEDDED COST RATES

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

A. I have adopted Company witness Nickloy's embedded cost of long term debt of 7.08% as of 30 June 1999 (Nickloy-Direct, Schedule 3). The embedded cost of long term debt will be updated to 30 April 2000.

Q. WHAT IS THE EMBEDDED COST RATE OF UE'S PREFERRED STOCK?

A. I have adopted Company witness Nickloy's embedded cost of long term debt of 5.72% as of 30 June 1999 (Nickloy-Direct, Schedule 7). The embedded cost of preferred stock will be updated to 30 April 2000.

COST OF COMMON EQUITY ANALYSIS

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

AmerenUE should be allowed a return on common equity between 10.25% and 10.5%. I calculated my overall rate of return (ROR) at the midpoint ROE of 10.375%. Because Ameren Corporation is primarily an electric utility (and it's financial information would reflect this fact) and because the group of comparable companies represent not only pure gas operations, it would be appropriate for the MPSC to choose an ROE for UE's gas operations within the lower half of this range.

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

2 A. I utilized the standard Discounted Cash Flow (DCF) methodology. I applied the DCF to
3 AmerenUE and a group of eight publicly traded gas distribution utilities comparable to
4 AmerenUE's gas operations. The results of my DCF analysis are shown on Schedule MB-
5 6. I substantiated the results of this analysis using a Capital Asset Pricing Model (CAPM)
6 analysis (Schedule MB-7).

7
8 **DISCOUNTED CASH FLOW MODEL**

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

11 A. The model is represented by the following equation:

12
$$k = D/P + g$$

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

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

- 23 1) A constant rate of growth,
24 2) The constant growth will continue for an infinite period,
25 3) The dividend payout ratio remains constant,

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

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

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

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

11 Cash flows associated with owning a share of common stock can take two forms:
12 selling the stock and dividends. Just as the current value of a share of stock is a function of
13 future cash flows (dividends), the *future* price of the stock at any time is also a function of
14 future dividends. When a share of stock is sold, what is given up is the right to receive all
15 future dividends. Therefore, the DCF model, using expected future dividends as the cash
16 flows, is appropriate regardless of how long the investor plans to hold the stock.
17 Determination of a holding period and an associated terminal price is unnecessary. The
18 irrelevance of investors' time horizons is emphasized by Brealey and Myers:

19 How far out could we look? In principle the horizon period H could be
20 infinitely distant. Common Stocks do not expire of old age. Barring such
21 corporate hazards as bankruptcy or acquisition, they are immortal. As H
22 approaches infinity, the present value of the terminal price ought to
23 approach zero.... We can, therefore, forget about the terminal price entirely
24 and express today's price as the present value of a perpetual stream of cash
25 dividends. (Principles of Corporate Financing, Fourth Edition, page 52).
26

27 The other basic financial principal on which the DCF is grounded is the "time value of
28 money." Investors view a dollar received today as being worth more than a dollar received

1 in the future because a dollar today can immediately be invested. Therefore, future cash
2 flows are discounted. The rate used by investors to discount future cash flows to the present
3 is the discount rate or opportunity cost of capital.
4

5 DETERMINATION OF SUSTAINABLE GROWTH

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

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

9 Q. HOW IS THE SUSTAINABLE GROWTH RATE DETERMINED?

10 A. The sustainable growth rate is determined by analyzing historical and projected financial
11 information for the Company. It is important to recognize the fundamentals of long-term
12 investor-expected growth when developing a sustainable growth rate. Future dividends will
13 be generated by future earnings and the primary source of growth in future earnings is the
14 reinvestment of present earnings back into the firm. This reinvestment of earnings also
15 contributes to the growth in book value. Furthermore, it is the earned return on reinvested
16 earnings and existing capital (i.e., book value) that ultimately determines the basic level of
17 future cash flows. Therefore, one proxy for the future growth rate called for in the DCF
18 formula is found by multiplying the future expected earned return on book equity (r) by the
19 percentage of earnings expected to be retained in the business (b). This calculation, known
20 as the " $b \cdot r$ " method, or *retention* growth rate, results in one measure of the sustainable
21 growth rate called for in the Discounted Cash Flow formula. While the retention growth
22 rate can be calculated using historic data on earnings retention and equity returns, this
23 information is relevant only to the extent that it provides a meaningful basis for determining

1 the future sustainable growth rate. Consequently, projected data on earnings retention and
2 return on book equity are generally more representative of investors' expectations.

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

5 A. Yes. To better understand the principles of sustainable growth, it is helpful to compare the
6 growth in a utility's cash flows to the fundamental causes of growth in an individual's
7 passbook account. For an individual who has \$1,000 in a passbook account paying 5.0%
8 interest, earnings will be \$50 for the first year. If this individual leaves 100% of the
9 earnings in the passbook account (retention ratio equals 100%), the account balance at the
10 end of the first year will be \$1,050. Total earnings in the second year will be \$52.50
11 (\$1,050 x 5.0%), and the growth rate of the account in year two is 5.0% [100%(b) x 5%(r)].
12 On the other hand, if the individual withdraws \$30 of the earnings from the first year and
13 reinvests only \$20 (retention ratio equals 40%) earnings in the second year will be only
14 \$51.00 (\$1,020 x 5.0%), with growth equaling 2.0% [(\$1,020-\$1,000)/\$1,000 = 2.0% =
15 40%(b) x 5%(r)]. In both cases, the return, along with the level of earnings retained, dictate
16 future earnings.

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

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

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

11 Q. ARE THERE OTHER GROWTH RATE PARAMETERS THAT ARE SOMETIMES USED
12 BY ANALYSTS TO MEASURE GROWTH?

13 A. Yes. Other methods sometimes used as a proxy for determining the investor-expected
14 sustainable growth rate utilized in the DCF model include: 1) *historical* growth rates, and
15 2) analysts' *projections* of expected growth rates. Three commonly-employed historic
16 growth parameters are: 1) earnings per share, 2) dividends per share, and 3) book value per
17 share. Additionally, analysts' projections of future growth in earnings per share, dividends
18 per share, and book value per share are sometimes used as an estimate of the sustainable
19 growth rate.

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

22 Q. DID YOU EXCLUDE ANY OF YOUR CALCULATED GROWTH RATES FROM THE
23 DETERMINATION OF OVERALL AVERAGES?

24 A. Yes, I did. I excluded any negative growth rates from my calculations.

SUSTAINABLE GROWTH RATE ANALYSIS

Q. WHAT SUSTAINABLE GROWTH RATE DID YOU USE FOR UE IN YOUR DCF ANALYSIS?

A. The appropriate growth rate to use for AmerenUE's gas operations is less than 5.0%. Most of my calculated average growth rates are well under 5.0%. My midpoint ROE of 10.375% includes a growth rate of approximately 4.85%.

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

A. No. I also analyzed a group of eight companies comparable to AmerenUE's gas operations to provide some insight as to the reasonableness of my sustainable growth rate recommendation. The analysis of these companies provides support for my recommendation.

Appendix G, attached to this testimony, shows the selection criteria used to develop a group of utilities with financial risk characteristics similar to UE. Schedule MB-3 shows the companies and a list of risk measures. Schedule MB-4 shows the growth rate calculations for the group and for Ameren Corporation.

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

A. The following growth parameters have been reviewed for Ameren Corporation and the group of eight companies: 1) my calculations of historic compound growth in earnings, dividends, and book value based on data from Value Line; 2) average of five-year and ten-year historic growth in earnings, dividends, and book value; 3) projected growth rate in earnings, dividends, and book value; 4) historic retention growth rate; and, 5) projected retention growth rate.

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

3 A. Historic rates of growth in earnings per share (EPS), dividends per share (DPS), and book
4 value per share (BVPS) were analyzed using two methods. First, compound growth rates
5 were calculated for five-year periods ending 1997, 1998 and 1999. These three five-year
6 compound growth rates were then averaged and are labeled "Ave. Compound Gr." on line
7 16 of Schedule MB-4, pages 2-10.

8 The second measure of historic growth was taken from Value Line. The historic
9 rates of growth furnished by Value Line are included in this analysis because:

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

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

12 and

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

16 The Value Line growth rates are found on line 19 of Schedule MB-4, pages 2-10.
17 Not all Value Line growth rates are available for Ameren because of the merger between
18 Union Electric and CIPS. Historic data is for Union Electric only and is therefore
19 inappropriate to use for calculations for Ameren.

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

21 A. Projected growth rates in EPS, DPS, and BVPS were taken from Value Line and are found
22 on line 30 of Schedule MB-4, pages 2-10. Projected growth in EPS was also taken from
23 First Call Corporation (line 32) and Zack's Analyst Watch, Inc. (line 33). If First Call or
24 Zack's did not issue a projection for a particular company, those spaces contain n/a.
25 Information from both First Call and Zack's is available to the average investor. The

1 projected growth in EPS found on line 36 is the average of earnings growth projections
2 furnished by Value Line, First Call and Zack's. Value Line's projected growth in dividends
3 and book value are listed again on line 36.

4 Q. PLEASE DISCUSS YOUR ANALYSIS OF HISTORIC AND PROJECTED RETENTION
5 GROWTH RATES.

6 A Historic retention growth was determined using the product of return (r) and retention rate
7 (b) for the years 1995-99, and the average was calculated (line 10, final column). The
8 projected retention growth data, found on lines 25-27 of Schedule MB-4, pages 2-10 is
9 based on information from Value Line. Projected retention growth was calculated for 2000,
10 2001 and the period 2003-05. An average of these growth rates was calculated and
11 compared to the growth rate for the 2003-05 period alone. The *larger* value, either the
12 average or the 2003-05 rate was utilized as the projected retention growth rate.

13 Investors' expectations regarding growth from external sources (i.e. sales of
14 additional stock at prices above book value) has been included in the determination of both
15 historic and projected growth.

16 Q. PLEASE SUMMARIZE YOUR GROWTH RATE ANALYSIS.

17 A. The following table outlines the results of the analysis of growth rates for Ameren and the
18 group of comparable companies:

19 **Average growth rates, summary:**

	Historic	Projected	Overall
20 Ameren	1.48%	3.21%	2.28%
21 Comparable Group	3.64%	4.98%	3.94%

22
23
24
25 Q. WHICH GROWTH RATE DO YOU CONSIDER TO BE REFLECTIVE OF THE
26 INVESTOR-EXPECTED GROWTH FOR NATURAL GAS UTILITIES?

27 A. I think investors anticipate the sustainable growth rate for local distribution companies to be
28 less than 5.0%. My calculated projected growth rates tend to be higher than historic growth

1 rates for the comparable companies and for Ameren Corp. Because an authorized ROE
2 should be forward-looking, I gave more weight to my projected growth rate calculations,
3 and therefore chose approximately 5.0% as the maximum growth rate.
4

5 **STOCK PRICE AND DIVIDEND YIELD**

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

7 A. The appropriate dividend yield to use in the DCF is the *expected* dividend yield calculated
8 from a current stock price and the expected dividend. Therefore, I used the dividends
9 expected for the year 2001 for my calculation.

10 Q. WHAT DIVIDEND YIELDS DID YOU CALCULATE FOR AMEREN CORPORATION
11 AND FOR THE GROUP OF COMPARISON COMPANIES?

12 A. I calculated a dividend yield of 7.21% for Ameren Corporation. I calculated an average
13 dividend yield of 5.52% for the group of comparison companies.

14 Q. WHAT DIVIDEND YIELD DO YOU BELIEVE IS APPROPRIATE TO USE IN THE DCF
15 COST OF COMMON EQUITY CALCULATION FOR UE?

16 A. I believe the appropriate dividend yield to use for the natural gas operations of AmerenUE
17 is 5.52%. The group of comparison companies are more representative of natural gas
18 operations than Ameren Corporation because Ameren is primarily an electric utility.

19 Q. PLEASE EXPLAIN YOUR CALCULATION OF DIVIDEND YIELD.

20 A. Dividend yield is equal to the expected dividend divided by current stock price. Schedule
21 MB-5 shows the calculation of average stock price for a recent six-week period for Ameren
22 and the comparable group, expected dividends and the dividend yield calculations.

23 I used the 2001 dividends as reported by Value Line for the expected dividend for
24 each company.

1 I used a six-week period for determining the average stock price because I believe
2 that period of time is long enough to avoid daily fluctuations and recent enough so that the
3 stock price captured is representative of *current* expectations. The stock price for each
4 company is the average of the Friday closing price from 6/23/00 through 7/28/00. This time
5 period accurately reflects investor's current expectations for the companies' stock. Non-
6 current stock prices simply do not capture investor's current expectations and are
7 inappropriate to use in the DCF.

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

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

12
13 **COST OF COMMON EQUITY**

14 Q. WHAT RETURN ON COMMON EQUITY DO YOU RECOMMEND FOR AMERENUE'S
15 GAS OPERATIONS?

16 A. AmerenUE's gas operations should be allowed a return on common equity between 10.25%
17 and 10.5% (midpoint equals 10.375%). This return on common equity was determined
18 using the Discounted Cash Flow (DCF) method applied to Ameren and a group of eight
19 comparable companies and substantiated with a CAPM analysis. The midpoint
20 recommendation includes a dividend yield of 5.52% and a growth rate of approximately
21 4.85%.

22 Q. YOU CHOSE TO RELY MORE ON THE DIVIDEND YIELD AND GROWTH RATE
23 CALCULATIONS FOR YOUR COMPARABLE GROUP THAN THE CALCULATIONS
24 FOR AMEREN. COULD YOU PLEASE COMMENT ON THIS?

25 A. Yes. This case concerns the *natural* gas operations of Ameren Corporation. Ameren is
26 primarily an electric utility. According to C.A. Turner Utility Reports, Ameren earns 93%

1 of revenues from *electric operations*. Therefore, a financial analysis on Ameren
2 Corporation would be an analysis of an electric utility. However, the comparison group, on
3 average, earns 88.5% of revenues from natural gas operations (see Schedule MB-3).
4 Therefore, that group of companies and the cost of equity calculated for that group is more
5 representative of UE's gas operations.

6 Q. HAD YOU CHOSEN TO USE AMEREN CORPORATION'S DIVIDEND YIELD AND
7 GROWTH RATE CALCULATIONS, WOULD YOUR CALCULATED AND
8 RECOMMENDED COST OF COMMON EQUITY BE APPRECIABLY DIFFERENT?

9 A. No. The dividend yield for Ameren is 7.21%. The overall average growth rate is 2.17%.
10 This dividend yield and growth rate give a DCF cost of common equity of 9.38%. Using
11 the 7.21% dividend yield and Ameren's average projected growth rate of 3.21% gives a
12 DCF cost of common equity of 10.42%. Using the 7.21% dividend yield and the largest
13 growth rate calculated for Ameren (3.24%, projected retention growth) gives a DCF cost of
14 equity of 10.45%. Obviously, these values are close to my recommended ROE, the second
15 two falling within my calculated range. This fact gives support to my recommendation.
16 See Schedule MB-6 for DCF calculations for Ameren and the comparable group.

17 Q. HAVE THERE BEEN ANY REPORTS IN UTILITY OR FINANCIAL LITERATURE
18 THAT ARE RELEVANT TO THIS PROCEEDING?

19 A. Yes. The July 28, 2000 edition of Gas Utility Report contains an article (page 2)
20 concerning a recent report by Moody's Investor Services. According to the report:

21 Local distribution companies will continue to earn strong credit ratings
22 over the next several years, but many of their parent companies may not,
23 according to bond rating agency Moody's Investor Services, Inc.

24 "We have a stable outlook for our group of 'pure' LDCs - stand-
25 alone or subsidiaries - **because we believe that regulatory insulation will**
26 **continue to protect these companies' strong creditworthiness,**" Moody's
27 said in an industry outlook released this week. "The average rating of our
28 universe of 31 LDCs remains strong at A2."

29 However, the general outlook for the utilities' parent companies is
30 negative, mostly because of their exposure to potential merger-and-

1 acquisition activity and other diversification strategies that Moody's
2 considers financially risky. [Emphasis added]
3

4 Q. HOW IS THIS RELEVANT IN THIS PROCEEDING?

5 A. The purpose of this proceeding is to set rates for regulated natural gas operations – the very
6 operations Moody's considers insulated by regulation. In calculating a cost of capital for
7 AmerenUE's gas operations, consideration of the company's unregulated operations and the
8 associated risk is inappropriate. To the extent that any group of comparable companies are
9 involved in unregulated operations makes them inherently more risky than a 'pure' LDC.
10 Similarly, any group of industry companies considered equally risky to a diversified utility
11 and used for comparison would be more risky than pure gas operations. It is important for
12 the MPSC to remember these facts. The cost of common equity determination in this
13 proceeding must be appropriate for pure gas operations and should not reflect risk that is
14 faced by the parent but not by the regulated utility.
15

16 **CAPITAL ASSET PRICING MODEL**

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

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

20
$$K = R_f + \beta(R_m - R_f)$$

21 where,

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

23 R_f = the risk free rate,

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

25 R_m = market return, and

26 $(R_m - R_f)$ = market premium.

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

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

10 Q. WHAT ARE THE BETAS OF AMEREN AND THE COMPARABLE GROUP?

11 A. According to Value Line Investment Survey, Ameren's beta is 0.55. Betas for the group of
12 comparable companies range from 0.55 to 0.70, with an average of 0.60.

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

15 A. I believe the CAPM - and its dependence on the single risk measure, beta - has limitations
16 in its ability to accurately take into account the risk factors faced by a company, and
17 therefore that company's cost of equity. For example, a holding company consisting of
18 regulated subsidiaries and unregulated operations would have only one beta representing the
19 company, even though the risk inherent in the various operations is different. However, the
20 CAPM remains a popular model and some investors continue to rely on the CAPM.
21 Therefore, I included the analysis as a check on and to provide support for my DCF
22 analysis.

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

3 A. The risk free rate I utilized for my CAPM analysis is 6.0%, which is the 10-year U.S.
4 Treasury Security rate as reported by the Value Line Investment Survey (July 28, 2000).
5 The 7.8% value I used for the market premium ($R_m - R_f$) is equal to the market premium
6 calculated by Ibbotson and Associates, calculated using arithmetic means.

7 Some financial analysts utilize the 30-year U.S. Government Bond rate for the risk
8 free rate in the CAPM. I have used this rate myself in past proceedings before the MPSC.
9 The rate on the 30-year Government security is 5.8% as reported by the Value Line
10 Investment Survey (July 28, 2000). Using this value rather than 6.0% rate for the 10-year
11 bond would, of course, produce a lower value for the CAPM.

12 Q. WHAT DOES YOUR CAPM ANALYSIS SHOW?

13 A. As can be seen on Schedule MB-7, I performed a CAPM analysis on Ameren Corp. and the
14 comparable group. Ameren's CAPM cost of common equity is 10.29%. The CAPM cost
15 of common equity for the comparable group ranges from 10.29% to 11.46, with an average
16 of 10.68%. Exclusion of People's Energy, which has a beta greater than all the other
17 companies', gives an average CAPM cost of equity of 10.57%. Use of the 30-year
18 Government bond rate of 5.8% would lower all of the calculations by 0.2%.

19 I believe this analysis lends support to my recommended ROE. This support is
20 further strengthened upon consideration that the betas of the comparable companies
21 represent the risk of more than just pure gas operations.

WEIGHTED AVERAGE COST OF CAPITAL

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

A. The weighted average cost of capital I calculated for AmerenUE's gas operations is 8.90% at the midpoint ROE of 10.375%. The WACC calculation is shown on Schedule MB-8.

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

A. Based on a WACC of 8.90% and an assumed overall tax rate of 39.25%, the pre-tax coverage ratio is approximately 4.5 times. The derivation of pre-tax coverage is shown on Schedule MB-8.

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

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

3
$$r = i(D/C) + l(P/C) + k(E/C)$$

4 where i = embedded cost of debt capital,

5 D = amount of debt capital,

6 l = embedded cost of preferred stock,

7 P = amount of preferred stock,

8 k = cost of equity capital,

9 E = amount of equity capital, and

10 C = amount of total capital.

11 This formula indicates that the process of determining WACC involves separate
12 determinations for each type of capital utilized by a utility. Under the weighted cost
13 approach, a utility company's total invested capital is expressed as 100 percent and is
14 divided into percentages that represent the capital secured by the issuance of long-term
15 debt, preferred stock, common stock, and sometimes short-term debt. This division of total
16 capital by reference to its major sources permits the analyst to compute separately the cost
17 of both debt and equity capital. The cost rate of each component is weighted by the
18 appropriate percentage that it bears to the overall capitalization. The sum of the weighted
19 cost rates is equal to the overall or weighted average cost of capital and is used as the basis
20 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.

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

10 Given that regulation is intended to emulate competition and that, under
11 competition, the marginal return on investment should equal the cost of capital, it is crucial
12 for regulators to set the authorized rate of return equal to the actual cost. If this is
13 accomplished, the marginal return on prudent and necessary investment just equals cost and
14 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;

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

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

4 Furthermore, in Hope, the Court makes clear that regulation does not guarantee utility
5 profits and, in Permian Basin Area Rate Cases, 390 US 747 (1968), that, while investor
6 interests (profitability) are certainly pertinent to setting adequate utility rates, those interests
7 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

1 toward the public welfare; giving the utility an amount that will allow for efficient use of its
2 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 ($\$1.20 \text{ dividends} / \$10 \text{ market price} = 12\%$). 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 ($\$1.20 \text{ dividends} / \$12 \text{ market price} = 10\%$). 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 AN INDUSTRY GROUP

Q. PLEASE EXPLAIN HOW YOU DEVELOPED A GROUP OF UTILITIES WITH FINANCIAL RISK CHARACTERISTICS SIMILAR TO AMERENUE'S GAS OPERATIONS.

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

- 1) Publicly traded company;
- 2) No Missouri-regulated operations;
- 3) Standard & Poor's Bond Rating of BBB or above;
- 4) Covered by Value Line;

The following companies met the selection criteria: 1) AGL Resources; 2) Cascade Natural Gas Corp.; 3) New Jersey Resources Corp.; 4) NICOR, Inc.; 5) Northwest Natural Gas Co.; 6) People's Energy Corp; 7) Piedmont Natural Gas Co.; and 8) Washington Gas Light Company.

Q. HAVE YOU MADE ANY RISK EVALUATIONS FOR AMEREN AND THE COMPARABLE GROUP?

A. Yes. As shown on Schedule MB-3, 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 bond rating.

1 Q. WHAT CONCLUSIONS CAN BE DRAWN FROM THIS ANALYSIS?

2 A. Generally, the level of overall, or total, risk for the industry companies is representative of
3 the risks faced by AmerenUE's gas operations. Diversification on the part of a company
4 would tend to make that company more risky, and that risk difference should be considered
5 when setting the cost of capital for the pure gas operations of AmerenUE.

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,

1 $P^{\wedge} = D/k - g$

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

3 D = the current dividend,

4 g = the expected growth rate, and

5 k = the required return on the security

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

12 $k = D/P + g$

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

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

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

1 When economists say that the security market is efficient, they are not
2 talking about whether the filing is up-to-date or whether the desktops are
3 tidy. They mean that information is widely and cheaply available to
4 investors and that all relevant and ascertainable information is already
5 reflected in security prices. (pg. 290)
6

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

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

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

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

$$g = br + sv$$

9 where, g = DCF expected growth rate,

10 r = return on equity,

11 b = retention ratio,

12 v = fraction of new common stock sold that accrues to the current shareholder,

13 s = funds raised from the sale of stock as a fraction of existing equity.

14 Additionally,

$$v = 1 - BV/MP$$

16 where,

17 MP = market price,

18 BV = book value.
19

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

Q. IS HISTORIC 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 historic 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:

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Gr.</u>
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. ($15\% \text{ ROE} \times 50\% \text{ retention rate} = 7.50\%$). 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 HISTORIC 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.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Gr.</u>
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

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

6 If earnings and dividends are growing at the same rate, there is no problem,
7 but if these two growth rates are unequal, we do have a problem. First, the
8 DCF model calls for the expected dividend growth rate. However, if EPS
9 and DPS are growing at different rates, something is going to have to
10 change: these two series cannot grow at two different rates indefinitely
11 (Intermediate Financial Management, p.145).
12

BURDETTE - DIRECT
GR-2000-521 AmerenUE

AmerenUE
Capital Structure

	As of 6/30/99	
	<u>Amount</u>	<u>Percent</u>
Common Stock Equity	\$2,410,967,251	56.65%
Preferred Stock	\$ 154,124,324	3.62%
Long Term Debt	\$1,690,457,143	39.72%
	<u>\$4,255,548,718</u>	<u>100.00%</u>

Common stock equity (thousands)

Common stock	\$	510,619
Paid-in capital	\$	701,896
Retained earnings	\$	1,198,452
		<u>\$2,410,967</u>

Source: Company response to Staff data request 3801
Nickloy-Direct, Schedules 3,7

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Percent Common Equity for Comparison Group - No short term debt
Value Line Investment Survey Composite Index

	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>1995</u>	<u>Average</u>
AGL Resources Inc.	49.2%	47.1%	45.9%	48.9%	47.6%	47.7%
Cascade Natural Gas	46.6%	48.7%	46.5%	50.0%	45.0%	47.4%
New Jersey Resources	51.2%	45.6%	47.1%	45.8%	41.0%	46.1%
NICOR, Inc.	64.0%	57.4%	57.2%	58.1%	59.0%	59.1%
Northwest Natural Gas	49.9%	50.6%	49.0%	52.8%	50.3%	50.5%
People's Energy Corp.	60.0%	58.9%	57.6%	56.4%	50.8%	56.7%
Piedmont Natural Gas Co.	53.8%	55.3%	52.4%	49.7%	49.6%	52.2%
Washington Gas Light	<u>56.1%</u>	<u>57.1%</u>	<u>56.2%</u>	<u>59.4%</u>	<u>58.9%</u>	<u>57.5%</u>
Average	53.9%	52.6%	51.5%	52.6%	50.3%	52.2%
<i>Standard deviation</i>	<i>5.9%</i>	<i>5.2%</i>	<i>5.0%</i>	<i>4.9%</i>	<i>6.2%</i>	<i>5.1%</i>

	<u>1999</u>	<u>1998</u>	<u>1997</u>	<u>1996</u>	<u>Average</u>
Value Line Composite Index	47.7%	47.8%	47.7%	47.0%	47.6%
Natural Gas (Distribution)					

Source: Value Line Investment Survey

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Comparison Companies

C.A. Turner Utility Reports: Statistical Information
Natural Gas Distribution and Integrated Natural Gas Companies

	<u>Revenue</u>	<u>% Rev Gas</u>	<u>S&P</u>	<u>Common Equity</u>	<u>Dividend Yield</u>	<u>Payout Ratio</u>	<u>MTB</u>	<u>Missouri Reg.?</u>
AGL Resources Inc.	\$ 712.0	93.0%	A-	44.0%	6.7%	0.82	1.40	No
Cascade Natural Gas Corp.	\$ 237.2	100.0%	BBB+	50.0%	5.8%	0.64	1.43	No
New Jersey Resources	\$ 964.8	71.0%	A+	50.0%	4.2%	0.64	2.20	No
NICOR Inc.	\$ 1,698.1	82.0%	AA	57.0%	4.8%	0.63	2.04	No
Northwest Natural Gas Co.	\$ 482.5	94.0%	A	50.0%	5.3%	0.62	1.29	No
People's Energy Corp.	\$ 1,327.6	81.0%	AA-	46.0%	5.9%	0.79	1.47	No
Piedmont Natural Gas Co.	\$ 460.1	87.0%	A	55.0%	5.0%	0.75	1.65	No
Washington Gas Light	\$ 985.9	100.0%	AA-	54.0%	4.8%	0.69	1.59	No
Average	\$ 858.5	88.5%	A/AA-	50.8%	5.3%	0.70	1.63	
Ameren (consolidated)	\$ 3,613.1	93% elec.	AA-	50.0%	7.2%	0.89	1.36	Yes

Value Line Investment Survey

	<u>Beta</u>	<u>Fixed Charge Coverage '99</u>	<u>Timeliness</u>	<u>Financial Strength</u>	<u>Safety</u>
AGL Resources Inc.	0.60	2.62	3	B++	2
Cascade Natural Gas Corp.	0.55	2.83	3	B	3
New Jersey Resources	0.55	3.38	4	B++	2
NICOR Inc.	0.60	5.10	3	A+	1
Northwest Natural Gas Co.	0.60	2.70	3	B++	2
People's Energy Corp.	0.70	4.04	4	A	1
Piedmont Natural Gas Co.	0.60	3.78	4	B++	2
Washington Gas Light	0.60	3.74	4	A	1
Average	0.60	3.87	3.60	B++/A	2
Ameren (consolidated)	0.55	4.42	4	A+	1

Source: C.A. Turner Utility Reports, July 2000; Value Line Investment Survey

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Growth Rate Summary for Ameren (consolidated) and Comparison Companies

Historic Growth	Retention <u>Company</u> <u>br + sv</u>	Compound Growth			Value Line		
		<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
Ameren (consolidated)	2.75%	-1.98%	1.43%	0.26%	n/a	n/a	n/a
AGL Resources Inc.	2.07%	-1.19%	0.95%	2.99%	2.00%	1.50%	2.75%
Cascade Natural Gas	0.59%	5.79%	0.18%	0.89%	3.25%	0.75%	2.00%
New Jersey Resources	3.98%	6.18%	1.91%	2.84%	5.50%	2.00%	2.75%
NICOR, Inc.	5.76%	5.48%	4.18%	4.78%	4.25%	4.25%	4.50%
Northwest Natural Gas	3.86%	-3.13%	0.98%	4.80%	1.50%	1.25%	4.50%
People's Energy Corp.	2.89%	5.48%	1.59%	3.60%	3.00%	2.00%	3.25%
Piedmont Natural Gas Co.	4.76%	7.49%	6.01%	6.53%	5.50%	6.00%	6.25%
Washington Gas Light	<u>4.04%</u>	<u>5.53%</u>	<u>1.97%</u>	<u>5.07%</u>	<u>3.50%</u>	<u>2.25%</u>	<u>4.25%</u>
Average	3.50%	5.99%	2.22%	3.94%	3.56%	2.50%	3.78%

Group - overall average historic: 3.64%

Projected Growth	Retention <u>Company</u> <u>br + sv</u>	Value Line/Zack's/FirstCall		
		<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
Ameren (consolidated)	3.24%	3.17%	n/a	n/a
AGL Resources Inc.	4.42%	5.58%	1.00%	4.50%
Cascade Natural Gas	6.82%	6.06%	0.50%	3.50%
New Jersey Resources	7.20%	6.97%	2.50%	7.00%
NICOR, Inc.	8.77%	7.03%	5.00%	5.00%
Northwest Natural Gas	5.24%	5.75%	1.00%	4.50%
People's Energy Corp.	4.10%	5.78%	2.00%	6.00%
Piedmont Natural Gas Co.	5.27%	6.60%	4.50%	7.00%
Washington Gas Light	<u>5.95%</u>	<u>5.97%</u>	<u>2.50%</u>	<u>5.50%</u>
Average	5.97%	6.22%	2.38%	5.38%

Group - overall average projected: 4.98%

Growth Rate Ranges	Overall <u>Company</u> <u>Average</u>	Hi/Low			
		<u>Low*</u>	<u>High</u>	<u>Average</u>	<u>Median</u>
Ameren (consolidated)	2.17%	0.26%	3.24%	1.75%	2.09%
AGL Resources Inc.	2.42%	0.95%	5.58%	3.27%	2.07%
Cascade Natural Gas	2.76%	0.18%	6.82%	3.50%	2.00%
New Jersey Resources	4.44%	1.91%	7.20%	4.56%	3.98%
NICOR, Inc.	5.36%	4.18%	8.77%	6.47%	5.00%
Northwest Natural Gas	2.75%	0.98%	5.75%	3.36%	3.86%
People's Energy Corp.	3.61%	1.59%	6.00%	3.79%	3.25%
Piedmont Natural Gas Co.	5.99%	4.50%	7.49%	6.00%	6.01%
Washington Gas Light	<u>4.23%</u>	<u>1.97%</u>	<u>5.97%</u>	<u>3.97%</u>	<u>4.25%</u>
Comparison Group Average	3.94%	2.03%	6.70%	4.37%	3.80%
Standard deviation	1.30%	1.54%	1.09%	1.23%	1.37%

Note: Negative growth rates are not included in averages and are excluded from determination of "Low".

Some Value Line rates are not available for Ameren due to the merger of Union Electric and CIPS.

Source: Schedules MB-4, pages 2-10

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Discounted Cash Flow Growth Parameters
Ameren Corporation (consolidated)

Historic Growth

Compound Growth

Historic Data **EPS** **DPS** **BVPS**

1	1993	2.77	2.34	21.60
2	1994	3.01	2.40	22.22
3	1995	2.95	2.46	22.71
4	1996	2.86	2.51	23.06
5	1997	2.44	2.54	22.00
6	1998	2.82	2.54	22.27
7	1999	2.81	2.54	22.52

Compound Growth Rates

9				
10	'93-97	-3.12%	2.07%	0.46%
11				
12	'94-98	-1.62%	1.43%	0.06%
13				
14	'95-99	-1.21%	0.80%	-0.21%
15				

Ave. Compound Gr. **-1.98%** **1.43%** **0.26%**

Value Line **EPS** **DPS** **BVPS**
Historic Gr. **n/a** **n/a** **n/a**

(Avg of 5 and 10 yr. if both are available)

Retention Growth

Retention **Equity** **Growth**
Ratio (b) **Return (r)** **(b*r)**

0.155		
0.203		
0.166	13.00%	2.16%
0.122	12.40%	1.52%
-0.041	11.10%	-0.45%
0.099	12.60%	1.25%
0.096	12.50%	1.20%

Ave. Internal
Growth (br): **1.13%**

ADD: External
Growth (sv): **1.61%**

Historic
"br + sv" Gr. **2.75%**

Projected Growth

Retention Growth Calculation

<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
2000 est'd	\$3.15	\$2.54	\$23.15
2001 est'd	3.30	2.54	23.90
2003-05 est'd	3.50	2.66	26.30

<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
0.194	13.50%	2.61%
0.230	14.00%	3.22%
0.240	13.50%	3.24%

Analyst's Estimates

Value Line **n/a** **n/a** **n/a**

First Call **3.33%**
Zack's **3.00%**

Average
Proj'd Growth **3.17%** **n/a** **n/a**

Projected
Growth (br): **3.24%**

ADD: External
Growth (sv): **0.00%**

Projected
"br + sv" Gr. **3.24%**

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
AGL Resources, Inc.

<u>Historic Growth</u>					<u>Retention Growth</u>		
<u>Compound Growth</u>					Retention	Equity	Growth
	<u>Historic Data</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
1	1993	1.08	1.04	9.90	0.037		
2	1994	1.17	1.04	10.19	0.111		
3	1995	1.33	1.04	10.12	0.218	12.50%	2.73%
4	1996	1.37	1.06	10.56	0.226	12.10%	2.74%
5	1997	1.37	1.08	10.99	0.212	11.30%	2.39%
6	1998	1.14	1.08	11.42	0.053	12.30%	0.65%
7	1999	0.91	1.08	11.59	-0.187	7.90%	-1.48%
8							
9	<u>Compound Growth Rates</u>					Ave. Internal	
10	'93-97	6.13%	0.95%	2.65%		<u>Growth (br):</u>	1.41%
11							
12	'94-98	-0.65%	0.95%	2.89%		ADD: External	
13						<u>Growth (sv):</u>	0.67%
14	'95-99	-9.05%	0.95%	3.45%			
15						Historic	
16	<u>Ave. Compound Gr.</u>	<u>-1.19%</u>	<u>0.95%</u>	<u>2.99%</u>		<u>"br + sv" Gr.</u>	<u>2.07%</u>
17							
18	Value Line	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>			
19	Historic Gr.	2.00%	1.50%	2.75%			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	<u>Projected Growth</u>						
23	<u>Retention Growth Calculation</u>				Retention	Equity	Growth
24	<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
25	2000 est'd	\$1.15	\$1.08	\$11.40	0.061	10.50%	0.64%
26	2001 est'd	1.25	1.08	11.60	0.136	11.00%	1.50%
27	2003-05 est'd	1.75	1.15	13.50	0.343	12.50%	4.29%
28							
29	<u>Analyst's Estimates</u>					Projected	
30	Value Line	6.00%	1.00%	4.50%		<u>Growth (br):</u>	4.29%
31							
32	First Call	5.00%				ADD: External	
33	Zack's	5.75%				<u>Growth (sv):</u>	0.13%
34							
35	Average					Projected	
36	<u>Proj'd Growth</u>	<u>5.58%</u>	<u>1.00%</u>	<u>4.50%</u>		<u>"br + sv" Gr.</u>	<u>4.42%</u>

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
 Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
Cascade Natural Gas

<u>Historic Growth</u>					<u>Retention Growth</u>		
<u>Compound Growth</u>					Retention	Equity	Growth
	<u>Historic Data</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
1	1993	1.05	0.94	9.96	0.105		
2	1994	0.60	0.96	9.81	-0.600		
3	1995	0.80	0.96	9.76	-0.200	8.10%	-1.62%
4	1996	0.39	0.72	10.09	-0.846	3.50%	-2.96%
5	1997	0.93	0.96	10.16	-0.032	9.10%	-0.29%
6	1998	0.84	0.96	10.07	-0.143	8.30%	-1.19%
7	1999	1.24	0.96	10.36	0.226	12.00%	2.71%
8							
9	<u>Compound Growth Rates</u>					Ave. Internal	
10	'93-97	-2.99%	0.53%	0.50%		<u>Growth (br):</u>	-0.67%
11							
12	'94-98	8.78%	0.00%	0.66%		ADD: External	
13						<u>Growth (sv):</u>	1.26%
14	'95-99	11.58%	0.00%	1.50%			
15						Historic	
16	<u>Ave. Compound Gr.</u>	<u>5.79%</u>	<u>0.18%</u>	<u>0.89%</u>		<u>"br + sv" Gr.</u>	<u>0.59%</u>
17							
18	Value Line	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>			
19	Historic Gr.	3.25%	0.75%	2.00%			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	<u>Projected Growth</u>						
23	<u>Retention Growth Calculation</u>				Retention	Equity	Growth
24	<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
25	2000 est'd	\$1.40	\$0.96	\$10.35	0.314	13.50%	4.24%
26	2001 est'd	1.50	0.97	10.80	0.353	14.00%	4.95%
27	2003-05 est'd	1.80	1.00	12.45	0.444	14.00%	6.22%
28							
29	<u>Analyst's Estimates</u>					Projected	
30	Value Line	10.50%	0.50%	3.50%		<u>Growth (br):</u>	6.22%
31							
32	First Call	3.00%				ADD: External	
33	Zack's	4.67%				<u>Growth (sv):</u>	0.60%
34							
35	Average					Projected	
36	<u>Proj'd Growth</u>	<u>6.06%</u>	<u>0.50%</u>	<u>3.50%</u>		<u>"br + sv" Gr.</u>	<u>6.82%</u>

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
 Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
New Jersey Resources

Historic Growth

Compound Growth

<u>Historic Data</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
1993	1.72	1.52	14.72
1994	1.89	1.52	14.46
1995	1.93	1.52	14.55
1996	2.06	1.55	15.15
1997	2.22	1.60	15.57
1998	2.33	1.64	16.33
1999	2.49	1.68	17.03

Compound Growth Rates

'93-97	6.59%	1.29%	1.41%
'94-98	5.37%	1.92%	3.09%
'95-99	6.58%	2.53%	4.01%
<u>Ave. Compound Gr.</u>	<u>6.18%</u>	<u>1.91%</u>	<u>2.84%</u>

Value Line	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
Historic Gr.	5.50%	2.00%	2.75%

(Avg of 5 and 10 yr. if both are available)

Retention Growth

<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
0.116		
0.196		
0.212	13.10%	2.78%
0.248	13.50%	3.34%
0.279	14.30%	3.99%
0.296	14.40%	4.26%
0.325	14.80%	4.81%

Ave. Internal
Growth (br): 3.84%

ADD: External
Growth (sv): 0.14%

Historic
"br + sv" Gr. 3.98%

Projected Growth

Retention Growth Calculation

<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
2000 est'd	\$2.70	\$1.72	\$18.05
2001 est'd	2.85	1.76	19.45
2003-05 est'd	3.60	1.88	24.35

<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
0.363	15.00%	5.44%
0.382	14.50%	5.55%
0.478	15.50%	7.41%

Analyst's Estimates

Value Line	7.50%	2.50%	7.00%
------------	-------	-------	-------

Projected
Growth (br): 7.41%

First Call	7.00%
Zack's	6.42%

ADD: External
Growth (sv): -0.20%

Average			
<u>Proj'd Growth</u>	<u>6.97%</u>	<u>2.50%</u>	<u>7.00%</u>

Projected
"br + sv" Gr. 7.20%

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
NICOR, Inc.

Historic Growth

Compound Growth

Historic Data **EPS** **DPS** **BVPS**

1	1993	1.97	1.22	13.05
2	1994	2.07	1.25	13.26
3	1995	1.96	1.28	13.67
4	1996	2.42	1.32	14.74
5	1997	2.55	1.40	15.43
6	1998	2.31	1.48	15.97
7	1999	2.57	1.54	16.80

Compound Growth Rates

9				
10	'93-97	6.66%	3.50%	4.28%
11				
12	'94-98	2.78%	4.31%	4.76%
13				
14	'95-99	7.01%	4.73%	5.29%

Ave. Compound Gr. **5.48%** **4.18%** **4.78%**

Value Line **EPS** **DPS** **BVPS**
Historic Gr. **4.25%** **4.25%** **4.50%**

(Avg of 5 and 10 yr. if both are available)

Projected Growth

Retention Growth Calculation

23				
24	<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
25	2000 est'd	\$2.80	\$1.62	\$17.05
26	2001 est'd	3.10	1.70	18.10
27	2003-05 est'd	4.00	2.00	21.75

Analyst's Estimates

Value Line 8.50% 5.00% 5.00%

First Call 6.50%
Zack's 6.08%

Average
Proj'd Growth **7.03%** **5.00%** **5.00%**

Retention Growth

Retention **Equity** **Growth**
Ratio (b) **Return (r)** **(b*r)**

0.381		
0.396		
0.347	14.40%	5.00%
0.455	16.60%	7.55%
0.451	16.70%	7.53%
0.359	14.60%	5.25%
0.401	15.40%	6.17%

Ave. Internal
Growth (br): 6.30%

ADD: External
Growth (sv): -0.54%

Historic
"br + sv" Gr. **5.76%**

Retention	Equity	Growth
Ratio (b)	Return (r)	(b*r)
0.421	16.50%	6.95%
0.452	17.00%	7.68%
0.500	18.00%	9.00%

Projected
Growth (br): 9.00%

ADD: External
Growth (sv): -0.23%

Projected
"br + sv" Gr. **8.77%**

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
Northwest Natural Gas Co.

Historic Growth

Compound Growth

<u>Historic Data</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
1993	1.74	1.17	13.08
1994	1.63	1.17	13.63
1995	1.61	1.18	14.55
1996	1.97	1.20	15.37
1997	1.76	1.21	16.02
1998	1.02	1.22	16.59
1999	1.70	1.23	17.12

Compound Growth Rates

'93-97	0.29%	0.84%	5.20%
'94-98	-11.06%	1.05%	5.04%
'95-99	1.37%	1.04%	4.15%
<u>Ave. Compound Gr.</u>	<u>-3.13%</u>	<u>0.98%</u>	<u>4.80%</u>

Value Line	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
Historic Gr.	1.50%	1.25%	4.50%

(Avg of 5 and 10 yr. if both are available)

Projected Growth

Retention Growth Calculation

<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>
2000 est'd	\$1.90	\$1.24	\$18.00
2001 est'd	2.00	1.25	18.75
2003-05 est'd	2.30	1.30	21.10

Analyst's Estimates

Value Line	7.50%	1.00%	4.50%
First Call	4.00%		
Zack's	n/a		
Average			
<u>Proj'd Growth</u>	<u>5.75%</u>	<u>1.00%</u>	<u>4.50%</u>

Retention Growth

<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
0.328		
0.282		
0.267	10.90%	2.91%
0.391	12.70%	4.96%
0.313	11.00%	3.44%
-0.196	6.00%	-1.18%
0.276	9.90%	2.74%

Ave. Internal
Growth (br): 2.57%

ADD: External
Growth (sv): 1.29%

Historic
"br + sv" Gr. 3.86%

<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
0.347	10.50%	3.65%
0.375	10.50%	3.94%
0.435	11.00%	4.78%

Projected
Growth (br): 4.78%

ADD: External
Growth (sv): 0.45%

Projected
"br + sv" Gr. 5.24%

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
People's Energy Corporation

Historic Growth

Compound Growth

Historic Data EPS DPS BVPS

1	1993	2.11	1.78	18.02
2	1994	2.13	1.80	18.39
3	1995	1.78	1.80	18.38
4	1996	2.96	1.82	19.49
5	1997	2.81	1.87	20.43
6	1998	2.25	1.91	21.03
7	1999	2.39	1.95	21.66

Compound Growth Rates

9				
10	'93-97	7.43%	1.24%	3.19%
11				
12	'94-98	1.38%	1.49%	3.41%
13				
14	'95-99	7.65%	2.02%	4.19%
15				

Ave. Compound Gr. 5.48% 1.59% 3.60%

Value Line EPS DPS BVPS
Historic Gr. 3.00% 2.00% 3.25%

(Avg of 5 and 10 yr. if both are available)

Retention Growth

Retention Equity Growth
Ratio (b) Return (r) (b*r)

0.156		
0.155		
-0.011	9.70%	-0.11%
0.385	15.20%	5.85%
0.335	13.70%	4.58%
0.151	10.70%	1.62%
0.184	11.00%	2.03%

Ave. Internal
Growth (br): 2.79%

ADD: External
Growth (sv): 0.10%

Historic
"br + sv" Gr. 2.89%

Projected Growth

Retention Growth Calculation

Value Line EPS DPS BVPS

24	2000 est'd	\$2.70	\$2.00	\$22.40
25	2001 est'd	2.90	2.04	23.55
26	2003-05 est'd	3.60	2.15	29.55

Retention Equity Growth
Ratio (b) Return (r) (b*r)

0.259	12.00%	3.11%
0.297	12.00%	3.56%
0.403	12.00%	4.83%

Analyst's Estimates

Value Line 6.50% 2.00% 6.00%

Projected
Growth (br): 4.83%

First Call 6.00%
Zack's 4.83%

ADD: External
Growth (sv): -0.73%

Average
Proj'd Growth 5.78% 2.00% 6.00%

Projected
"br + sv" Gr. 4.10%

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
 Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
Piedmont Natural Gas Company

<u>Historic Growth</u>					<u>Retention Growth</u>		
<u>Compound Growth</u>					<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
	<u>Historic Data</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
1	1993	1.45	0.95	10.90	0.345		
2	1994	1.35	1.01	11.36	0.252		
3	1995	1.45	1.09	12.31	0.248	11.40%	2.83%
4	1996	1.67	1.15	13.07	0.311	12.60%	3.92%
5	1997	1.85	1.21	13.90	0.346	13.10%	4.53%
6	1998	1.96	1.28	14.91	0.347	13.20%	4.58%
7	1999	1.86	1.36	15.71	0.269	11.80%	3.17%
8							
9	<u>Compound Growth Rates</u>					<u>Ave. Internal</u>	
10	'93-97	6.28%	6.23%	6.27%		<u>Growth (br):</u>	3.81%
11							
12	'94-98	9.77%	6.10%	7.03%		<u>ADD: External</u>	
13						<u>Growth (sv):</u>	0.95%
14	'95-99	6.42%	5.69%	6.29%			
15						<u>Historic</u>	
16	<u>Ave. Compound Gr.</u>	<u>7.49%</u>	<u>6.01%</u>	<u>6.53%</u>		<u>"br + sv" Gr.</u>	<u>4.76%</u>
17							
18	<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>			
19	<u>Historic Gr.</u>	<u>5.50%</u>	<u>6.00%</u>	<u>6.25%</u>			
20	(Avg of 5 and 10 yr. if both are available)						
21							
22	<u>Projected Growth</u>						
23	<u>Retention Growth Calculation</u>				<u>Retention</u>	<u>Equity</u>	<u>Growth</u>
24	<u>Value Line</u>	<u>EPS</u>	<u>DPS</u>	<u>BVPS</u>	<u>Ratio (b)</u>	<u>Return (r)</u>	<u>(b*r)</u>
25	2000 est'd	\$2.10	\$1.44	\$16.35	0.314	12.50%	3.93%
26	2001 est'd	2.25	1.50	16.85	0.333	12.50%	4.17%
27	2003-05 est'd	2.80	1.67	19.40	0.404	12.50%	5.04%
28							
29	<u>Analyst's Estimates</u>					<u>Projected</u>	
30	<u>Value Line</u>	7.00%	4.50%	7.00%		<u>Growth (br):</u>	5.04%
31							
32	<u>First Call</u>	6.50%				<u>ADD: External</u>	
33	<u>Zack's</u>	6.31%				<u>Growth (sv):</u>	0.22%
34							
35	<u>Average</u>					<u>Projected</u>	
36	<u>Proj'd Growth</u>	<u>6.60%</u>	<u>4.50%</u>	<u>7.00%</u>		<u>"br + sv" Gr.</u>	<u>5.27%</u>

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
 Zack's Analyst Watch; First Call Corporation

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Discounted Cash Flow Growth Parameters
Washington Gas Light Company

Historic Growth

Compound Growth

Historic Data **EPS** **DPS** **BVPS**

1	1993	1.31	1.09	11.04
2	1994	1.42	1.11	11.51
3	1995	1.45	1.12	11.95
4	1996	1.85	1.14	12.79
5	1997	1.85	1.17	13.48
6	1998	1.54	1.20	13.86
7	1999	1.47	1.22	14.72

Compound Growth Rates

9				
10	'93-97	9.01%	1.79%	5.12%
11				
12	'94-98	2.05%	1.97%	4.75%
13				
14	'95-99	0.34%	2.16%	5.35%
15				

Ave. Compound Gr. **5.53%** **1.97%** **5.07%**

Value Line **EPS** **DPS** **BVPS**
Historic Gr. **3.50%** **2.25%** **4.25%**

(Avg of 5 and 10 yr. if both are available)

Projected Growth

Retention Growth Calculation

Value Line **EPS** **DPS** **BVPS**

24	2000 est'd	\$1.80	\$1.24	\$15.30
25	2001 est'd	2.05	1.26	16.15
26	2003-05 est'd	2.50	1.40	19.25

Analyst's Estimates

Value Line **7.50%** **2.50%** **5.50%**

First Call **5.00%**

Zack's **5.42%**

Average

Proj'd Growth **5.97%** **2.50%** **5.50%**

Retention Growth

Retention **Equity** **Growth**
Ratio (b) **Return (r)** **(b*r)**

0.168		
0.218		
0.228	12.00%	2.73%
0.384	14.40%	5.53%
0.368	13.70%	5.04%
0.221	11.10%	2.45%
0.170	9.90%	1.68%

Ave. Internal
Growth (br): **3.49%**

ADD: External
Growth (sv): **0.56%**

Historic
"br + sv" Gr. **4.04%**

Retention **Equity** **Growth**
Ratio (b) **Return (r)** **(b*r)**

0.311	12.00%	3.73%
0.385	12.50%	4.82%
0.440	13.00%	5.72%

Projected
Growth (br): **5.72%**

ADD: External
Growth (sv): **0.23%**

Projected
"br + sv" Gr. **5.95%**

Note: Negative (b*r) growth is not included in retention growth averages.

Source: The Value Line Investment Survey; C.A. Turner Utility Reports;
Zack's Analyst Watch; First Call Corporation

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Historical Stock Prices and Calculation of Expected Dividend Yield

	Fri <u>6/23/00</u>	Fri <u>6/30/00</u>	Fri <u>7/7/00</u>	Fri <u>7/14/00</u>	Fri <u>7/21/00</u>	Fri <u>7/28/00</u>	Average
Ameren	\$ 35.000	\$ 33.750	\$ 34.880	\$ 35.130	\$ 36.310	\$ 36.380	\$35.2417

	Fri <u>6/23/00</u>	Thu <u>6/30/00</u>	Fri <u>7/7/00</u>	Fri <u>7/14/00</u>	Fri <u>7/21/00</u>	Fri <u>7/28/00</u>	Average
AGL Resources Inc.	\$ 15.810	\$ 15.940	\$ 16.880	\$ 17.560	\$ 17.190	\$ 17.810	\$ 16.865
Cascade Natural Gas Corp.	\$ 16.250	\$ 16.690	\$ 16.750	\$ 16.810	\$ 16.500	\$ 16.060	\$ 16.510
New Jersey Resources	\$ 39.940	\$ 38.060	\$ 38.060	\$ 39.880	\$ 38.310	\$ 38.560	\$ 38.802
NICOR Inc.	\$ 34.060	\$ 32.630	\$ 32.750	\$ 33.000	\$ 34.130	\$ 34.690	\$ 33.543
Northwest Natural Gas Co.	\$ 23.060	\$ 22.380	\$ 22.440	\$ 22.630	\$ 22.380	\$ 22.250	\$ 22.523
People's Energy Corp.	\$ 33.630	\$ 32.380	\$ 32.250	\$ 32.500	\$ 32.380	\$ 31.810	\$ 32.492
Piedmont Natural Gas Co.	\$ 28.630	\$ 29.000	\$ 27.750	\$ 28.060	\$ 27.560	\$ 27.440	\$ 28.073
Washington Gas Light	\$ 25.000	\$ 24.060	\$ 24.560	\$ 25.250	\$ 24.560	\$ 24.250	\$ 24.613

Current and Expected Dividends and Dividend Yields

	Average <u>Stock Price</u>	2001 Expected <u>Dividend</u>	Expected Dividend <u>Yield</u>
	\$ 35.242	\$ 2.54	7.21%

AGL Resources Inc.	\$ 16.865	\$ 1.08	6.40%
Cascade Natural Gas Corp.	\$ 16.510	\$ 0.97	5.88%
New Jersey Resources	\$ 38.802	\$ 1.76	4.54%
NICOR Inc.	\$ 33.543	\$ 1.70	5.07%
Northwest Natural Gas Co.	\$ 22.523	\$ 1.25	5.55%
People's Energy Corp.	\$ 32.492	\$ 2.04	6.28%
Piedmont Natural Gas Co.	\$ 28.073	\$ 1.50	5.34%
Washington Gas Light	\$ 24.613	\$ 1.26	5.12%
Average			5.52%

Source: Value Line Investment Survey; Wall Street Journal.

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DCF Cost of Common Equity Calculations

DCF cost of equity = Expected dividend yield + sustainable growth

	Dividend	Growth		Cost of Equity	
	<u>Yield</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
Ameren Corporation	7.21%	0.26%	3.24%	7.47%	10.45%
<i>Using midpoint growth</i>	7.21%	1.75%		8.96%	
<i>Using overall average growth</i>	7.21%	2.17%		9.38%	
<i>Using largest growth rate</i>	7.21%	3.24%		10.45%	

Comparison Group	Dividend	Growth		Cost of Equity	
	<u>Yield</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
AGL Resources Inc.	6.40%	0.95%	5.58%	7.35%	11.99%
Cascade Natural Gas Corp.	5.88%	0.18%	6.82%	6.05%	12.69%
New Jersey Resources	4.54%	1.91%	7.20%	6.45%	11.74%
NICOR Inc.	5.07%	4.18%	8.77%	9.25%	13.83%
Northwest Natural Gas Co.	5.55%	0.98%	5.75%	6.53%	11.30%
People's Energy Corp.	6.28%	1.59%	6.00%	7.86%	12.28%
Piedmont Natural Gas Co.	5.34%	4.50%	7.49%	9.84%	12.83%
Washington Gas Light	<u>5.12%</u>	<u>1.97%</u>	<u>5.97%</u>	<u>7.09%</u>	<u>11.09%</u>
Average	5.52%	2.03%	6.70%	7.55%	12.22%
<i>Midpoint</i>	5.52%	4.37%		9.89%	
<i>Using overall average growth</i>	5.52%	3.94%		9.47%	
<i>Using maximum growth</i>	5.52%	4.85%		10.372%	

Source: Schedules MB-4, MB-5

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Capital Asset Pricing Model Cost of Common Equity (Ke)

Formula: $Ke = Rf + \text{beta}(Rm - Rf)$

Risk Free Rate (Rf) = 6.00%

Market Premium (Rm - Rf) = 7.80%

	<u>Beta</u>	CAPM <u>Ke</u>
Ameren Corporation	0.55	10.29%
AGL Resources Inc.	0.60	10.68%
Cascade Natural Gas Corp.	0.55	10.29%
New Jersey Resources	0.55	10.29%
NICOR Inc.	0.60	10.68%
Northwest Natural Gas Co.	0.60	10.68%
People's Energy Corp.	0.70	11.46%
Piedmont Natural Gas Co.	0.60	10.68%
Washington Gas Light	<u>0.60</u>	10.68%
	0.60	10.68%

Source: Value Line Investment Survey; Ibbotson and Associates

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AmerenUE

Weighted Average Cost of Capital

	<u>Amount</u>	<u>Percent</u>	<u>Cost Rate</u>	<u>Weighted Cost</u>
Common Stock Equity	\$2,410,967,251	56.65%	10.375%	5.88%
Preferred Stock	\$154,124,325	3.62%	5.72%	0.21%
Long Term Debt	\$1,690,457,143	39.72%	7.08%	2.81%
	<u>\$4,255,548,719</u>	<u>100.00%</u>		<u>8.90%</u>

Weighted Average Cost of Capital: 8.90%

Pre-Tax Interest Coverage

	<u>Weighted Cost</u>	<u>Pre-tax Weighted Cost</u>	<u>Tax Factor:</u>
Common Stock Equity	5.88%	9.52%	1.62
Preferred Stock	0.21%	0.34%	
Long Term Debt	2.81%	2.81%	
Total	<u>8.90%</u>	<u>12.67%</u>	

Pre-tax weighted cost: 12.67%

Cost of Debt: 2.81%

Pre-Tax Interest Coverage: 4.51 times

Pre-Tax Interest Coverage calculated as follows: After-tax costs of common equity and preferred stock were grossed up by the tax rate to arrive at pre-tax weighted costs. Total pre-tax weighted cost of capital was then divided by cost of long and short term debt to calculate number of times total pre-tax return covered debt expense.

Source: Schedules MB-1, -7