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PUBLIC SERVICE COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

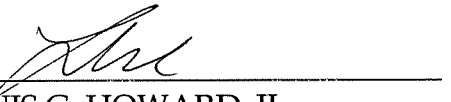
In the Matter of:

APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF BASE RATES	)))	CASE NO. 2009-00548

ATTORNEY GENERAL'S PRE-FILED TESTIMONY

Comes now the intervenor, the Attorney General of the Commonwealth of Kentucky, by and through his Office of Rate Intervention, and files the following testimony in the above-styled matter.

Respectfully submitted,
JACK CONWAY
ATTORNEY GENERAL



DENNIS G. HOWARD, II
LAWRENCE W. COOK
PAUL D. ADAMS
ASSISTANT ATTORNEYS GENERAL
1024 CAPITAL CENTER DRIVE
SUITE 200
FRANKFORT KY 40601-8204
(502) 696-5453
FAX: (502) 573-8315

Certificate of Service and Filing

Counsel certifies that an original and ten photocopies of the foregoing were served and filed by hand delivery to Jeff Derouen, Executive Director, Public Service Commission, 211 Sower Boulevard, Frankfort, Kentucky 40601; counsel further states that true and accurate copies of the foregoing were mailed via First Class U.S. Mail, postage pre-paid, to:

Lonnie E Bellar
E.ON U.S. LLC
220 West Main Street
Louisville, KY 40202

Honorable Kendrick R Riggs
Stoll Keenon Ogden, PLLC
2000 PNC Plaza
500 W Jefferson Street
Louisville, KY 40202-2828

Honorable David C Brown, Esq.
Stites & Harbison, PLLC
1800 Providian Center
400 West Market Street
Louisville, KY 40202

James T Selecky
BAI Consulting
16690 Swingley Ridge Road, Suite 140
Chesterfield, MO 63017

Honorable Frank F Chuppe
Wyatt, Tarrant & Combs, LLP
500 West Jefferson Street
Suite 2800
Louisville, KY 40202-2898

Honorable Gardner F Gillespie
Hogan & Hartson, L.L.P.
555 Thirteenth Street, N.W.
Washington, DC 20004-1109

Holly Rachel Smith
Hitt Business Center
3803 Rectortown Road
Marshall, VA 20115

Iris G Skidmore
415 W. Main Street, Suite 2
Frankfort, KY 40601

Honorable Allyson K Sturgeon
E.ON U.S. LLC
220 West Main Street
Louisville, KY 40202

Honorable Michael L Kurtz
Boehm, Kurtz & Lowry
36 East Seventh Street
Suite 1510
Cincinnati, OH 45202

Honorable Robert M Watt, III
STOLL KEENON OGDEN PLLC
300 West Vine Street
Suite 2100
Lexington, KY 40507-1801

Honorable Matthew R Malone
Hurt, Crosbie & May PLLC
The Equus Building
127 West Main Street
Lexington, KY 40507

Carroll M Redford III
Miller, Griffin & Marks, PSC
271 W Short Street, Suite 600
Lexington, KY 40507

this 22nd day of April, 2010

Assistant Attorney General

BEFORE THE

KENTUCKY PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	)
	)
THE APPLICATION OF THE	)
KENTUCKY UTILITIES COMPANY	)**CASE NO. 2009-00548**
TO INCREASE ITS ELECTRIC SERVICE RATES	)

DIRECT TESTIMONY

OF

DR. J. RANDALL WOOLRIDGE

April 22, 2010

Kentucky Utilities Company

Direct Testimony of
Dr. J. Randall Woolridge

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LIST OF EXHIBITS

Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.

A. My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration at the University Park Campus of the Pennsylvania State University. I am also the Director of the Smeal College Trading Room and President of the Nittany Lion Fund, LLC. A summary of my educational background, research, and related business experience is provided in Appendix A.

I. SUBJECT OF TESTIMONY AND SUMMARY OF RECOMMENDATIONS

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I have been asked by the Kentucky Office of Attorney General ("OAG") to provide an opinion as to the overall fair rate of return or cost of capital for the Kentucky Utilities Company ("KU" or "Company") and to evaluate KU's rate of return testimony in this proceeding.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First I will review my cost of capital recommendation for KU, and review the primary areas of contention between KU's rate of return position and OAG. Second, I provide an assessment of capital costs in today's capital markets.

Third, I discuss my proxy group of electric utility companies for estimating the cost of capital for KU. Fourth, I present my recommendations for the Company's capital structure and debt cost rate. Fifth, I discuss the concept of the cost of equity capital, and then estimate the equity cost rate for KU. Finally, I critique the Company's rate of return analysis and testimony. I have a table of contents just after the title page for a more detailed outline.

Q. PLEASE REVIEW YOUR RECOMMENDATIONS REGARDING THE APPROPRIATE RATE OF RETURN FOR KU.

A. I am using the debt cost rate developed by Company witness Mr. Rives. My analysis indicates that the capital structure ratios, which include a common equity ratio of 53.86%, have more common equity and less financial risk than the capitalizations of electric utility companies. Therefore, I have made a downward adjustment in the common equity ratios to make the capital structure more in line with those of other electric utilities. I have estimated individual equity cost rates for KU's electric utility operations. I have applied the Discounted Cash Flow Model ("DCF") and the Capital Asset Pricing Model ("CAPM") to a proxy group of publicly-held electric utility companies ("Electric Proxy Group"). My analysis indicates an equity cost rate in the range of 7.8%-9.5% for KU's electric utility operations . I have used the upper end of the ranges - 9.5% - as my equity cost rate because I give primary weight to the DCF approach.

Using my capital structure and debt and equity cost rates, I am recommending an overall rate of return of 7.06% for KU. These findings are summarized in Exhibit JRW-1.

Q. PLEASE SUMMARIZE THE PRIMARY ISSUES REGARDING RATE OF RETURN IN THIS PROCEEDING.

A. Mr. S. Bradford Rives provides the Company's proposed capital structure and debt cost rates and Dr. William E. Avera provides KU's proposed common equity cost rate. I have adopted the Company's proposed debt cost rate. I have adjusted the Company's proposed capital structure ratios to be more reflective to the capitalizations of other electric utility companies. The other area of contention is the equity cost rate. Dr. Avera's equity cost rate estimate is 11.50% for KU using proxy group of combination electric-gas companies as well as non-utility companies. He includes a flotation cost adjustment in this figure. I have estimated an equity cost rate for KU and have used a proxy group of electric companies ("Electric Proxy Group"). My analysis indicates an equity cost rate of 9.50% is appropriate for KU. Dr. Avera has also used an Expected Earnings approach to estimate an equity cost rate for KU

Dr. Avera employs a proxy group of combination electric-gas companies. In addition, the inclusion of non-utility companies in the proxy group is not appropriate for estimating an equity cost rate for KU. With respect to the application of the DCF model, the major area of disagreement is the expected DCF growth rate. Dr. Avera relies strictly on the projected EPS

growth rates of Wall Street analysts and *Value Line* in developing his DCF growth rate. I provide empirical evidence from new studies that demonstrate the long-term earnings growth rates of Wall Street analysts are overly optimistic and upwardly-biased. I also show that the estimated long-term EPS growth rates of *Value Line* are overstated. In developing my DCF growth rate, I have used both historic and projected growth rate measures and have evaluated growth in dividends, book value, and earnings per share.

The CAPM approach requires an estimate of the risk-free interest rate, beta, and the equity risk premium. The primary problem with his CAPM is his market risk premium of 7.50%. I provide evidence that this market risk premium is based on an expected stock market return that is not reflective of current market fundamentals. I also demonstrate that this expected market return is also based on an expected EPS growth rate that is not reasonable given prospective economic and earnings growth. On the other hand, I use a market risk premium which (1) uses alternative approaches to estimating a market premium and (2) employs the results of over thirty studies and surveys of the market risk premium. As I note, my market risk premium is consistent with the market risk premiums (1) discovered in recent academic studies by leading finance scholars, (2) employed by leading investment banks and management consulting firms, and (3) that result from surveys of financial forecasters and corporate CFOs.

Dr. Avera's Expected Earnings approach is subject to a number of errors and, therefore, does not provide a reliable estimate of the Company's cost of

equity capital. Furthermore, I have not seen this methodology used by regulatory commissions for years as an equity cost rate approach.

In sum, the most significant areas of disagreement in measuring KU' cost of capital are: (1) the appropriate capital structure; (2) a suitable proxy group to use in estimating an equity cost rate for KU; (3) the use of the projected growth rates of Wall Street analysts to measure expected DCF growth; (4) the measurement and magnitude of the equity risk premium used in CAPM approach; and (5) the validity of the Expected Earnings equity cost rate approach; and (6) the adjustment for flotation costs.

II. CAPITAL COSTS IN TODAY'S MARKETS

Q. PLEASE DISCUSS CAPITAL COSTS IN U.S. MARKETS.

A. Long-term capital cost rates for U.S. corporations are a function of the required returns on risk-free securities plus a risk premium. The risk-free rate of interest is the yield on long-term U.S Treasury yields. The yields on ten-year U.S. Treasury bonds are provided on page 1 of Exhibit JRW-2 from 1953 to the present. These yields peaked in the early 1980s and have generally declined since that time. In the summer of 2003 these yields hit a 60-year low at 3.33%. They subsequently increased and fluctuated between the 4.0% and 5.0% levels over the next four years in response to ebbs and flows in the economy. Ten-year Treasury yields began to decline in mid-2007 at the beginning of the financial crisis. In 2008 Treasury yields declined to below 3.0% as a result of the expansion of the mortgage and sub-prime market credit

crisis, the turmoil in the financial sector, the government bailout of financial institutions, and the economic recession. Overall, these economic developments led investors to seek out low risk investments. These yields have since increased to the 3.6% range as the markets look forward to the prospect of a rebound in the economy.

Panel B on page 1 of Exhibit JRW-2 shows the differences in yields between ten-year Treasuries and Moody's Baa rated bonds since the year 2000. This differential primarily reflects the additional risk required by bond investors for the risk associated with investing in corporate bonds. The difference also reflects, to a much lesser degree, yield curve changes over time. The Baa rating is the lowest of the investment grade bond ratings for corporate bonds. The yield differential hovered in the 2.0% to 3.0% area until 2005, declined to 1.5% until late 2007, and then increased significantly in response to the current financial crisis. This differential peaked at 6.0% in November of 2008, at the height of the financial crisis, due to tightening in credit markets which increased corporate bond yields and the 'flight to quality' which decreased treasury yields. The differential has declined significantly over the past year.

As previously noted, the risk premium is the return premium required by investors to purchase riskier securities. The risk premium required by investors to buy corporate bonds is observable based on yield differentials in the markets. The equity risk premium is the return premium required to purchase stocks as opposed to bonds. The equity risk premium is not readily

observable in the markets (as are bond risk premiums) since expected stock market returns are not readily observable. As a result, equity risk premiums must be estimated using market data. There are alternative methodologies to estimating the equity risk premium, and the alternative approaches and equity risk premium results are subject to much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historical periods. Measured in this manner, the equity risk premium has been in the 5-7 percent range. But studies by leading academics indicate the forward-looking equity risk premium is in the 4.0 percent range. These lower equity risk premium results are in line with the findings of equity risk premium surveys of CFOs, academics, and financial forecasters.

Q. PLEASE DISCUSS THE FINANCIAL CRISIS AND THE RESPONSE OF THE U.S. GOVERNMENT.

A. The mortgage crisis, subprime crisis, credit crisis, economic recession and the restructuring of financial institutions have had tremendous global economic implications. This issue first surfaced in the summer of 2007 as a mortgage crisis. It expanded into the subprime area in late 2008 and led to the collapse of certain financial institutions, notably Bear Stearns, in the first quarter of 2008. Commodity and energy prices peaked and then began to decline in the summer of 2008 as the crisis in the financial markets spread to the global economy. The turmoil in the financial sector peaked in September of 2008 with the failure of several large financial institutions, Bank of America's

buyout of Merrill Lynch, and the government takeover of Fannie Mae and Freddie Mac.

The spillover to the economy has been ongoing. According to the National Bureau of Economic Research, the economy slipped into a recession in the 4th quarter of 2007 and remains there. The unemployment rate has been in the 10.0% range for the past six months. Inflationary pressures--which were tied to global growth and increases in commodity prices until mid-2008--largely disappeared in late 2008 and 2009. A barrel of oil, which was nearly $150 in mid-2008, declined to the $30 range a year ago and now has increased to over $80. Other commodity prices also peaked in 2008, bottomed out in the first quarter of 2009, and now have rebounded. The stock market bottomed out in early March of 2009, and has increased 70% since that time. The increase in commodity and energy prices and the stock market since the first quarter of last year provides evidence that the financial markets have recovered significantly over the past year.

In response to the market crisis, the Federal Reserve took extraordinary steps in an effort to stabilize capital markets. Most significantly, the Fed has opened its lending facilities to numerous banking and investment firms to promote credit markets. As a result, the balance sheet of the Federal Reserve has grown by hundreds of billions of dollars in support of the financial system. The federal government has taken a series of measures to shore up the economy and the markets. The Troubled Asset Relief Program ("TARP") was aimed at providing over $700 billion in government funds into

the banking system in the form of equity investments. The federal government has spent billions bailing out a number of prominent financial institutions, including AIG, Citigroup, and Bank of America. The government is also moving to bail out other industries, most notably the auto industry. In 2009, President Obama signed into law his $787 billion economic stimulus which includes significant tax cuts and government spending aimed at creating jobs and turning around the economy.

In summary, the Federal Reserve and government have taken never-before seen actions and have provided or will provide extraordinary sums of money in various ways to rescue the economy, certain industries, and the credit markets.

Q. PLEASE PROVIDE ADDITIONAL INFORMATION ON THE RESPONSE OF THE FINANCIAL MARKETS TO THE ACTIONS OF THE U.S. GOVERNMENT.

A. As noted, United States ("U.S.") Treasury Rates declined to levels not seen since the 1950s. This reflects the 'flight to quality' in the credit markets, as investors sought out low risk investments. The credit market for corporate and utility debt experienced higher rates due to the credit crisis. The short-term credit markets were initially hit with credit issues, leading to the demise of several large financial institutions. The primary indicator of the short-term credit market is the 3-month London Interbank Offered Rate ("LIBOR") rate. LIBOR peaked in the third quarter of 2008 at 4.75%. It has declined to below 0.5% as the short-term credit markets have opened up and Treasury rates have remained low.

The long-term credit market remained tighter, but improved significantly over 2009. The credit crisis is associated with concerns among credit providers – mainly financial institutions – in terms of making loans and investing in bonds due to the overleveraging and perceived weakness of the economy. Panel A of page 1 of Exhibit JRW-3 provides the yields on A, BBB+, and BBB rated public utility bonds. These yields peaked in November and have since declined by over 200 basis points. For example, the yields on 'A' rated utility bonds, which peaked at over 7.50% in November of 2008, have declined to below 6.0% in early 2010. Panel B of Exhibit JRW-3 provides the yield spreads on A, BBB+, and BBB rated public utility bonds relative to Treasury bonds. These yield spreads increased dramatically in the third quarter during the peak of the financial crisis and have since decreased by 200-250 basis points.

In sum, the massive government spending and Federal Reserve actions have had an effect on the credit markets. The short-term credit market has loosened up considerably. LIBOR rates peaked in the fall of 2008 and have remained below 1.0% for most of the past year. Likewise, the long-term credit market has loosened considerably and credit spreads have declined significantly. In addition, the stock market has rebounded significantly from its lows in March of last year.

III. PROXY GROUP SELECTION

Q. PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE OF RETURN RECOMMENDATION FOR KU.

A. I have developed an equity cost rate for KU. To develop a fair rate of return recommendation for KU, I have evaluated the return requirements of investors on the common stock of a proxy group of publicly-held electric utility companies.

Q. PLEASE DESCRIBE YOUR PROXY GROUP OF ELECTRIC UTILITY COMPANIES.

A. My Electric Proxy Group proxy group consists of twenty electric utility companies. This group includes companies that meet the following criteria: (1) listed as an electric utility or as a combination electric and gas utility by *AUS Utility Reports*, (2) regulated electric revenues must be at least 80% of total revenues; (3) current data available in the Standard Edition of the *Value Line Investment Survey*; (4) an investment grade bond rating; and (5) an annual dividend history of three years. Summary financial statistics for the Electric Proxy are listed in Exhibit JRW-4.[1] The median operating revenues and net plant for the Electric Proxy Group are $2,619.5M and $4,216.6M, respectively. On average, the group receives 95% of revenues from regulated electric utility

[1] In the financial analysis and equity cost rate studies, I present both means and medians as measures of central tendency. However, due to outliers, I employ the median in the analyses.

operations, has an 'A-' S&P bond rating, a common equity ratio of 45%, an earned return on common equity of 9.6%, and sells at a market-to-book ratio of 131.54.

IV. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

Q. WHAT IS THE RECOMMENDED CAPITAL STRUCTURE OF THE COMPANY?

A. The Company's recommended capital structure is shown in Panel A of page 1 of Exhibit JRW-5. The Company is requesting a capital structure consisting of 46.14% long-term debt and 53.86% common equity.

Q. PLEASE DISCUSS THE CAPITALIZATIONS OF THE COMPANIES IN THE ELECTRIC PROXY GROUP?

A. Panels B of Exhibit JRW-5 provide the capital structure ratios for the companies in the Electric Proxy Group over the past four quarters. The average common equity ratio over the past year is 42.63% for the Electric Proxy Group. These results indicate that the Company's capital structure ratios, which include a common equity ratio of 53.86%, have more common equity and less financial risk than the capitalizations of other electric utility companies.

Q. GIVEN THESE RESULTS, WHAT CAPITAL STRUCTURE RATIOS ARE YOU RECOMMENDING IN THIS PROCEEDING?

A. I am recommending a 50% debt and 50% equity capital structure for KU. This represents balance between the proposed capitalization of the Company and the capitalization of the Electric Proxy Group and is a capitalization which a closer to the capitalizations of the electric companies that I have used to estimate an equity cost rate for KU. This is also fair since I am not including short-term debt in my proposed capitalization despite the fact that the Company normally uses short-term debt financing. My recommended capital structure is shown in Panel C of page 1 of Exhibit JRW-5. I will use the Company's proposed debt cost rate of 4.61%.

V. THE COST OF COMMON EQUITY CAPITAL

A. Overview

Q. WHY MUST AN OVERALL COST OF CAPITAL OR FAIR RATE OF RETURN BE ESTABLISHED FOR A PUBLIC UTILITY?

A. In a competitive industry, the return on a firm's common equity capital is determined through the competitive market for its goods and services. Due to the capital requirements needed to provide utility services and to the economic benefit to society from avoiding duplication of these services, some public utilities are monopolies. It is not appropriate to permit monopoly utilities to set their own prices because of the lack of competition and the essential nature of the services. Thus, regulation seeks to establish prices that are fair to

consumers and, at the same time, are sufficient to meet the operating and capital costs of the utility (i.e., provide an adequate return on capital to attract investors).

Q. PLEASE PROVIDE AN OVERVIEW OF THE COST OF CAPITAL IN THE CONTEXT OF THE THEORY OF THE FIRM.

A. The total cost of operating a business includes the cost of capital. The cost of common equity capital is the expected return on a firm's common stock that the marginal investor would deem sufficient to compensate for risk and the time value of money. In equilibrium, the expected and required rates of return on a company's common stock are equal.

Normative economic models of the firm, developed under very restrictive assumptions, provide insight into the relationship between firm performance or profitability, capital costs, and the value of the firm. Under the economist's ideal model of perfect competition where entry and exit is costless, products are undifferentiated, and there are increasing marginal costs of production, firms produce up to the point where price equals marginal cost. Over time, a long-run equilibrium is established where price equals average cost, including the firm's capital costs. In equilibrium, total revenues equal total costs, and because capital costs represent investors' required return on the firm's capital, actual returns equal required returns and the market value and the book value of the firm's securities must be equal.

In the real world, firms can achieve competitive advantage due to product market imperfections. Most notably, companies can gain competitive advantage through product differentiation (adding real or perceived value to products) and by achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

James M. McTaggart, founder of the international management consulting firm Marakon Associates, has described this essential relationship between the return on equity, the cost of equity, and the market-to-book ratio in the following manner:[2]

> Fundamentally, the value of a company is determined by the cash flow it generates over time for its owners, and the minimum acceptable rate of return required by capital investors. This "cost of equity capital" is used to discount the expected equity cash flow, converting it to a present value. The cash flow is, in turn, produced by the interaction of a company's return on equity and the annual rate of equity growth. High return on equity (ROE) companies in low-growth markets, such as Kellogg, are prodigious generators of cash flow, while low ROE companies in high-growth markets, such as Texas Instruments, barely generate enough cash flow to finance growth.

[2] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1988), p. 2.

> A company's ROE over time, relative to its cost of equity, also determines whether it is worth more or less than its book value. If its ROE is consistently greater than the cost of equity capital (the investor's minimum acceptable return), the business is economically profitable and its market value will exceed book value. If, however, the business earns an ROE consistently less than its cost of equity, it is economically unprofitable and its market value will be less than book value.

As such, the relationship between a firm's return on equity, cost of equity, and market-to-book ratio is relatively straightforward. A firm that earns a return on equity above its cost of equity will see its common stock sell at a price above its book value. Conversely, a firm that earns a return on equity below its cost of equity will see its common stock sell at a price below its book value.

Q. PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE RELATIONSHIP BETWEEN RETURN ON EQUITY AND MARKET-TO-BOOK RATIOS.

A. This relationship is discussed in a classic Harvard Business School case study entitled "A Note on Value Drivers." On page 2 of that case study, the author describes the relationship very succinctly:[3]

> For a given industry, more profitable firms – those able to generate higher returns per dollar of equity – should have higher market-to-book ratios. Conversely, firms which are unable to generate returns in excess of their cost of equity should sell for less than book value.

Profitability	*Value*
If ROE > K	*then Market/Book > 1*

[3] Benjamin Esty, "A Note on Value Drivers," Harvard Business School, Case No. 9-297-082, April 7, 1997.

If ROE = K *then Market/Book = 1*
If ROE < K *then Market/Book < 1*

To assess the relationship by industry, as suggested above, I have performed a regression study between estimated return on equity and market-to-book ratios using natural gas distribution, electric utility and water utility companies. I used all companies in these three industries which are covered by *Value Line* and who have estimated return on equity and market-to-book ratio data. The results are presented in Panels A-C of Exhibit JRW-6. The average R-squares for the electric, gas, and water companies are 0.65, 0.60, and 0.92, respectively.[4] This demonstrates the strong positive relationship between ROEs and market-to-book ratios for public utilities.

Q. WHAT ECONOMIC FACTORS HAVE AFFECTED THE COST OF EQUITY CAPITAL FOR PUBLIC UTILITIES?

A. Exhibit JRW-7 provides indicators of public utility equity cost rates over the past decade. Page 1 shows the yields on long-term 'A' rated public utility bonds. These yields peaked in the early 2000's at over 8.0%, declined to about 5.0% in 2005, and rose to 6.0% in 2006 and 2007. They stayed in that 6.0% range until the third quarter of 2008 when they spiked to almost 7.5%. They have since retreated to the 6.0% range again.

[4] R-square measures the percent of variation in one variable (e.g., market-to-book ratios) explained by another variable (e.g., expected return on equity). R-squares vary between zero and 1.0, with values closer to 1.0 indicating a higher relationship between two variables.

Page 2 of Exhibit JRW-7 provides the dividend yields for the Electric and Proxy Group over the past decade. The dividend yields for the Electric Proxy Group generally declined over the decade until 2007. They increased in 2008 and 2009 in response to the financial crisis.

Average earned returns on common equity and market-to-book ratios for the group are on page 3 of Exhibit JRW-7. The average earned returns on common equity for the Electric Proxy Group in the 9.0%-10.0% range over the past seven years. The average market-to-book ratios for the group peaked in 2007 at 1.75, and declined in 2008 and 2009 with the financial crisis.

Q. WHAT FACTORS DETERMINE INVESTORS' EXPECTED OR REQUIRED RATE OF RETURN ON EQUITY?

A. The expected or required rate of return on common stock is a function of market-wide as well as company-specific factors. The most important market factor is the time value of money as indicated by the level of interest rates in the economy. Common stock investor requirements generally increase and decrease with like changes in interest rates. The perceived risk of a firm is the predominant factor that influences investor return requirements on a company-specific basis. A firm's investment risk is often separated into business and financial risk. Business risk encompasses all factors that affect a firm's operating revenues and expenses. Financial risk results from incurring fixed obligations in the form of debt in financing its assets.

Q. HOW DOES THE INVESTMENT RISK OF ELECTRIC UTILITY AND GAS DISTRIBUTIONCOMPANIES COMPARE WITH THAT OF OTHER INDUSTRIES?

A. Due to the essential nature of their service as well as their regulated status, public utilities are exposed to a lesser degree of business risk than other, non-regulated businesses. The relatively low level of business risk allows public utilities to meet much of their capital requirements through borrowing in the financial markets, thereby incurring greater than average financial risk. Nonetheless, the overall investment risk of public utilities is below most other industries.

Exhibit JRW-8 provides an assessment of investment risk for 100 industries as measured by beta, which according to modern capital market theory is the only relevant measure of investment risk. These betas come from the *Value Line Investment Survey* and are compiled annually by Aswath Damodoran of New York University.[5] The study shows that the investment risk of utilities is very low. The average beta for electric, water, and gas utility companies are 0.75, 0.82, and 0.68, respectively. In fact, the gas distribution industry is the lowest risk industry as ranked by Beta of the 100 industries covered by *Value Line*. These are well below the *Value Line* average of 1.17. As such, the cost of equity for utilities is among the lowest of all industries in the U.S.

[5] They may be found on the Internet at http:// www.stern.nyu.edu/~adamodar.

Q. HOW CAN THE EXPECTED OR REQUIRED RATE OF RETURN ON COMMON EQUITY CAPITAL BE DETERMINED?

A. The costs of debt and preferred stock are normally based on historical or book values and can be determined with a great degree of accuracy. The cost of common equity capital, however, cannot be determined precisely and must instead be estimated from market data and informed judgment. This return to the stockholder should be commensurate with returns on investments in other enterprises having comparable risks.

According to valuation principles, the present value of an asset equals the discounted value of its expected future cash flows. Investors discount these expected cash flows at their required rate of return that, as noted above, reflects the time value of money and the perceived riskiness of the expected future cash flows. As such, the cost of common equity is the rate at which investors discount expected cash flows associated with common stock ownership.

Models have been developed to ascertain the cost of common equity capital for a firm. Each model, however, has been developed using restrictive economic assumptions. Consequently, judgment is required in selecting appropriate financial valuation models to estimate a firm's cost of common equity capital, in determining the data inputs for these models, and in interpreting the models' results. All of these decisions must take into consideration the firm involved as well as current conditions in the economy and the financial markets.

Q. HOW DO YOU PLAN TO ESTIMATE THE COST OF EQUITY CAPITAL FOR THE COMPANY?

A. I rely primarily on the DCF model to estimate the cost of equity capital. Given the investment valuation process and the relative stability of the utility business, I believe that the DCF model provides the best measure of equity cost rates for public utilities. It is my experience that this Commission has traditionally relied on the DCF method. I have also performed a CAPM study, but I give these results less weight because I believe that risk premium studies, of which the CAPM is one form, provide a less reliable indication of equity cost rates for public utilities.

B. <u>Discounted Cash Flow Analysis</u>

Q. DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF MODEL.

A. According to the DCF model, the current stock price is equal to the discounted value of all future dividends that investors expect to receive from investment in the firm. As such, stockholders' returns ultimately result from current as well as future dividends. As owners of a corporation, common stockholders are entitled to a pro-rata share of the firm's earnings. The DCF model presumes that earnings that are not paid out in the form of dividends are reinvested in the firm so as to provide for future growth in earnings and dividends. The rate at which investors discount future dividends, which reflects the timing and riskiness of the expected cash flows, is interpreted as

the market's expected or required return on the common stock. Therefore, this discount rate represents the cost of common equity. Algebraically, the DCF model can be expressed as:

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \ldots \frac{D_n}{(1+k)^n}$$

where P is the current stock price, D_n is the dividend in year n, and k is the cost of common equity.

Q. IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES EMPLOYED BY INVESTMENT FIRMS?

A. Yes. Virtually all investment firms use some form of the DCF model as a valuation technique. One common application for investment firms is called the three-stage DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model are presented in Exhibit JRW-9. This model presumes that a company's dividend payout progresses initially through a growth stage, then proceeds through a transition stage, and finally assumes a steady-state stage. The dividend-payment stage of a firm depends on the profitability of its internal investments, which, in turn, is largely a function of the life cycle of the product or service.

1. Growth stage: Characterized by rapidly expanding sales, high profit margins, and abnormally high growth in earnings per share. Because of highly profitable expected investment opportunities, the payout ratio is low.

Competitors are attracted by the unusually high earnings, leading to a decline in the growth rate.

2. Transition stage: In later years increased competition reduces profit margins and earnings growth slows. With fewer new investment opportunities, the company begins to pay out a larger percentage of earnings.

3. Maturity (steady-state) stage: Eventually the company reaches a position where its new investment opportunities offer, on average, only slightly attractive returns on equity. At that time its earnings growth rate, payout ratio, and return on equity stabilize for the remainder of its life. The constant-growth DCF model is appropriate when a firm is in the maturity stage of the life cycle.

In using this model to estimate a firm's cost of equity capital, dividends are projected into the future using the different growth rates in the alternative stages, and then the equity cost rate is the discount rate that equates the present value of the future dividends to the current stock price.

Q. HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED RATE OF RETURN USING THE DCF MODEL?

A. Under certain assumptions, including a constant and infinite expected growth rate, and constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to the following:

$$P = \frac{D_1}{k - g}$$

where D_1 represents the expected dividend over the coming year and g is the expected growth rate of dividends. This is known as the constant-growth version of the DCF model. To use the constant-growth DCF model to estimate a firm's cost of equity, one solves for k in the above expression to obtain the following:

$$k = \frac{D_1}{P} + g$$

Q. IN YOUR OPINION, IS THE CONSTANT-GROWTH DCF MODEL APPROPRIATE FOR PUBLIC UTILITIES?

A. Yes. The economics of the public utility business indicate that the industry is in the steady-state or constant-growth stage of a three-stage DCF. The economics include the relative stability of the utility business, the maturity of the demand for public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process). The DCF valuation procedure for companies in this stage is the constant-growth DCF. In the constant-growth version of the DCF model, the current dividend payment and stock price are directly observable. However, the primary problem and controversy in applying the DCF model to estimate equity cost rates entails estimating investors' expected dividend growth rate.

Q. WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF METHODOLOGY?

A. One should be sensitive to several factors when using the DCF model to estimate a firm's cost of equity capital. In general, one must recognize the assumptions under which the DCF model was developed in estimating its components (the dividend yield and expected growth rate). The dividend yield can be measured precisely at any point in time, but tends to vary somewhat over time. Estimation of expected growth is considerably more difficult. One must consider recent firm performance, in conjunction with current economic developments and other information available to investors, to accurately estimate investors' expectations.

Q. PLEASE DISCUSS EXHIBIT JRW-10.

A. My DCF analysis is provided in Exhibit JRW-10. The DCF summary is on page 1 of this Exhibit, and the supporting data and analysis for the dividend yield and expected growth rate are provided on the following pages of the Exhibit.

Q. WHAT DIVIDEND YIELDS ARE YOU EMPLOYING IN YOUR DCF ANALYSIS FOR THE PROXY GROUP?

A. The dividend yields on the common stock for the companies in the proxy group are provided on page 2 of Exhibit JRW-10 for the six-month period ending April 2010. For the DCF dividend yields for the group, I am using the average of the six month and April 2010 dividend yields. The table below shows these dividend yields.

Proxy Group	6-Month Average Dividend Yield	April 2010 Dividend Yield	DCF Dividend Yield
Electric Proxy Group	4.9%	4.9%	4.9%

Q. PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT DIVIDEND YIELD.

A. According to the traditional DCF model, the dividend yield term relates to the dividend yield over the coming period. As indicated by Professor Myron Gordon, who is commonly associated with the development of the DCF model for popular use, this is obtained by: (1) multiplying the expected dividend over the coming quarter by 4 and (2) dividing this dividend by the current stock price to determine the appropriate dividend yield for a firm, that pays dividends on a quarterly basis.[6]

In applying the DCF model, some analysts adjust the current dividend for growth over the coming year as opposed to the coming quarter. This can be complicated because firms tend to announce changes in dividends at different times during the year. As such, the dividend yield computed based on presumed growth over the coming quarter as opposed to the coming year can be quite different. Consequently, it is common for analysts to adjust the dividend yield by some fraction of the long-term expected growth rate.

Q. GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR WILL YOU USE FOR YOUR DIVIDEND YIELD?

[6] *Petition for Modification of Prescribed Rate of Return*, Federal Communications Commission, Docket No. 79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

A. I will adjust the dividend yield by one-half (1/2) the expected growth so as to reflect growth over the coming year.

Q. PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF MODEL.

A. There is much debate as to the proper methodology to employ in estimating the growth component of the DCF model. By definition, this component is investors' expectation of the long-term dividend growth rate. Presumably, investors use some combination of historical and/or projected growth rates for earnings and dividends per share and for internal or book value growth to assess long-term potential.

Q. WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE PROXY GROUP?

A. I have analyzed a number of measures of growth for companies in the proxy group. I have reviewed *Value Line's* historical and projected growth rate estimates for earnings per share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS"). In addition, I have utilized the average EPS growth rate forecasts of Wall Street analysts as provided by Bloomberg and Zacks. These services solicit five-year earnings growth rate projections from securities analysts and compile and publish the means and medians of these forecasts. Finally, I have also assessed prospective growth as measured by prospective earnings retention rates and earned returns on common equity.

Q. PLEASE DISCUSS HISTORICAL GROWTH IN EARNINGS AND DIVIDENDS AS WELL AS INTERNAL GROWTH.

A. Historical growth rates for EPS, DPS, and BVPS are readily available to virtually all investors and presumably an important ingredient in forming expectations concerning future growth. However, one must use historical growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years), is unlikely to accurately measure investors' expectations due to the sensitivity of a single growth rate figure to fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles). However, one must appraise the context in which the growth rate is being employed. According to the conventional DCF model, the expected return on a security is equal to the sum of the dividend yield and the expected long-term growth in dividends. Therefore, to best estimate the cost of common equity capital using the conventional DCF model, one must look to long-term growth rate expectations.

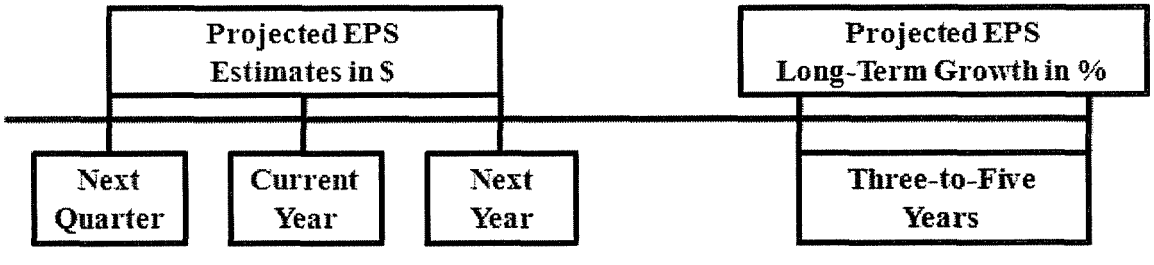
Internally generated growth is a function of the percentage of earnings retained within the firm (the earnings retention rate) and the rate of return earned on those earnings (the return on equity). The internal growth rate is computed as the retention rate times the return on equity. Internal growth is significant in determining long-run earnings and therefore, dividends. Investors recognize the importance of internally generated growth and pay

premiums for stocks of companies that retain earnings and earn high returns on internal investments.

Q. PLEASE DISCUSS ANALYSTS' EPS FORECASTS.

A. EPS forecasts are collected and published by a number of different services, including by Zack's, First Call, and Reuters. These services retrieve and compile EPS forecasts from Wall Street analysts. These analysts come from both sell side financial firms such as Merrill Lynch and Morgan Stanley) and buy side financial firms such as Prudential Insurance and Fidelity Investments.

These services collect and publish: (1) EPS estimates for future quarterly and annual time periods; and (2) long-term EPS growth rate forecasts. The EPS estimates are in dollars and cents per share, and the services report the high, low, and mean of the estimates collected for analysts. The long-term projected EPS growth rate is expressed in percentage terms. As shown in the figure below, the projected EPS near-term estimates are usually provided for the next quarter, the current fiscal year, and the next fiscal year. The long-term projected EPS growth rate is for a three-to-five year time period.



Q. PLEASE PROVIDE AN EXAMPLE OF THESE EPS FORECASTS.

A. The following example provides the EPS forecasts compiled by Reuters for AGL Resources.

Consensus Earnings Estimates
AGL Resources
www.reuters.com
March 3, 2010

	# of Estimates	Mean	High	Low
Earnings (per share)				
Quarter Ending Mar-10	5	1.51	1.61	1.39
Quarter Ending Jun-10	4	0.32	0.35	0.29
Year Ending Dec-10	8	2.96	3.03	2.80
Year Ending Dec-11	7	3.10	3.19	3.00
LT Growth Rate (%)	2	5.50	7.00	4.00

These figures can be interpreted as follows. The top line shows that five analysts have provided EPS estimates for the quarter ending March, 2010. The mean, high, and low estimates are $1.51, $1.61, and $1.39, respectively. The second line shows the quarterly EPS estimates for the quarter ending June, 2010. Lines three and four show the annual EPS estimates for the fiscal years ending December 2010 and 2011. These quarterly and annual EPS forecasts are expressed in dollars and cents. As in the AGL case shown here, it is common for more analysts to provide estimates of annual EPS as opposed to quarterly EPS. The long-term growth rate is expressed as a percent, and there are usually fewer analysts providing this figure. For AGL, two analysts have

provided a long-term EPS growth rate forecasts, with mean, high, and low growth rates of 5.50%, 7.00%, and 4.00%.

Q. WHICH OF THESE EPS FORECASTS IS USED IN DEVELOPING A DCF GROWTH RATE?

A. The DCF growth rate is the long-term projected growth rate in EPS, DPS, and BVPS. Therefore, in developing an equity cost rate using the DCF model, the projected long-term growth rate is the projection used in the DCF model.

Q. WHY ARE YOU NOT RELYING EXCLUSIVELY ON THE EPS FORECASTS OF WALL STREET ANALYSTS IN ARRIVING AT A DCF GROWTH RATE FOR THE PROXY GROUP?

A. There are several issues with using the EPS growth rate forecasts of Wall Street analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is the dividend growth rate, not the earnings growth rate. Nonetheless, over the very long-term, dividend and earnings will have to grow at a similar growth rate. Therefore, consideration must be given to other indicators of growth, including prospective dividend growth, internal growth, as well as projected earnings growth. Second, and most significantly, it is well-known that the long-term EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and upwardly biased. This has been demonstrated in a number of academic studies over the years. Hence, using these growth rates as a DCF growth rate will provide an overstated equity cost rate. This issue is discussed at length in the rebuttal section of this testimony.

Q. IS IT YOUR OPINION THAT STOCK PRICES REFLECT THE UPWARD BIAS IN THE EPS GROWTH RATE FORECASTS?

A. Yes, I do believe that investors are well aware of the bias in analysts' EPS growth rate forecasts, and therefore stock prices reflect the upward bias.

Q. HOW DOES THAT AFFECT THE USE OF THESE FORECASTS IN A DCF EQUITY COST RATE STUDY?

A. According to the DCF model, the equity cost rate is a function of the dividend yield and expected growth rate. Since stock prices reflect the bias, it would affect the dividend yield. In addition, the DCF growth rate needs to be adjusted downwards from the projected EPS growth rate to reflect the upward bias.

Q. PLEASE DISCUSS THE HISTORICAL GROWTH OF THE COMPANIES IN THE GROUP AS PROVIDED IN THE *VALUE LINE INVESTMENT SURVEY.*

A. Historic growth rates for the companies in the group, as published in the *Value Line Investment Survey*, are provided on page 3 of Exhibit JRW-10. Due to the presence of outliers, I am once again using the medians in the analysis. As shown in Panel A, the historical growth measures in EPS, DPS, and BVPS for the Electric Proxy Group, as measured by the medians, range from 0.0% to 3.0%, with an average of 1.8%.

Q. PLEASE SUMMARIZE *VALUE LINE'S* PROJECTED GROWTH RATES FOR THE COMPANIES IN THE PROXY GROUP.

A. *Value Line's* projections of EPS, DPS, and BVPS growth for the companies in the proxy group are shown on page 4 of Exhibit JRW-10. As above, due to the presence of outliers, both the mean and medians are used in the analysis. For the Electric Proxy Group, the central tendency measure ranges from 2.8% to 4.5%, with an average of 3.8%.

Also provided on page 4 of Exhibit JRW-10 is prospective internal growth for the proxy group as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. As noted above, internal growth is significant in a primary driver of long-run earnings growth. For the Electric Proxy Group, the average prospective internal growth rate is 3.9%.

Q. PLEASE ASSESS GROWTH FOR THE PROXY GROUP AS MEASURED BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR EPS GROWTH.

A. Yahoo First Call, Zack's and Reuters collect, summarize, and publish Wall Street analysts' five-year EPS growth rate forecasts for the companies in the proxy group. These forecasts are provided for the companies in the proxy group on page 5 of Exhibit JRW-10. The median of the analysts' projected EPS growth rates for the Electric Proxy Group is 5.4%.[7]

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND PROSPECTIVE GROWTH OF THE PROXY GROUP.

[7] Since there is considerable overlap in analyst coverage between the three services, and not all of the companies have forecasts from the different services, I have averaged the expected five-year EPS growth rates from the three services for each company to arrive at an expected EPS growth rate by company.

A. The table below shows the summary DCF growth rate indicators for the proxy group are shown on page 6 of Exhibit JRW-10. The average of the growth rate indicators for the Electric Proxy Group is 3.7%. The average of the projected and prospective growth rate indicators for the group 4.4%. Giving greater weight to the projected growth rate indicators and to prospective internal growth, an expected DCF growth rate in the 4.5% range is reasonable for the Electric Proxy Group.

Q. BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE TWO GROUP?

A. My DCF-derived equity cost rate for the group is:

$$\text{DCF Equity Cost Rate (k)} = \frac{D}{P} + g$$

DCF Equity Cost Rates

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Electric Proxy Group	**4.9%**	**1.02250**	**4.5%**	**9.5%**

These results are summarized on page 1 of Exhibit JRW-10.

C. Capital Asset Pricing Model Results

Q. PLEASE DISCUSS THE CAPITAL ASSET PRICING MODEL ("CAPM").

A. The CAPM is a risk premium approach to gauging a firm's cost of equity capital. According to the risk premium approach, the cost of equity is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$k = R_f + RP$$

The yield on long-term Treasury securities is normally used as R_f. Risk premiums are measured in different ways. The CAPM is a theory of the risk and expected returns of common stocks. In the CAPM, two types of risk are associated with a stock: firm-specific risk or unsystematic risk, and market or systematic risk, which is measured by a firm's beta. The only risk that investors receive a return for bearing is systematic risk.

According to the CAPM, the expected return on a company's stock, which is also the equity cost rate (K), is equal to:

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

Where:

- K represents the estimated rate of return on the stock;
- $E(R_m)$ represents the expected return on the overall stock market. Frequently, the 'market' refers to the S&P 500;
- (R_f) represents the risk-free rate of interest;
- $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess return that an investor expects to receive above the risk-free rate for investing in risky stocks; and
- *Beta*—(ß) is a measure of the systematic risk of an asset.

To estimate the required return or cost of equity using the CAPM requires three inputs: the risk-free rate of interest (R_f), the beta (ß), and the expected equity or market risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is the yield on long-term Treasury bonds. ß, the measure of systematic risk, is a little more difficult to measure because there are different opinions about what adjustments, if any, should be made to historical betas due to their tendency to regress to 1.0 over time. And finally, an even more difficult input to measure is the expected equity or market risk premium $(E(R_m) - (R_f))$. I will discuss each of these inputs below.

Q. PLEASE DISCUSS EXHIBIT JRW-11.

A. Exhibit JRW-11 provides the summary results for my CAPM study. Page 1 shows the results, and pages 2-11 contain the supporting data.

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE.

A. The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free rate of interest in the CAPM. The yield on long-term U.S. Treasury

bonds, in turn, has been considered to be the yield on U.S. Treasury bonds with 30-year maturities. However, when the Treasury's issuance of 30-year bonds was interrupted for a period of time in recent years, the yield on 10-year U.S. Treasury bonds replaced the yield on 30-year U.S. Treasury bonds as the benchmark long-term Treasury rate. Ten-year Treasury yields began to decline in mid-2007 at the beginning of the financial crisis, and fell below 3.0% as the housing and sub-prime mortgage crises led to an overall credit crisis and economic recession. These rates bottomed out in December of 2008 and have gradually increased since that time as prospects for an economic recovery have increased.

Q. WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?

A. The U.S. Treasury began to issue the 30-year bond in the early 2000's as the U.S. budget deficit increased. The yield on 30-year Treasury bonds has been in the 4.5% range over the last several months. As of April 8, 2010, as shown on Panel B page 2 of Exhibit JRW-11, the rate on 30-year U.S. Treasury Bonds was 4.75%. I will use this figure, 4.75%, as the risk-free rate, or R_f, in my CAPM.

Q. WHAT BETAS ARE YOU EMPLOYING IN YOUR CAPM?

A. Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to be the S&P 500, has a beta of 1.0. The beta of a stock with the same

price movement as the market also has a beta of 1.0. A stock whose price movement is greater than that of the market, such as a technology stock, is riskier than the market and has a beta greater than 1.0. A stock with below average price movement, such as that of a regulated public utility, is less risky than the market and has a beta less than 1.0. Estimating a stock's beta involves running a linear regression of a stock's return on the market return.

As shown on page 3 of Exhibit JRW-11, the slope of the regression line is the stock's ß. A steeper line indicates the stock is more sensitive to the return on the overall market. This means that the stock has a higher ß and greater than average market risk. A less steep line indicates a lower ß and less market risk.

Numerous online investment information services, such as Yahoo! and Reuters, provide estimates of stock betas. Usually these services report different betas for the same stock. The differences are usually due to: (1) the time period over which the ß is measured; and (2) any adjustments that are made to reflect the fact that betas tend to regress to 1.0 over time. In estimating an equity cost rate for the proxy group, I am using the betas for the companies as provided in the *Value Line Investment Survey*. As shown on page 3 of Exhibit JRW-11, the median beta for the companies in the Electric Proxy Group is 0.70.

Q. PLEASE DISCUSS THE ALTERNATIVE VIEWS REGARDING THE EQUITY RISK PREMIUM.

A. The equity or market risk premium - $(E(R_m) - R_f)$ - is equal to the expected return on the stock market (e.g., the expected return on the S&P 500 ($E(R_m)$) minus the risk-free rate of interest (R_f). The equity premium is the difference in the expected total return between investing in equities and investing in "safe" fixed-income assets, such as long-term government bonds. However, while the equity risk premium is easy to define conceptually, it is difficult to measure because it requires an estimate of the expected return on the market.

Q. PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING THE EQUITY RISK PREMIUM.

A. Page 4 of Exhibit JRW-11 highlights the primary approaches to, and issues in, estimating the expected equity risk premium. The traditional way to measure the equity risk premium was to use the difference between historical average stock and bond returns. In this case, historical stock and bond returns, also called ex post returns, were used as the measures of the market's expected return (known as the ex ante or forward-looking expected return). This type of historical evaluation of stock and bond returns is often called the "Ibbotson approach" after Professor Roger Ibbotson who popularized this method of using historical financial market returns as measures of expected returns. Most historical assessments of the equity risk premium suggest an equity risk premium of 5-7 percent above the rate on long-term U.S. Treasury bonds. However, this can be a problem because: (1) ex post returns are not the same as ex ante expectations, (2) market risk premiums can change over time,

increasing when investors become more risk-averse and decreasing when investors become less risk-averse, and (3) market conditions can change such that ex post historical returns are poor estimates of ex ante expectations.

The use of historical returns as market expectations has been criticized in numerous academic studies.[8] The general theme of these studies is that the large equity risk premium discovered in historical stock and bond returns cannot be justified by the fundamental data. These studies, which fall under the category "Ex Ante Models and Market Data," compute ex ante expected returns using market data to arrive at an expected equity risk premium. These studies have also been called "Puzzle Research" after the famous study by Mehra and Prescott in which the authors first questioned the magnitude of historical equity risk premiums relative to fundamentals.[9]

Q. PLEASE PROVIDE A SUMMARY OF THE EQUITY RISK PREMIUM STUDIES.

A. Derrig and Orr (2003), Fernandez (2007), and Song (2007) have completed the most comprehensive reviews to date of the research on the equity risk premium.[10] Derrig and Orr's study evaluated the various approaches to estimating equity risk premiums as well as the issues with the alternative

[8] The problems with using ex post historical returns as measures of ex ante expectations will be discussed at length later in my testimony.

[9] R. Mehra and Edward Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economics* (1985).

[10] Richard Derrig and Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (August 28, 2003), Pablo Fernandez, "Equity Premium: Historical, Expected, Required, and Implied," IESE Business School Working Paper, (2007), and Zhiyi Song, "The Equity Risk Premium: An Annotated Bibliography," CFA Institute, (2007).

approaches and summarized the findings of the published research on the equity risk premium. Fernandez examined four alternative measures of the equity risk premium – historical, expected, required, and implied. He also reviewed the major studies of the equity risk premium and presented the summary equity risk premium results. Song provides an annotated bibliography and highlights the alternative approaches to estimating the equity risk summary.

Page 5 of Exhibit JRW-11 provides a summary of the results of the primary risk premium studies reviewed by Derrig and Orr, Fernandez, and Song. In developing page 5 of Exhibit JRW-11, I have categorized the studies as discussed on page 4 of Exhibit JRW-11. I have also included the results of the "Building Blocks" approach to estimating the equity risk premium, including a study I performed, which is presented below. The Building Blocks approach is a hybrid approach employing elements of both historic and ex ante models.

Q. PLEASE DISCUSS YOUR DEVELOPMENT OF AN EQUITY RISK PREMIUM COMPUTED USING THE BUILDING BLOCKS METHODOLOGY.

A. Ibbotson and Chen (2003) evaluate the ex post historical mean stock and bond returns in what is called the Building Blocks approach.[11] They use 75 years of data and relate the compounded historical returns to the different fundamental

[11] Roger Ibbotson and Peng Chen, "Long Run Returns: Participating in the Real Economy," *Financial Analysts Journal*, (January 2003).

variables employed by different researchers in building ex ante expected equity risk premiums. Among the variables included were inflation, real EPS and DPS growth, ROE and book value growth, and price-earnings ("P/E") ratios. By relating the fundamental factors to the ex post historical returns, the methodology bridges the gap between the ex post and ex ante equity risk premiums. Ilmanen (2003) illustrates this approach using the geometric returns and five fundamental variables – inflation ("CPI"), dividend yield ("D/P"), real earnings growth ("RG"), repricing gains ("PEGAIN") and return interaction/reinvestment ("INT").[12] This is shown on page 7 of Exhibit JRW-11. The first column breaks the 1926-2000 geometric mean stock return of 10.7% into the different return components demanded by investors: the historical U.S. Treasury bond return (5.2%), the excess equity return (5.2%), and a small interaction term (0.3%). This 10.7% annual stock return over the 1926-2000 period can then be broken down into the following fundamental elements: inflation (3.1%), dividend yield (4.3%), real earnings growth (1.8%), repricing gains (1.3%) associated with higher P/E ratios, and a small interaction term (0.2%).

Q. HOW ARE YOU USING THIS METHODOLOGY TO DERIVE AN EX ANTE EXPECTED EQUITY RISK PREMIUM?

A. The third column in the graph on page 7 of Exhibit JRW-11 shows current inputs to estimate an ex ante expected market return. These inputs include the following:

[12] Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003), p. 11.

CPI – To assess expected inflation, I have employed expectations of the short-term and long-term inflation rate. Long term inflation forecasts are available in the Federal Reserve Bank of Philadelphia's publication entitled *Survey of Professional Forecasters*.[13] This survey of professional economists has been published for almost 50 years. While this survey is published quarterly, only the first quarter survey includes long-term forecasts of gross domestic product ("GDP") growth, inflation, and market returns. In the first quarter 2010 survey, published on February 12, 2010, the average long-term (10-year) expected inflation rate as measured by the CPI was 2.39% (see Panel A of page 8 of Exhibit JRW-11).

The University of Michigan's Survey Research Center surveys consumers on their short-term (one-year) inflation expectations on a monthly basis. As shown on page 9 of Exhibit JRW-11, the current short-term expected inflation rate is 2.8%.

As a measure of expected inflation, I will use the average of the long-term (2.39%) and short-term (2.8%) inflation rate measures, or 2.6%.

D/P – As shown on page 10 of Exhibit JRW-11, the dividend yield on the S&P 500 has varied from 1.0% to almost 3.5% over the past decade. Ibbotson and Chen (2003) report that the long-term average dividend yield of the S&P

[13]Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters,* (February 12, 2010). The *Survey of Professional Forecasters* was formerly conducted by the American Statistical Association ("ASA") and the National Bureau of Economic Research ("NBER") and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

500 is 4.3%. Currently, the S&P 500 dividend yield is 1.90%. I will use this figure in my ex ante risk premium analysis.

RG – To measure expected real growth in earnings, I use the historical real earnings growth rate for the S&P 500 and the expected real GDP growth. The S&P 500 was created in 1960. It includes 500 companies which come from ten different sectors of the economy. On page 11 of Exhibit JRW-11, real EPS growth is computed using the CPI as a measure of inflation. The real growth figure over 1960-2008 period for the S&P 500 is 2.0%.

The second input for expected real earnings growth is expected real GDP growth. The rationale is that over the long-term, corporate profits have averaged a relatively consistent 5.50% of U.S. GDP.[14] Real GDP growth, according to McKinsey, has averaged 3.5% over the past 80 years. Expected GDP growth, according to the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters,* is 2.72% (see Panel B of page 8 of Exhibit JRW-11).

Given these results, I will use 2.50%, for real earnings growth.

PEGAIN – PEGAIN is the repricing gain associated with an increase in the P/E ratio. It accounted for 1.3% of the 10.7% annual stock return in the 1926-2000 period. In estimating an ex ante expected stock market return, one issue is whether investors expect P/E ratios to increase from their current levels. The P/E ratios for the S&P 500 over the past 25 years are shown on

[14]Marc. H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p.14.

page 10 of Exhibit JRW-11. The run-up and eventual peak in P/Es in the year 2000 is very evident in the chart. The average P/E declined until late 2006, and then increased to very high levels, primarily due to the decline in EPS as a result of the financial crisis and the recession. The average P/E for the S&P 500 as of March 31, 2009 was 17.43.

Given the current economic and capital markets environment, I do not believe that investors expect even higher P/E ratios. Therefore, a PEGAIN would not be appropriate in estimating an ex ante expected stock market return. The current P/E for the S&P 500 is above the average historical S&P 500 P/E ratio of approximately 16.0. Hence, investors are not likely to expect to get stock market gains from lower interest rates and higher P/E ratios.

Q. GIVEN THIS DISCUSSION, WHAT IS THE EX ANTE EXPECTED MARKET RETURN AND EQUITY RISK PREMIUM USING THE "BUILDING BLOCKS METHODOLOGY"?

A. My expected market return is represented by the last column on the right in the graph entitled "Decomposing Equity Market Returns: The Building Blocks Methodology" set forth on page 7 of Exhibit JRW-11. As shown, my expected market return of 7.00% is composed of 2.60% expected inflation, 1.90% dividend yield, and 2.50% real earnings growth rate.

Q. GIVEN THAT THE HISTORICAL COMPOUNDED ANNUAL MARKET RETURN IS IN EXCESS OF 10%, WHY DO YOU BELIEVE THAT AN EXPECTED MARKET RETURN OF 7.00% IS REASONABLE?

A. As discussed above, in the development of the expected market return, stock prices are still high at the present time in relation to earnings and dividends,

and interest rates are relatively low. Hence, it is unlikely that investors are going to experience high stock market returns due to higher P/E ratios and/or lower interest rates. In addition, as shown in the decomposition of equity market returns, whereas the dividend portion of the return was historically 4.3%, the current dividend yield is only 1.90%. Due to these reasons, lower market returns are expected for the future.

Q. IS AN EXPECTED MARKET RETURN OF 7.00% CONSISTENT WITH THE FORECASTS OF MARKET PROFESSIONALS?

A. Yes. In the first quarter 2010 *Survey of Financial Forecasters*, published on February 12, 2010 by the Federal Reserve Bank of Philadelphia, the mean long-term expected return on the S&P 500 was 7.27% (see Panel D of page 8 of Exhibit JRW-11).

Q. IS AN EXPECTED MARKET RETURN OF 7.00% CONSISTENT WITH THE EXPECTED MARKET RETURNS OF CORPORATE CHIEF FINANCIAL OFFICERS (CFOs)?

A. Yes. John Graham and Campbell Harvey of Duke University conduct a quarterly survey of corporate CFOs. The survey is a joint project of Duke University and *CFO Magazine.* In the March 2010 survey, the mean expected return on the S&P 500 over the next ten years was 7.62%.[15]

Q. GIVEN THIS EXPECTED MARKET RETURN, WHAT IS THE EX ANTE EQUITY RISK PREMIUM USING THE BUILDING BLOCKS METHODOLOGY?

[15] The survey results are available at www.cfosurvey.org.

A. As shown on page 2 of Exhibit JRW-11, the current 30-year U.S. Treasury yield is 4.75%. This ex ante equity risk premium is simply the expected market return from the Building Blocks methodology minus this risk-free rate:

Ex Ante Equity Risk Premium = 7.00% - 4.75% = 2.25%

Q. PLEASE DISCUSS PAGE 5 OF EXHIBIT JRW-11.

A. Page 5 of Exhibit JRW-11 provides a summary of the results of the equity risk premium studies that I have reviewed. These include the results of: (1) the various studies of the historical risk premium, (2) ex ante equity risk premium studies, (3) equity risk premium surveys of CFOs, Financial Forecasters, and academics, and (4) the Building Block approaches to the equity risk premium. There are results reported for over thirty studies, and the average equity risk premium is 4.29%.

Q. PLEASE HIGHLIGHT THE RESULTS OF THE MORE RECENT RISK PREMIUM STUDIES?

A. The studies cited on page 5 of Exhibit JRW-11 includes all equity risk premium studies and surveys I could identify that were published over the past decade and that provided an equity risk premium estimate. Most of these studies were published prior to the financial crisis of the past two years. In addition, some of these studies were published in the early 2000's at the market peak. It should be noted many of these studies (as indicated) used data over long periods of time (as long as fifty years of data) and so they were not estimating an equity risk premium as of a point in time (e.g., the year 2001).

To assess the effect of the earlier studies on the equity risk premium, on page 6 of Exhibit JRW-11 I have reconstructed page 5 of Exhibit JRW-11, but I have eliminated all studies published before 2009. The average for this subset of studies is 4.35%.

Q. GIVEN THESE RESULTS, WHAT EQUITY RISK PREMIUM ARE YOU USING IN YOUR CAPM?

A. I am using an equity risk premium of 4.35%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY CFOS?

A. Yes. In the previously referenced March 2010 CFO survey conducted by *CFO Magazine* and Duke University, the expected 10-year equity risk premium was 3.92%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EX ANTE EQUITY RISK PREMIUMS OF PROFESSIONAL FORECASTERS?

A. Yes. The financial forecasters in the previously referenced Federal Reserve Bank of Philadelphia survey project both stock and bond returns. As shown on Panels D and E of page 8 of Exhibit JRW-11, the mean long-term expected stock and bond returns were 7.27% and 4.52%, respectively. This provides an ex ante equity risk premium of 2.25%.

Q. IS YOUR EX ANTE EQUITY RISK PREMIUM CONSISTENT WITH THE EQUITY RISK PREMIUMS USED BY THE LEADING CONSULTING FIRMS?

A. Yes. McKinsey & Co. is widely recognized as the leading management consulting firm in the world. It published a study entitled "The Real Cost of Equity" in which the McKinsey authors developed an ex ante equity risk

premium for the U.S. In reference to the decline in the equity risk premium, as well as what is the appropriate equity risk premium to employ for corporate valuation purposes, the McKinsey authors concluded the following:

> We attribute this decline not to equities becoming less risky (the inflation-adjusted cost of equity has not changed) but to investors demanding higher returns in real terms on government bonds after the inflation shocks of the late 1970s and early 1980s. We believe that using an equity risk premium of 3.5 to 4 percent in the current environment better reflects the true long-term opportunity cost of equity capital and hence will yield more accurate valuations for companies.[16]

Q. HAS MCKINSEY RECENTLY REAFFIRMED ITS OPINION ON THE EQUITY RISK PREMIUM IN LIGHT OF THE FINANCIAL CRISIS?

A. Yes. As previously discussed, McKinsey has recently published a study in which they reaffirm their estimate of the equity risk premium in light of the financial turmoil of the past two years.[17]

Q. WHAT EQUITY COST RATE IS INDICATED BY YOUR CAPM ANALYSIS?

A. The results of my CAPM study for the proxy group are provided below:

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Electric Proxy Group	**4.75%**	**0.70**	**4.35%**	**7.8%**

These results are summarized on page 1 of Exhibit JRW-11.

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[16] Marc H. Goedhart, et al, "The Real Cost of Equity," *McKinsey on Finance* (Autumn 2002), p. 15.

[17] Richard Dobbs, Bin Jang, and Timothy Koeller, "Why the Crisis Hasn't Shaken the Cost of Capital," *McKinsey Quarterly* (December 2008), p. 1-6.

D. Equity Cost Rate Summary

Q. PLEASE SUMMARIZE YOUR EQUITY COST RATE STUDY.

A. The results for my DCF and CAPM analyses for the proxy group of electric utility companies are indicated below:

	DCF	CAPM
Electric Proxy Group	**9.5%**	**7.8%**

Q. GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST RATE FOR THE GROUP?

A. Given these results, I conclude that the appropriate equity cost rate for Electric Proxy Group in the 7.8%-9.5% range. However, since I give greater weight to the DCF model, I am using the upper end of the range as the equity cost rate. Therefore I am recommending an equity cost rate of 9.5% for KU.

VI. CRITIQUE OF KU'S RATE OF RETURN TESTIMONY

Q. PLEASE SUMMARIZE KU'S OVERALL RATE OF RETURN RECOMMENDATION.

A. KU's' rate of return recommendation is provided by Mr. Bernard Rivas and Dr. William E. Avera. KU' rate of return recommendation is summarized on page 1 of Exhibit JRW-12. The Company's recommended capital structure

consists of 46.14% long-term debt and 53.86% common equity. KU has employed a long-term debt cost rate of 4.61% and an equity cost rate of 11.50%.

Q. WHAT ISSUES DO YOU HAVE WITH THE COMPANY'S COST OF CAPITAL POSITION?

A. The primary areas of disagreement in measuring KU's cost of capital are: (1) the appropriate capital structure; (2) a suitable proxy group to use in estimating an equity cost rate for KU; (3) the use of the projected growth rates of Wall Street analysts to measure expected DCF growth; (4) the measurement and magnitude of the equity risk premium used in CAPM approach; and (5) the validity of the Expected Earnings equity cost rate approach; (6) the adjustment for flotation costs; and (7) whether an downward adjustment should be made to account for the SFV rate redesign. I have previously discussed the capital structure issue. The other issues are addressed below.

1. Proxy Group

Q. PLEASE DISCUSS THE PROBLEM WITH DR. AVERA'S UTILITY PROXY GROUP.

A. Dr. Avera has included a fourteen-company combination utility proxy group. These companies are listed primarily as combination electric and gas companies

by *AUS Utilities Reports* and as electric utility companies by *Value Line.* Summary financial statistics for this group are provided on page 2 of Exhibit JRW-13. Dr. Avera's group only receives 69% of revenues from regulated electric operations. Therefore, I believe that my Electric Proxy Group is more appropriate for estimating an equity cost rate for KU.

Q. PLEASE DISCUSS THE PROBLEM WITH DR. AVERA'S NON-UTILITY PROXY GROUP.

A. Dr. Avera has estimated an equity cost rate for KU using a proxy group of 67 non-utility companies. These companies are listed in Exhibit WEA-7. This group includes such companies as Abbott Labs, Coca-Cola, General Mills, Hewlett Packard, IBM, Johnson & Johnson, McDonald's, Medtronic, Microsoft, and NIKE. While many of these companies are large and successful, their lines of business are vastly different from the electric utility business and they do not operate in a highly regulated environment. As such, the non-utility group is not an appropriate proxy for KU, and therefore the equity cost rate results for this group should be ignored.

2. DCF Approach

Q. PLEASE SUMMARIZE DR. AVERA'S DCF ESTIMATES.

A. On pages 29-43 of his testimony and in Exhibits WEA-2 – WEA-5, Dr. Avera develops an equity cost rate by applying a DCF model to his two proxy group. In the traditional DCF approach, the equity cost rate is the sum of the dividend

yield and expected growth. For the DCF growth rate, Dr. Avera uses four measures of projected EPS growth – the projected EPS growth of Wall Street analysts as compiled by IBES and Zack's, *Value Line* projected EPS growth. He also uses two other indicators of growth - projected stock price growth rate and the sum of internal ("br") and external ("sv") growth. Dr. Avera's DCF results are summarized in Panel B of page 1 of Exhibit JRW-13. The average of the DCF results are 10.5% for the Utility Proxy Group and 12.7% for the Non-Utility Proxy Group.

Q. PLEASE EXPRESS YOUR CONCERNS WITH DR. AVERA'S DCF STUDY.

A. I have several issues with Dr. Avera's DCF equity cost rate; (1) the two proxy group; (2) most significantly, the reliance on the EPS growth rate forecasts of Wall Street analysts and *Value Line* for his DCF growth rate; and (3) the flotation cost adjustment. The errors in the proxy group were discussed above. The growth rate measures and flotation costs are reviewed below.

Q. PLEASE CRITIQUE DR. AVERA'S DCF GROWTH RATE MEASURES.

A. Dr. Avera employs six different DCF growth rate measures - the projected EPS growth of Wall Street analysts as compiled by IBES, First Call, and Zack's, *Value Line*'s projected EPS and stock price growth rate, and a sustainable growth rate as measured by the sum of internal ("br") and external ("sv") growth.

As shown in Panel B of page 1 of Exhibit JRW-13, Dr. Avera's average DCF results are for the utility and the non-utility proxy group are 10.5% and 12.7%, respectively. As noted above, the non-utility group is not an appropriate proxy for KU.

For the utility proxy group, the average DCF growth rate from the six measures is 5.8%. To assess the growth for the utility proxy group, I have computed historic and projected growth rates for EPS, DPS, and BVPS for the group on page 3 of Exhibit JRW-13. Historic growth rates for the utility proxy group are highly variable, with a median figure of 3.7%. The median for the projected growth rates in EPS, DPS, and BVPS for group is 4.3%. As such, Dr. Avera's DCF growth rate of 5.8% for the utility proxy group is excessive and not appropriate. This inflates his DCF equity cost rate estimate. As discussed below, it is my opinion that this is due to his exclusive reliance on the overly optimistic and upwardly biased forecasts of Wall Street analysts and *Value Line*.

Q. PLEASE DISCUSS DR. AVERA'S RELIANCE ON THE PROJECTED GROWTH RATES OF WALL STREET ANALYSTS AND *VALUE LINE.*

A. It seems highly unlikely that investors today would rely exclusively on the forecasts of securities analysts and ignore historical growth in arriving at expected growth. It is well known in the academic world that the EPS forecasts of securities analysts are overly optimistic and biased upwards. In addition, as I show below, *Value Line*'s EPS and stock price growth rate forecasts are excessive and unrealistic.

Q. PLEASE REVIEW THE ACADEMIC RESEARCH ON THE ACCURACY OF ANALYSTS' NEAR-TERM EPS ESTIMATES AND LONG-TERM EPS GROWTH RATE FORECASTS.

A. There is a long history of studies that evaluate how well analysts forecast near-term EPS estimates and long-term EPS growth rates. Most of the early studies evaluated the accuracy of earnings forecasts for the next quarter or the next year. These studies document that analysts make overly optimistic EPS earnings forecasts (Stickel, 1990; Brown, 1997; Chopra, 1998).[18] Harris (1999) published the first study examining the accuracy of long-term EPS growth rate forecasts.[19] He evaluated the accuracy of analysts' long-term EPS forecasts over the 1982-1997 time period. He concluded the following: (1) the accuracy of analysts' long-term EPS forecasts is very low; (2) a superior long-run method to forecast that all companies will have an earnings growth rate equal to historic GDP growth; and (3) analysts' long-term EPS forecasts are significantly upwardly biased, with forecasted earnings growth exceeding actual earnings growth by seven percent per annum. Subsequent studies by DeChow, P., A. Hutton, and R. Sloan (2000), and Chan, Karceski, and Lakonishok (2003) also conclude that analysts' long-term EPS growth rate forecasts are overly optimistic and upwardly biased.[20]

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[18] S. Stickel, "Predicting Individual Analyst Earnings Forecasts," *Journal of Accounting Research*, Vol. 28, 409-417, 1990. Brown, L.D., "Analyst Forecasting Errors: Additional Evidence, " *Financial Analysts Journal*, Vol. 53, 81-88, 1997, and Chopra, V.K., "Why So Much Error in Analysts' Earnings Forecasts? " *Financial Analysts Journal*, Vol. 54, 30-37, 1998.

[19] R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting* (June/July 1999), pp. 725-55.

[20] P. DeChow,, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research (2000)* and K. Chan, L., Karceski, J., & Lakonishok, J. (2003). The Level and Persistence of Growth Rates, "*Journal of Finance* (2003) 58, pp. 643–684.

More recent studies have shown that the optimistic bias tends to be larger for longer-term forecasts and smaller for forecasts made nearer to the EPS announcement date. Richardson, Teoh, and Wysocki, P (2004) report that the upward bias in earnings growth rates declines in the quarters leading up to the earnings announcement date.[21] They call this result the "walk-down to beatable analyst forecasts." They hypothesize that the walk-down might be driven by the "earning-guidance game," in which analysts give optimistic forecasts at the start of a fiscal year, then revise their estimates downwards until the firm can beat the forecasts at earnings announcement date.

In sum, there have been many studies of analysts' earnings forecasts. The studies conclude (almost unanimously) that analysts' earnings forecasts of short-term earnings estimates and long-term earnings growth rates are overly optimistic. In terms of analysts' projections long-term earnings growth, all previous studies have come to this conclusion.

Q. PLEASE DISCUSS YOUR STUDY OF THE ACCURACY OF ANALYSTS' LONG-TERM EARNINGS GROWTH RATES.

A. To evaluate the accuracy of analysts' EPS forecasts, I have compared actual 3-5 year EPS growth rates with forecasted EPS growth rates on a quarterly basis over the past 20 years for all companies covered by the I/B/E/S data base. In Panel A of page 1 of Exhibit JRW-14, I show the average analysts' forecasted 3-5 year EPS growth rate with the average actual 3-5 year EPS

[21] S. Richardson, S. Teoh, and P. Wysocki, "The Walk-Down to Beatable Analyst Forecasts: The Role of Equity Issuance and Insider Trading Incentives, " *Contemporary Accounting Research*, (2004), pp. 885–924.

growth rate for the past twenty years.

The following example shows how the results can be interpreted. For the 3-5 year period prior to the first quarter of 1999, analysts had projected an EPS growth rate of 15.13%, but companies only generated an average annual EPS growth rate over the 3-5 years of 9.37%. This projected EPS growth rate figure represented the average projected growth rate for over 1,510 companies, with an average of 4.88 analysts' forecasts per company. For the entire twenty-year period of the study, for each quarter there were on average 5.6 analysts' EPS projections for 1,281 companies. Overall, my findings indicate that forecast errors for long-term estimates are predominantly positive, which indicates an upward bias in growth rate estimates. The mean and median forecast errors over the observation period are 143.06% and 75.08%, respectively. The forecasting errors are negative for only eleven of the eighty quarterly time periods: five consecutive quarters starting at the end of 1995 and six consecutive quarters starting in 2006. As shown in Panel A of page 1 of Exhibit JRW-14, the quarters with negative forecast errors were for the 3-5 year periods following earnings declines associated with the 1991 and 2001 economic recessions in the U.S. Thus, there is evidence of a persistent upward bias in long-term EPS growth forecasts.

The average 3-5 year EPS growth rate projections for all companies provided in the I/B/E/S database on a quarterly basis from 1988 to 2008 are shown in Panel B of page 1 of Exhibit JRW-14. In this graph, no comparison to actual EPS growth rates is made, and hence, there is no follow-up period.

Therefore, since companies are not lost from the sample due to a lack of follow-up EPS data, these results are for a larger sample of firms. Analysts' forecasts for EPS growth were higher for this larger sample of firms, with a more pronounced run-up and then decline around the stock market peak in 2000. The average projected growth rate hovered in the 14.5%-17.5% range until 1995 and then increased dramatically over the next five years to 23.3% in the fourth quarter of the year 2000. Forecasted EPS growth has since declined to the 15.0% range.

Q. IS THE UPWARD BIAS IN ANALYSTS' GROWTH RATE FORECASTS GENERALLY KNOWN IN THE MARKETS?

A. Yes. Page 2 of Exhibit JRW-14 provides an article published in the *Wall Street Journal*, dated March 21, 2008, that discusses the upward bias in analysts' EPS growth rate forecasts.

Q. PLEASE ADDRESS THE ISSUE REGARDING THE SUPERIORITY OF ANALYSTS' EPS FORECASTS OVER HISTORIC AND TIME-SERIES ESTIMATES OF EPS GROWTH?

A. As highlighted by the classic study by Brown and Rozeff (1976) and the other studies that followed, analysts' forecasts of quarterly earnings estimates are superior to the estimates derived from historic and time-series analyses.[22] This is often attributed to the information and timing advantage that analysts have over historic and time-series analyses. However, more recently Bradshaw, Drake, Myers, and Myers (2009) discovered that time-series estimates of annual

[22] L. Brown, and M. Rozeff, "The Superiority of Analyst Forecasts as Measures of Expectations: Evidence from Earnings," *The Journal of Finance* 33 (1): pp. 1-16.

earnings are more accurate over longer horizons than analysts' forecasts of earnings. As the authors state, "These findings suggest an incomplete and misleading generalization about the superiority of analysts' forecasts over even simple time-series-based earnings forecasts."[23]

With respect to long-term earnings growth, analysts' forecasts of long-term growth have not been found to be superior to other historic growth rate measures. Harris (1999) concluded that historic GDP growth was superior to analysts' forecasts for long run earnings growth. These results are supported by empirical results of Chan, Karceski, and Lakonishok (2003).

Q. WHAT IMPACT HAS NEW STOCK MARKET AND REGULATORY DEVELOPMENTS HAD ON ANALYSTS' EPS GROWTH RATE FORECASTS?

A. Analysts' EPS growth rate forecasts have subsided somewhat since the stock market peak of 2000. Two regulatory developments over the past decade have potentially impacted analysts EPS growth rate estimates. First, Regulation Fair Disclosure ("Reg FD") was introduced by the SEC in October of 2000. Reg FD prohibits private communication between analysts and management so as to level the information playing field in the markets. With Reg FD, analysts are less dependent on gaining access to management to obtain information and therefore are not as likely to make optimistic forecasts to gain access to management. Second, the conflict of interest within investment firms with investment banking and analysts operations was

[23] M. Bradshaw, M. Drake, J. Myers, and L. Myers, "A Re-examination of Analysts' Superiority Over Time-Series Forecasts," Workings paper, 1999, http://ssrn.com/abstract=1528987.

addressed in the Global Analysts Research Settlements ("GARS"). GARS, as agreed upon on April 23, 2003 between the SEC, NASD, NYSE and ten of the largest U.S. investment firms, includes a number of regulations that were introduced to prevent investment bankers from pressuring analysts to provide favorable projections.

The impact of these regulatory developments on the accuracy of short-term EPS estimates was addressed in a recent study by Hovakimian and Saenyasiri (2009).[24] They investigate analysts' forecasts of annual earnings for the following time periods: (1) the time prior to Reg FD (1984-2000); (2) the time period after Reg FD but prior to GARS (2000-2002);[25] and (3) the time period after GARS (2002-2006). For the pre-Reg FD period, Hovakimian and Saenyasiri find that analysts generally make overly optimistic forecasts of annual earnings. The forecast bias is higher for early forecasts, and steadily declines in the months leading up to the earnings announcement. The results are similar for the time period after Reg FD but prior to GARS. However, the bias is lower in the later forecasts (the forecasts made just prior to the announcement). For the time period after GARS, the average forecasts declined significantly, but a positive bias remains. In sum, Hovakimian and Saenyasiri find that: (1) analysts make overly optimistic short-term forecasts of annual earnings; (2) Reg FD had no effect on this bias;

[24] A. Hovakimian and E. Saenyasiri, "Conflicts of Interest and Analysts Behavior: Evidence from Recent Changes in Regulation," Working Paper, April 20, 2009 (SSRN No, 1133102).

[25] Whereas the GARS settlement was signed in 2003, rules addressing analysts' conflict of interest by separating the research and investment banking activities of analysts went into effect with the passage of NYSE and NASD rules in July of 2002.

and (3) GARS did result in a significant reduction in the bias, but analysts' short-term forecasts of annual earnings still has a small positive bias.

Whereas Hovakimian and Saenyasiri evaluated the impact of regulations on analysts' short-term EPS estimates, there is little research on the impact of Reg FD and GARS on the long-term EPS forecasts of Wall Street analysts. My study with Patrick Cusatis did find that the long-term EPS growth rate forecasts of analysts did not decline significantly and have continued to be overly-optimistic in the post Reg FD and GARS period. Analysts' long-term EPS growth rate forecasts before and after GARS are about two times the level of historic GDP growth. These observations are supported by a *Wall Street Journal* article entitled "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." The following quote provides insight into the continuing bias in analysts' forecasts:

> Hope springs eternal, says Mark Donovan, who manages Boston Partners Large Cap Value Fund. "You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not."
>
> These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed. Research remains rosy and many believe it always will.[26]

[26] Ken Brown, "Analysts Still Coming Up Rosy – Over-Optimism on Growth Rates is Rampant – and the Estimates Help to Buoy the Market's Valuation." *Wall Street Journal*, (January 27, 2003), p. C1.

Q. ARE THESE OBSERVATIONS CONSISTENT WITH THE FINDINGS OF A RECENT MCKINSEY STUDY ON THE IMPACT OF THESE REGULATIONS ON THE ACCURACY OF ANALYSTS' EPS GROWTH RATE FORECASTS?

A. Yes. McKinsey recently published a study entitled "Equity Analysts: Still too Bullish" in which they reported on a study of the accuracy on analysts long-term EPS growth rate forecasts. They concluded that after a decade of stricter regulation, analysts' earnings long-term earnings forecasts continue to be excessively optimistic.

They made the following observation: [27]

> Alas, a recently completed update of our work only reinforces this view—despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest. For executives, many of whom go to great lengths to satisfy Wall Street's expectations in their financial reporting and long-term strategic moves, this is a cautionary tale worth remembering. This pattern confirms our earlier findings that analysts typically lag behind events in revising their forecasts to reflect new economic conditions. When economic growth accelerates, the size of the forecast error declines; when economic growth slows, it increases. So as economic growth cycles up and down, the actual earnings S&P 500 companies report occasionally coincide with the analysts' forecasts, as they did, for example, in 1988, from 1994 to 1997, and from 2003 to 2006. Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12 percent a year, compared with actual earnings growth of 6 percent. Over this time frame, actual earnings growth surpassed forecasts in only two instances, both during the earnings recovery following a recession. On average, analysts' forecasts have been almost 100 percent too high.

[27] Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, Equity Analysts, Still Too Bullish," McKinsey on Finance (Spring 2010), pp. 14-17).

Q. ARE ANALYSTS' EPS GROWTH RATE FORECASTS LIKEWISE UPWARDLY BIASED FOR UTILITY COMPANIES?

A. Yes. To evaluate whether analysts' EPS growth rate forecasts are upwardly biased for utility companies, I conducted a study similar to the one described above using a group of electric utility and gas distribution companies. The results are shown on Panels A and B of page 3 of Exhibit JRW-14. The projected EPS growth rates for electric utilities have been in the four to six percent range over the last twenty years, with the recent figures approximately five percent. As shown, the achieved EPS growth rates have been volatile, and on average below the projected growth rates. Over the entire period, the average quarterly 3-5 year projected and actual EPS growth rates are 4.59% and 2.90%, respectively. For gas distribution companies, the projected EPS growth rates have declined from about six percent in the 1990s to about five percent in the 2000s. The achieved EPS growth rates have been volatile. Over the entire period, the average quarterly 3-5 year projected and actual EPS growth rates are 5.15% and 4.53%, respectively. Overall, the upward bias in EPS growth rate projections for electric utility and gas distribution companies is not as pronounced as it is for all companies. Nonetheless, the results here are consistent with the results for companies in general -- analysts' projected EPS growth rate forecasts are upwardly-biased for utility companies.

Q. ARE *VALUE LINE*'S GROWTH RATE FORECASTS OVERLY OPTIMISTIC?

A. Yes. *Value Line* has a decidedly positive bias to its earnings growth rate forecasts as well. To assess *Value Line*'s earnings growth rate forecasts, I used the *Value Line Investment Analyzer*. The results are summarized in Panel A of Page 4 of Exhibit JRW-14. I initially filtered the database and found that *Value Line* has 3-5 year EPS growth rate forecasts for 2,619 firms. The average projected EPS growth rate was 13.28%. This is high given that the average historical EPS growth rate in the U.S. is about 7%. A major factor seems to be that *Value Line* only predicts negative EPS growth for 124 companies. This is less than five percent of the companies covered by *Value Line*. Given the ups and downs of corporate earnings, this is unreasonable.

To put this figure in perspective, I screened the *Value Line* companies to see what percent of companies covered by *Value Line* had experienced negative EPS growth rates over the past five years. *Value Line* reported a five-year historic growth rate for 2,281 companies. The results are shown in Panel B of of page 4 of Exhibit JRW-14 and indicate that the average 5-year historic growth rate was 14.12%, and *Value Line* reported negative historic growth for 421 firms which represents 18.46% of these companies.

These results indicate that *Value Line*'s EPS forecasts are excessive and unrealistic. It appears that the analysts at *Value Line* are similar to their Wall Street brethren in that they are reluctant to forecast negative earnings growth.

Q. PLEASE DISCUSS THE ISSUE INVOLVING DR. AVERA'S SUSTAINABLE GROWTH ANALYSIS.

A. Dr. Avera's sustainable growth rate analysis indicates an average growth rate for the group of 5.7% for the combination utility proxy group (column F of WEA-4). The primary error with his approach is that these sustainable growth rate figures are higher than the average *Value Line*'s projected BVPS growth rate, which is only 4.5% for the combination utility proxy group (see Panel D on page 3 of Exhibit JRW-13). This suggests that his methodology is flawed, in that it produces higher sustainable growth rates (using *Value Line* data) than the sustainable growth that *Value Line* actually is forecasting.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. AVERA'S DCF GROWTH RATE.

A. Dr. Avera's DCF equity cost rate is overstated because he has relied so heavily on the upwardly biased EPS growth rate forecasts of Wall Street analysts and *Value Line*. In addition, his sustainable growth rate methodology is flawed, since it produces higher sustainable growth rates (using *Value Line* data) than the sustainable growth that *Value Line* actually is forecasting.

3. CAPM Approach

Q. PLEASE DISCUSS DR. AVERA'S CAPM.

A. On pages 43 to 47 and Exhibits WEA-6 and WEA-7, Dr. Avera applies the CAPM method to his two proxy group. His results are summarized in Panel C of page 1 of Exhibit JRW-13.

Q. WHAT ARE THE ERRORS IN DR. AVERA'S CAPM ANALYSIS?

A. There are two flaws with Dr. Avera's CAPM analysis: (1) his proxy group; and (2) his equity risk premium of 7.50%. In addition, it should be emphasized that he has ignored his CAPM results. The proxy group issue was previously discussed.

Q. PLEASE REVIEW DR. AVERA'S EQUITY OR MARKET RISK PREMIUM IN HIS CAPM APPROACH.

A. The primary problem with Dr. Avera's CAPM analysis is the size of the market or equity risk premium. Dr. Avera develops an expected market risk premium of 7.50% by: (1) applying the DCF model to the S&P 500 to get an expected market return; and (2) subtracting the risk-free rate of interest. Dr. Avera's estimated market return of 11.9% for the S&P 500 equals the sum of the dividend yield of 2.7% and expected EPS growth rate of 9.2%. The expected EPS growth rate is the average of the expected EPS growth rates from Thompson Reuters. The primary error in this approach is his expected DCF growth rate. As previously discussed, the expected EPS growth rates of Wall Street analysts are upwardly biased. Therefore, as explained below, this produces an overstated expected market return and equity risk premium.

Q. BEYOND YOUR PREVIOUS DISCUSSION OF THE UPWARD BIAS IN WALL STREET ANALYSTS' AND *VALUE LINE*'S EPS GROWTH RATE FORECASTS, WHAT OTHER EVIDENCE CAN YOU PROVIDE THAT THE DR. AVERA'S S&P 500 GROWTH RATE IS EXCESSIVE?

A. A long-term EPS growth rate of 9.2% is inconsistent with economic and earnings growth in the U.S. The long-term economic and earnings growth rate in the U.S. has been only about 7%. I have performed a study of the growth in nominal GDP, S&P 500 stock price appreciation, and S&P 500 EPS and DPS growth since 1960. The results are provided on page 1 of Exhibit JRW-15, and a summary is given in the table below.

GDP, S&P 500 Stock Price, EPS, and DPS Growth 1960-Present

Nominal GDP	**6.96%**
S&P 500 Stock Price Appreciation	**6.21%**
S&P 500 EPS	**6.22%**
S&P 500 DPS	**5.07%**
Average	**6.12%**

These results offer compelling evidence that a long-run growth rate of in the 6%-7% is appropriate for companies in the U.S. By comparison, Dr. Avera's long-run growth rate projection of 9.2% is not realistic. Dr. Avera's estimates suggest that companies in the U.S. would be expected to: (1) increase their growth rate of EPS by 50% in the future and (2) maintain that growth indefinitely in an economy that is expected to grow at about one half his projected growth rates. Such a scenario is not economically feasible or reasonable.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF DR. AVERA'S EQUITY RISK PREMIUM OF 7.50% DERIVED USING AN EXPECTED MARKET RETURN OF 11.9%.

A. Dr. Avera's equity risk premium derived from an expected market return of 11.9% is inflated and does not reflect current market fundamentals or prospective economic and earnings growth. As previously discussed, at the present time stock prices (relative to earnings and dividends) are high while interest rates are low. Major stock market upswings that produce above average returns tend to occur when stock prices are low and interest rates are high. Thus, current market conditions do not suggest above-average expected market return. Consistent with this observation, the financial forecasters in the Federal Reserve Bank of Philadelphia survey expect a market return of 7.27% over the next ten years. In addition, the *CFO Magazine* – Duke University Survey of over 500 CFOs published in March 2010 of 2009 shows an expected return on the S&P 500 of 7.62% over the next ten years.

Q. FINALLY, PLEASE DISCUSS DR. AVERA'S MARKET RISK PREMIUM AND CAPM RESULTS IN LIGHT OF THE EVIDENCE ON RISK PREMIUMS IN TODAY'S MARKETS.

A. Dr. Avera's market risk premium of 7.50% is in excess of the equity risk premium estimates discovered in recent academic studies by leading finance scholars and is especially out of touch with the real world of finance. Investment banks, consulting firms, and CFOs use the equity risk premium concept every day in making financing, investment, and valuation decisions. The results of studies and surveys from the real world of finance indicate an

equity risk premium in the 4% to 5% percent range and not in the 10% percent range.

4. Expected Earnings Approach

Q. PLEASE DISCUSS DR. AVERA'S EXPECTED EARNINGS ANALYSIS.

A. In pages 47-48 of his testimony and Exhibit WEA-8, Dr. Avera estimates equity cost rates of 11.4% for the utility proxy group using an approach he calls the Expected Earnings ("EE") approach. These results are summarized in Panel D of page 1 of Exhibit JRW-13. His methodology simply involves using the expected ROE for the companies in the proxy group as estimated by *Value Line*. This approach is fundamentally flawed for several reasons. First, these ROE results include the profits associated with the unregulated operations of the utility proxy group. As previously noted, the unregulated operations are significant for several of the utility proxy group companies. More importantly, since Dr. Avera has not evaluated the market-to-book ratios for these companies, he cannot indicate whether the past and projected returns on common equity are above or below investors' requirements. These returns on common equity are excessive if the market-to-book ratios for these companies are above 1.0.

5. Flotation Costs

Q. PLEASE DISCUSS DR. AVERA'S ADJUSTMENT FOR FLOTATION COSTS.

A. Dr. Avera claims that an upward adjustment to the equity cost rate is necessary for flotation costs. This adjustment factor is erroneous for several reasons. First, the Company has not identified any actual flotation costs for the Company. Therefore, the Company is requesting annual revenues in the form of a higher return on equity for flotation costs that have not been identified. Second, it is commonly argued that a flotation cost adjustment (such as that used by the Company) is necessary to prevent the dilution of the existing shareholders. In this case, a flotation cost adjustment is justified by reference to bonds and the manner in which issuance costs are recovered by including the amortization of bond flotation costs in annual financing costs. However, this is incorrect for several reasons:

(1) If an equity flotation cost adjustment is similar to a debt flotation cost adjustment, the fact that the market-to-book ratios for utility companies are at about 1.5X actually suggests that there should be a flotation cost reduction (and not increase) to the equity cost rate. This is because when (a) a bond is issued at a price in excess of face or book value, and (b) the difference between market price and the book value is greater than the flotation or issuance costs, the cost of that debt is lower than the coupon rate of the debt. The amount by which market values of utility companies are in excess of

book values is much greater than flotation costs. Hence, if common stock flotation costs were exactly like bond flotation costs, and one was making an explicit flotation cost adjustment to the cost of common equity, the adjustment would be downward;

(2) If a flotation cost adjustment is needed to prevent dilution of existing stockholders' investment, then the reduction of the book value of stockholder investment associated with flotation costs can occur only when a company's stock is selling at a market price at/or below its book value. As noted above, utility companies are selling at market prices well in excess of book value. Hence, when new shares are sold, existing shareholders realize an increase in the book value per share of their investment, not a decrease;

(3) Flotation costs consist primarily of the underwriting spread or fee and not out-of-pocket expenses. On a per share basis, the underwriting spread is the difference between the price the investment banker receives from investors and the price the investment banker pays to the company. Hence, these are not expenses that must be recovered through the regulatory process. Furthermore, the underwriting spread is known to the investors who are buying the new issue of stock, who are well aware of the difference between the price they are paying to buy the stock and the price that the Company is receiving. The offering price which they pay is what matters when investors decide to buy a stock based on its expected return and risk prospects. Therefore, the company is not entitled to an adjustment to the allowed return to account for those costs; and

(4) Flotation costs, in the form of the underwriting spread, are a form of a transaction cost in the market. They represent the difference between the price paid by investors and the amount received by the issuing company. Whereas the Company believes that it should be compensated for these transactions costs, they have not accounted for other market transaction costs in determining a cost of equity for the Company. Most notably, brokerage fees that investors pay when they buy shares in the open market are another market transaction cost. Brokerage fees increase the effective stock price paid by investors to buy shares. If the Company had included these brokerage fees or transaction costs in their DCF analysis, the higher effective stock prices paid for stocks would lead to lower dividend yields and equity cost rates. This would result in a downward adjustment to their DCF equity cost rate.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Appendix A
Educational Background, Research, and Related Business Experience
J. Randall Woolridge

J. Randall Woolridge is a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed Faculty Fellow in Business Administration in the College of Business Administration of the Pennsylvania State University in University Park, PA. In addition, Professor Woolridge is Director of the Smeal College Trading Room and President and CEO of the Nittany Lion Fund, LLC.

Professor Woolridge received a Bachelor of Arts degree in Economics from the University of North Carolina, a Master of Business Administration degree from the Pennsylvania State University, and a Doctor of Philosophy degree in Business Administration (major area-finance, minor area-statistics) from the University of Iowa. At Iowa he received a Graduate Fellowship and was awarded membership in Beta Gamma Sigma, a national business honorary society. He has taught Finance courses at the University of Iowa, Cornell College, and the University of Pittsburgh, as well as the Pennsylvania State University. These courses include corporation finance, commercial and investment banking, and investments at the undergraduate, graduate, and executive MBA levels.

Professor Woolridge's research has centered on the theoretical and empirical foundations of corporation finance and financial markets and institutions. He has published over 35 articles in the best academic and professional journals in the field, including the *Journal of Finance,* the *Journal of Financial Economics,* and the *Harvard Business Review.* His research has been cited extensively in the business press. His work has been featured in the *New York Times*, *Forbes, Fortune, The Economist*, *Financial World*, *Barron's*, *Wall Street Journal*, *Business Week*, *Washington Post*, *Investors' Business Daily*, *Worth Magazine*, *USA Today*, and other publications. In addition, Dr. Woolridge has appeared as a guest to discuss the implications of his research on CNN's *Money Line*, CNBC's *Morning Call* and *Business Today*, and Bloomberg's *Morning Call.*

Professor Woolridge's popular stock valuation book, *The StreetSmart Guide to Valuing a Stock* (McGraw-Hill, 2003), was released in its second edition. He has also co-authored *Spinoffs and Equity Carve-Outs: Achieving Faster Growth and Better Performance* (Financial Executives Research Foundation, 1999) as well as a textbook entitled *Applied Principles of Finance* (Kendall Hunt, 2006). Dr. Woolridge is a founder and a managing director of www.valuepro.net - a stock valuation website.

Professor Woolridge has also consulted with and prepared research reports for major corporations, financial institutions, and investment banking firms, and government agencies. In addition, he has directed and participated in over 500 university- and company- sponsored professional development programs for executives in 25 countries in North and South America, Europe, Asia, and Africa.

Dr. Woolridge has prepared testimony and/or provided consultation services in the following cases:

Pennsylvania: Dr. Woolridge has prepared testimony on behalf of the Pennsylvania Office of Consumer Advocate in the following cases before the Pennsylvania Public Utility Commission; Bell Telephone Company (R-811819), Peoples Natural Gas Company (R-832315), Pennsylvania Power Company (R-832409), Western Pennsylvania Water Company (R-832381), Pennsylvania Power Company (R-842740), Pennsylvania Gas and Water Company (R-850178), Metropolitan Edison Company (R-860384), Pennsylvania Electric Company (R-860413), North Penn Gas Company (R-860535), Philadelphia Electric Company (R-870629), Western Pennsylvania Water Company (R-870825), York Water Company (R-870749), Pennsylvania-American Water Company (R-880916), Equitable Gas Company (R-880971), the Bloomsburg Water Co. (R-891494), Columbia Gas of Pennsylvania, Inc. (R-891468), Pennsylvania-American Water Company (R-90562), Breezewood Telephone Company (R-901666), York Water Company (R-901813), Columbia Gas of Pennsylvania, Inc. (R-901873), National Fuel Gas Corporation (R-911912), Pennsylvania-American Water Company (R-911909), Borough of Media Water Fund (R-912150), UGI Utilities, Inc. - Electric Utility Division (R-922195), Dauphin Consolidated Water Supply Company - General Waterworks of Pennsylvania, Inc, (R-932604), National Fuel Gas Corporation (R-932548), Commonwealth Telephone Company (I-

920020), Conestoga Telephone and Telegraph Company (I-920015), Peoples Natural Gas Company (R-932866), Blue Mountain Consolidated Water Company (R-932873), National Fuel Gas Corporation (R-942991), UGI - Gas Division (R-953297), UGI - Electric Division (R-953534), Pennsylvania-American Water Company (R-973944), Pennsylvania-American Water Company (R-994638), Philadelphia Suburban Water Company (R-994868;R-994877;R-994878; R-9948790), Philadelphia Suburban Water Company (R-994868), Wellsboro Electric Company (R-00016356), Philadelphia Suburban Water Company (R-00016750), National Fuel Gas Corporation (R-00038168), Pennsylvania-American Water Company (R-00038304), York Water Company (R-00049165), Valley Energy Company (R-00049345), Wellsboro Electric Company (R-00049313), National Fuel Gas Corporation (R-00049656), T.W. Phillips Gas and Oil Co. (R-00051178), PG Energy (R-00061365), City of Dubois Water Company (Docket No. R-00050671), R-00049165), York Water Company (R-00061322), Emporium Water Company (R-00061297), Pennsylvania-American Water Company (R-00072229), UGI Central Penn Gas (Docket No. R-2008-2079675).

New Jersey: Dr. Woolridge prepared testimony for the New Jersey Department of the Public Advocate, Division of Rate Counsel: New Jersey-American Water Company (R-91081399J), New Jersey-American Water Company (R-92090908J), and Environmental Disposal Corp. (R-94070319).

Alaska: Dr. Woolridge prepared testimony for Attorney General's Office of Alaska: Golden Heart Utilities, Inc. and College Utilities Corp. (Water Public Utility Service TA-29-118 and Sewer Public Utility Service TA-82-97), Anchorage Water and Wastewater Utility (TA-106-122).

Arizona: Dr. Woolridge prepared testimony for Utility Division staff of the Arizona Corporation Commission, Arizona Public Service Company (Docket No. E-01345A-06-0009).

Hawaii: Dr. Woolridge prepared testimony for the Hawaii Office of the Consumer Advocate: East Honolulu Community Services, Inc. (Docket No. 7718).

Delaware: Dr. Woolridge prepared testimony for the Delaware Division of Public Advocate: Artesian Water Company (R-00-649). Dr. Woolridge prepared testimony for the staff of the Public Service Commission: Artesian Water Company (R-06-158).

Ohio: Dr. Woolridge prepared testimony for the Ohio Office of Consumers' Council: SBC Ohio (Case No. 02-1280-TP-UNC R-00-649), Cincinnati Gas & Electric Company (Case No. 05-0059-EL-AIR), Dominion East Ohio Company (Case No. 07-829-GA-AIR), Cleveland Electric Illuminating Company and Toledo Edison Company (Case No. 08-935-EL-SSO), Columbia Gas of Ohio, Inc. (Case No. 08-0072-GA-AIR), and Columbus Southern Power Company (Case No. 08-917-EL-SSO).

Texas: Dr. Woolridge prepared testimony for the Atmos Cities Steering Committee: Mid-Texas Division of Atmos Energy Corp. (Docket No. 9670).

New York: Dr. Woolridge prepared testimony for the County of Nassau in New York State: Long Island Lighting Company (PSC Case No. 942354).

Florida: Dr. Woolridge prepared testimony for the Office of Public Counsel in Florida: Florida Power & Light Co. (Docket No. 050045-EL), Tampa Electric Company (Docket No 080317-EI), Peoples Gas Company (Docket No 080318-GU), Florida Power & Light Co. (Docket Nos. 080677-EI & 090130-EI), and Progress Energy Florida, (Docket No. 090079-EI).

Appendix A
Educational Background, Research, and Related Business Experience
J. Randall Woolridge

Nebraska: Dr. Woolridge prepared testimony for the Office of Public Advocate: Source Gas Distribution Co. (Docket No. NG-0060).

Indiana: Dr. Woolridge prepared testimony for the Indiana Office of Utility Consumer Counsel (OUCC) in the following cases: Southern Indiana Gas and Electric Company (IURC Cause No. 43111 and IURC Cause No. 43112), and Northern Indiana Public Service Company (IURC Cause No. 43526).

Oklahoma: Dr. Woolridge prepared testimony for the Oklahoma Industrial Energy Companies (OIEC) in the following cases: Public Service Company of Oklahoma (Cause No. PUD 200600285), Oklahoma Gas & Electric Company (Cause No. PUD 200700012).

Connecticut: Dr. Woolridge prepared testimony for the Office of Consumer Counsel in Connecticut: United Illuminating (Docket No. 96-03-29), Yankee Gas Company (Docket No. 04-06-01), Southern Connecticut Gas Company (Docket No. 03-03-17), the United Illuminating Company (Docket No. 05-06-04), Connecticut Light and Power Company (Docket No. 05-07-18), Birmingham Utilities, Inc. (Docket No. 06-05-10), Connecticut Water Company (Docket No. 06-07-08), Connecticut Natural Gas Corp. (Docket No. 06-03-04), Aquarion Water Company (Docket No. 07-05-09), Yankee Gas Company (Docket No. 06-12-02), Connecticut Light and Power Company (Docket No. 07-07-01), the United Illuminating Company (Docket No. 08-07-03), Connecticut Natural Gas Corp. (Docket No. 08-12-06), and Southern Connecticut Gas Company (Docket No. 08-12-06).

California: Dr. Woolridge prepared testimony for the Office of Ratepayer Advocate in California: San Gabriel Valley Water Company (Docket No. 05-08-021), Pacific Gas & Electric (Docket No. 07-05-008), San Diego Gas & Electric (Docket No. 07-05-007), Southern California Edison (Docket No. 07-05-003), California-American Water Company (Docket No. 08-05-003), Golden State Water Company (Docket No. 08-05-004), and California Water Service Company (Docket No. 08-05-002).

Colorado: Dr. Woolridge prepared testimony for the Office of Consumer Counsel in Colorado: Public Service Company of Colorado (Docket No. 09AL-299E).

South Carolina: Dr. Woolridge prepared testimony for the Office of Regulatory Staff in South Carolina: South Carolina Electric and Gas Company (Docket No. 2005-113-G), Carolina Water Service Co. (Docket No. 2006-87-WS), Tega Cay Water Company (Docket No. 2006-97-WS), United Utilities Companies, Inc. (Docket No. 2006-107-WS).

Missouri: Dr. Woolridge prepared testimony for the Department of Energy in Missouri: Kansas City Power & Light Company (Case No. ER-2006-0314). Dr. Woolridge prepared testimony for the Office of Attorney General of Missouri: Union Electric Company (CASE NO. ER-2007-0002).

Kentucky: Dr. Woolridge prepared testimony for the Office of Attorney General in Kentucky: Kentucky-American Water Company (Case No. 2004-00103), Union Heat, Light, and Power Company (Case No. 2004-00042), Kentucky Power Company (Case No. 2005-00341), Union Heat, Light, and Power Company (Case No. 2006-00172), Atmos Energy Corp. (Case No. 2006-00464), Columbia Gas Company (Case No. 2007-00008), Delta Natural Gas Company (Case No. 2007-00089), Kentucky-American Water Company (Case No. 2007-00143).

Massachusetts: Dr. Woolridge prepared testimony for the Office of Attorney General: National Grid (Docket No. D.P.U. 09-39).

Washington, D.C.: Dr. Woolridge prepared testimony for the Office of the People's Counsel in the District of Columbia:

Potomac Electric Power Company (Formal Case No. 939), and Potomac Electric Power Company (Formal Case No. 1036).

Washington: Dr. Woolridge consulted with trial staff of the Washington Utilities and Transportation Commission on the following cases: Puget Energy Corp. (Docket Nos. UE-011570 and UG-011571); and Avista Corporation (Docket No. UE-011514).

Kansas: Dr. Woolridge prepared testimony on behalf of the Kansas Citizens' Utility Ratepayer Board in the following cases: Western Resources Inc. (Docket No. 01-WSRE-949-GIE), UtiliCorp (Docket No. 02-UTCG701-CIG), and Westar Energy, Inc. (Docket No. 05-WSEE-981-RTS).

Utah: Dr. Woolridge prepared testimony on behalf of the Utah Committee on Consumer Services (CCS) in the following case: Questar Gas Company (Docket No. No. 07-057-13).

FERC: Dr. Woolridge has prepared testimony on behalf of the Pennsylvania Office of Consumer Advocate in the following cases before the Federal Energy Regulatory Commission: National Fuel Gas Supply Corporation (RP-92-73-000) and Columbia Gulf Transmission Company (RP97-52-000).

Vermont: Dr. Woolridge prepared testimony for the Department of Public Service in the Central Vermont Public Service (Docket No. 6988) and Vermont Gas Systems, Inc. (Docket No. 7160).

Exhibit JRW-1

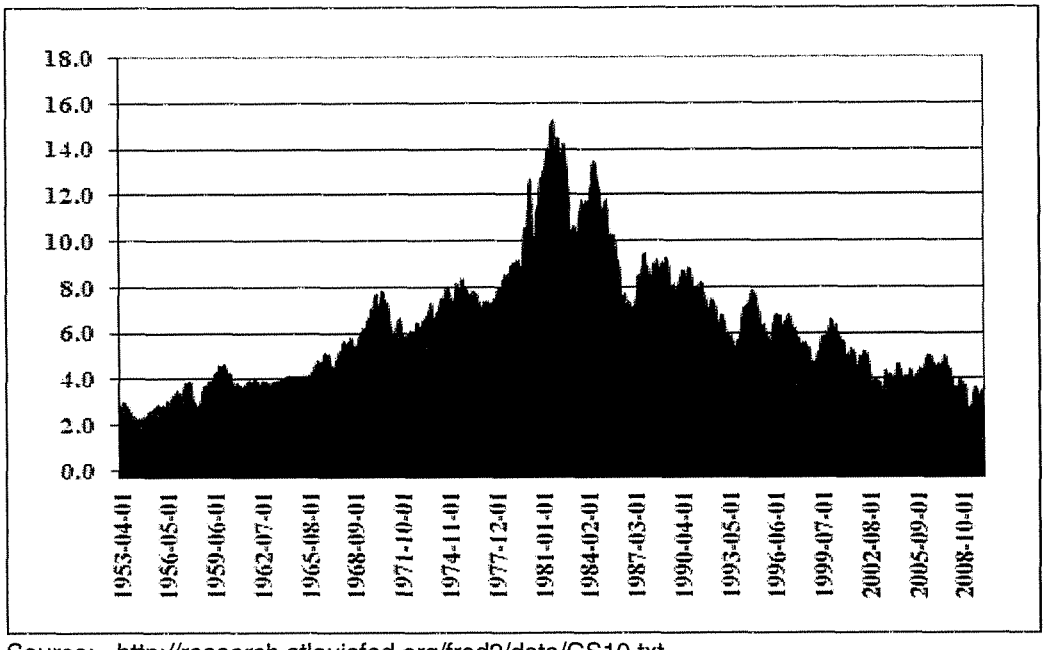
Kentucky Utilities Company

Electric Utility Operations
Capitalization at October 31, 2009

Capital Source	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Short-Term Debt	0.00%	0.22%	0.00%
Long-Term Debt	50.00%	4.61%	2.31%
Common Equity	50.00%	9.50%	4.75%
Total	100.00%		7.06%

Exhibit JRW-2

Panel A
Ten-Year Treasury Yields
1953-Present



Source: http://research.stlouisfed.org/fred2/data/GS10.txt

Panel B
Long-Term Moody's Baa Yields Minus Ten-Year Treasury Yields
2000-Present

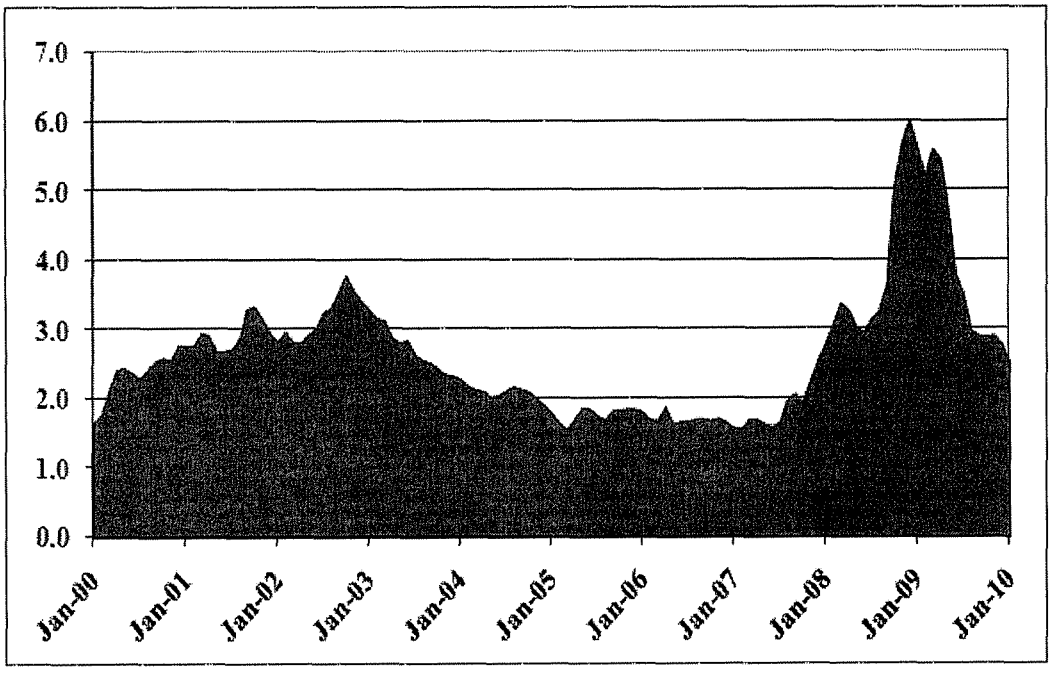
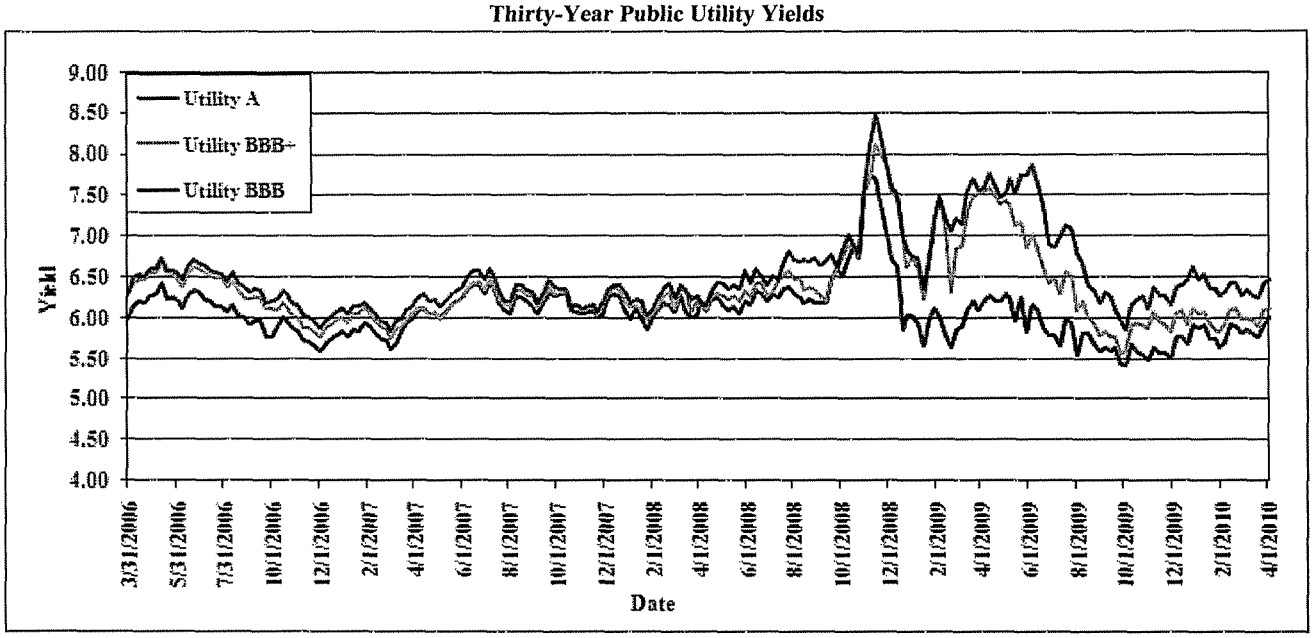


Exhibit JRW-3
Panel A
Thirty-Year Public Utility Yields



Panel B
Thirty-Year Public Utility Yield Spread Over Treasuries

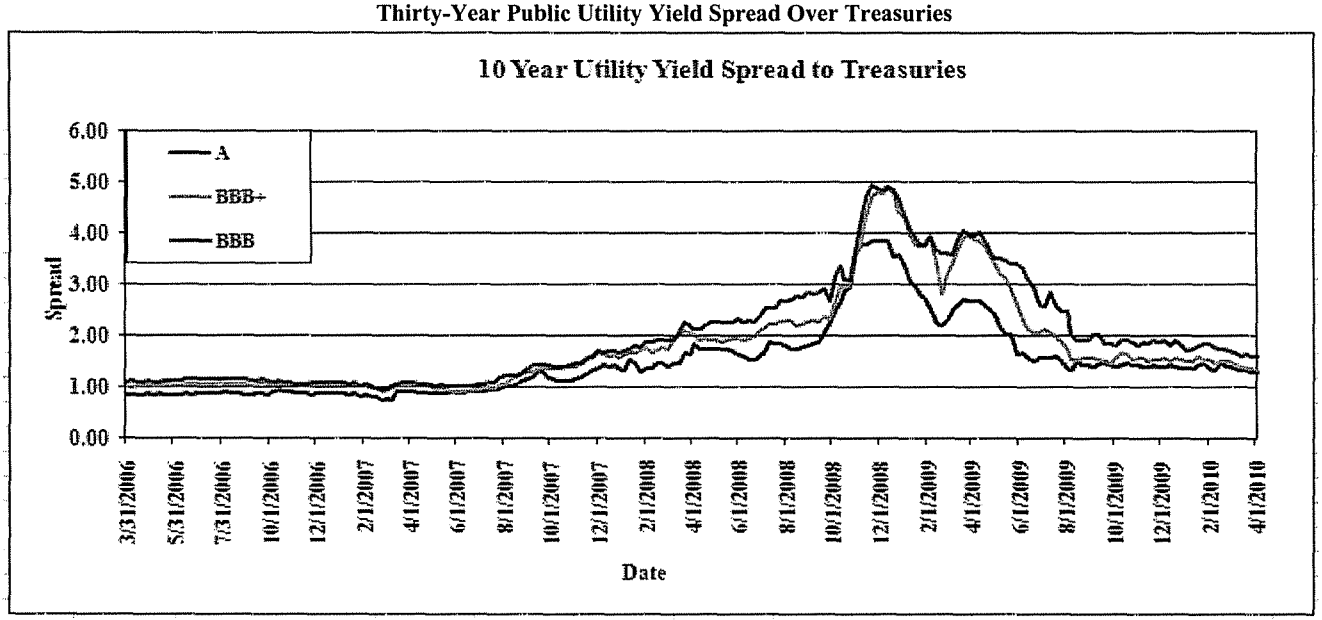


Exhibit JRW-4

Kentucky Utilities Company

Summary Financial Statistics

Electric Proxy Group

Company	Operating Revenue ($mil)	Percent Elec Revenue	Net Plant ($mil)	S&P Bond Rating	Moody's Bond Rating	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio	Return on Equity	Market to Book Ratio
ALLETE, Inc. (NYSE-ALE)	759.1	91	1,622.7	A-	A2	3.5	MN, WS	57	6.9	127
American Electric Power Co. (NYSE-AEP)	13,489.0	94	34,344.0	BBB	Baa2	3.1	11 States	43	11.5	125
Central Vermont Public Serv. Corp. (NYSE-CV)	342.1	100	356.1	NR	Baa1	3.7	VT	52	9.0	102
Cleco Corporation (NYSE-CNL)	853.8	95	2,247.0	BBB	Baa2	2.2	LA	46	9.8	145
DPL Inc.(NYSE-DPL)	1,588.9	100	2,892.2	A	Aa3	5.1	OH	45	22.1	286
Edison International (NYSE-EIX)	12,361.0	81	21,966.0	A	A1	3.5	CA	45	8.8	113
Empire District Electric Co. (NYSE-EDE)	497.2	87	1,459.0	BBB+	Baa1	2.0	MO,KS,OK,AR	45	7.3	106
FirstEnergy Corporation (NYSE-FE)	12,967.0	86	19,164.0	BBB+	Baa1	3.6	OH,PA,NJ	36	11.9	141
Hawaiian Electric Industries, Inc. (NYSE-HE)	2,189.0	99	2,736.8	BBB	Baa2	2.6	HI	45	11.6	141
IDACORP, Inc. (NYSE-IDA)	1,049.8	100	2,917.0	A-	NR	2.8	ID,OR	50	9.2	119
Northeast Utilities (NYSE-NU)	5,439.6	80	8,840.0	BBB+	A3	2.8	CT,NH,MA	43	10.0	130
NSTAR (NYSE-NST)	3,050.0	84	4,575.2	AA-	A1	3.6	MA	44	13.8	201
Pinnacle West Capital Corp. (NYSE-PNW)	3,297.1	96	9,257.8	BBB-	Baa2	1.9	AZ	46	2.0	114
PPL Corporation (NYSE-PPL)	7,556.0	52	13,174.0	A-	A3	4.0	PA	40	7.7	196
Portland General Electric (NYSE-POR)	1,804.0	98	3,858.0	A-	A3	2.3	OR	47	6.6	91
Progress Energy Inc. (NYSE-PGN)	9,885.0	97	19,733.0	A-	A1	3.1	NC,SC,FL	43	8.3	115
Southern Company (NYSE-SO)	15,743.0	99	39,230.0	A	A2	4.1	GA,AL,FL,MS	44	11.4	168
UIL Holdings Corporation (NYSE-UIL)	896.6	100	1,153.0	NR	Baa2	3.7	CT	44	10.4	138
UniSource Energy Corporation (NYSE-UNS)	1,394.4	84	2,785.7	BBB+	NR	na	AZ	29	14.6	151
Xcel Energy Inc. (NYSE-XEL)	9,644.3	80	18,508.3	A-	A2	2.9	CO, MN,WS,ND,SD,MI	45	9.5	133
Mean	5,240.3	90	10,541.0	A-	A3	3.2		44	10.1	142.02
Median	2,619.5	95	4,216.6	A-	A3	3.1		45	9.6	131.54

Data Source: AUS *Utility Reports*, April, 2010; Pre-Tax Interest Coverage and Primary Service Territory are from *Value Line Investment Survey*, 2010.

Exhibit JRW-5
Kentucky Utilities Company
Capital Structure Ratios

Panel A - KU's Recommended Capitalization Ratios and Debt Cost Rate

Capital Source	Capitalization Amount*	Capitalization Ratio*	Cost Rate
Short-Term Debt	0	0.00%	0.22%
Long-Term Debt	833,116,472	46.14%	4.61%
Common Equity	972,675,295	53.86%	
Total	1,805,791,767	100.00%	

Panel B - Electric Proxy Group Average Quarterly Capital Structure Ratios

Capital	12/31/09	9/30/09	6/30/09	3/31/09	Average
Short-Term Debt	4.61%	4.71%	5.98%	5.98%	5.32%
Long-Term Debt	49.28%	50.22%	48.12%	50.33%	49.49%
Preferred Stock	0.02%	0.02%	0.02%	0.02%	0.02%
Common Equity	43.94%	43.79%	42.00%	40.80%	42.63%
Total Capital	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Page 3 of Exhibit JRW-5.

Panel C - OAG Recommended Capitalization Ratios and Debt Cost Rate

Capital	Capitalization Ratios	Cost Rate
Short-Term Debt	0.00%	0.22%
Long-Term Debt	50.00%	4.61%
Common Equity	50.00%	
Total Capital	100.00%	

Kentucky Utilities Company
Capital Structure Ratios
Electric Proxy Group

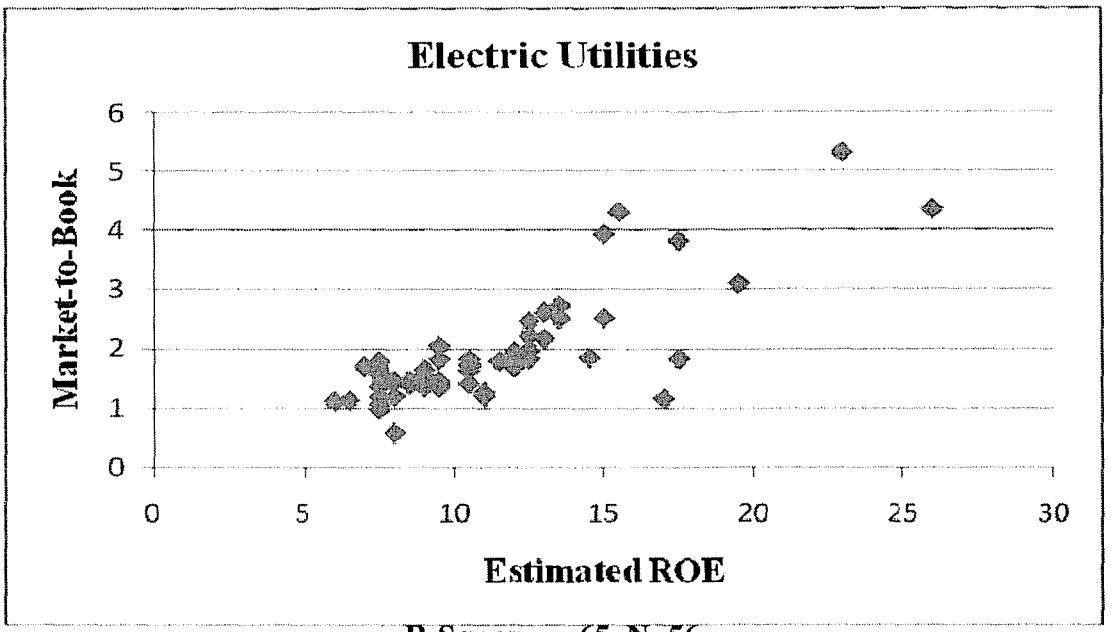
		12/31/09	9/30/09	6/30/09	3/31/09		12/31/09	9/30/09	6/30/09	3/31/09
ALE						ALE				
	Short Term Debt	7,100	17,300	13,000	14,000	Short Term Debt	0.43%	1.12%	0.86%	0.94%
	Long-Term Debt	695,800	628,400	627,200	627,100	Long-Term Debt	42.62%	40.51%	41.39%	42.09%
	Preferred Stock					Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	929,500	905,600	875,200	848,700	Common Equity	56.94%	58.38%	57.75%	56.97%
	Total	1,632,400	1,551,300	1,515,400	1,489,800	Total	100.00%	100.00%	100.00%	100.00%
AEP						AEP				
	Short Term Debt	1,987,000	2,028,000	2,066,000	3,094,000	Short Term Debt	6.42%	6.54%	6.81%	10.25%
	Long-Term Debt	15,757,000	15,863,000	15,488,000	16,078,000	Long-Term Debt	50.92%	51.14%	51.01%	53.29%
	Preferred Stock	61,000	61,000	61,000	61,000	Preferred Stock	0.20%	0.20%	0.20%	0.20%
	Common Equity	13,140,000	13,064,000	12,745,000	10,940,000	Common Equity	42.46%	42.12%	41.98%	36.26%
	Total	30,945,000	31,016,000	30,360,000	30,173,000	Total	100.00%	100.00%	100.00%	100.00%
CV						AEP				
	Short Term Debt	1,219	6,450	6,869	6,813	Short Term Debt	0.27%	1.51%	1.62%	1.62%
	Long-Term Debt	205,924	182,764	184,827	184,901	Long-Term Debt	46.11%	42.91%	43.54%	43.88%
	Preferred Stock	8,054	8,054	8,054	8,054	Preferred Stock	1.80%	1.89%	1.90%	1.91%
	Common Equity	231,423	228,619	224,758	221,647	Common Equity	51.82%	53.68%	52.95%	52.60%
	Total	446,620	425,887	424,508	421,415	Total	100.00%	100.00%	100.00%	100.00%
CNL						AVA				
	Short Term Debt	25,245	28,999	40,945	91,518	Short Term Debt	1.03%	1.22%	1.93%	4.30%
	Long-Term Debt	1,320,299	1,238,238	1,120,757	1,091,220	Long-Term Debt	53.61%	51.91%	52.82%	51.28%
	Preferred Stock	1029	1029	1029	1029	Preferred Stock	0.04%	0.04%	0.05%	0.05%
	Common Equity	1,116,072	1,117,096	959,221	944,106	Common Equity	45.32%	46.83%	45.20%	44.37%
	Total	2,462,645	2,385,362	2,121,952	2,127,873	Total	100.00%	100.00%	100.00%	100.00%
DPL						EIX				
	Short Term Debt	100,600	115,700	153,800	150,700	Short Term Debt	4.07%	4.50%	5.99%	5.91%
	Long-Term Debt	1,223,500	1,375,800	1,375,900	1,376,000	###### Long-Term Debt	49.54%	53.52%	53.57%	53.93%
	Preferred Stock	22,900	22,900	22,900	22,900	Preferred Stock	0.93%	0.89%	0.89%	0.90%
	Common Equity	1,122,800	1,056,100	1,015,900	1,001,800	Common Equity	45.46%	41.09%	39.55%	39.26%
	Total	2,469,800	2,570,500	2,568,500	2,551,400	Total	100.00%	100.00%	100.00%	100.00%
EIX						EIX				
	Short Term Debt	569,000	1,035,000	599,000	2,002,000	Short Term Debt	2.62%	4.66%	2.61%	8.12%
	Long-Term Debt	10,437,000	10,448,000	11,832,000	11,975,000	###### Long-Term Debt	47.98%	47.04%	51.61%	48.58%
	Preferred Stock	907,000	907,000	907,000	907,000	Preferred Stock	4.17%	4.08%	3.96%	3.68%
	Common Equity	9,841,000	9,823,000	9,590,000	9,768,000	Common Equity	45.24%	44.22%	41.83%	39.62%
	Total	21,754,000	22,213,000	22,928,000	24,652,000	Total	100.00%	100.00%	100.00%	100.00%
EDE						EDE				
	Short Term Debt	105,858	119,632	149,968	78,673	Short Term Debt	7.57%	8.72%	11.36%	6.06%
	Long-Term Debt	692,719	687,289	641,357	690,675	Long-Term Debt	49.52%	50.12%	48.58%	53.21%
	Preferred Stock					Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	600,150	564,421	528,854	528,587	Common Equity	42.91%	41.16%	40.06%	40.73%
	Total	1,398,727	1,371,342	1,320,179	1,297,935	Total	100.00%	100.00%	100.00%	100.00%
FE						FE				
	Short Term Debt	3,015,000	3,673,000	4,381,000	4,541,000	Short Term Debt	12.36%	14.83%	18.44%	20.19%
	Long-Term Debt	12,813,000	12,606,000	10,399,000	9,697,000	Long-Term Debt	52.54%	50.89%	43.78%	43.12%
	Preferred Stock					Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	8,559,000	8,492,000	8,973,000	8,250,000	Common Equity	35.10%	34.28%	37.78%	36.69%
	Total	24,387,000	24,771,000	23,753,000	22,488,000	Total	100.00%	100.00%	100.00%	100.00%
HE						HE				
	Short Term Debt	367,884	443,858	436,071		Short Term Debt	11.66%	14.50%	14.27%	0.00%
	Long-Term Debt	1,364,784	1,214,733	1,214,681	1,892,474	Long-Term Debt	43.26%	39.69%	39.76%	57.66%
	Preferred Stock					Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	1,421,908	1,401,746	1,404,103	1,389,454	Common Equity	45.07%	45.80%	45.96%	42.34%
	Total	3,154,576	3,060,337	3,054,855	3,281,928	Total	100.00%	100.00%	100.00%	100.00%
IDA						IDA				
	Short Term Debt	63,090	84,064	83,502	90,133	Short Term Debt	2.20%	3.06%	3.10%	3.36%
	Long-Term Debt	1,409,730	1,282,900	1,283,570	1,279,884	Long-Term Debt	49.12%	46.69%	47.65%	47.78%
	Preferred Stock					Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	1,397,335	1,380,478	1,326,415	1,308,686	Common Equity	48.69%	50.25%	49.25%	48.86%
	Total	2,870,155	2,747,442	2,693,487	2,678,703	Total	100.00%	100.00%	100.00%	100.00%
NU						NU				
	Short Term Debt	204,216	448,331	645,518	655,421	Short Term Debt	2.43%	5.31%	6.45%	6.49%
	Long-Term Debt	4,492,935	4,345,028	5,748,336	5,875,179	Long-Term Debt	53.54%	51.46%	57.42%	58.15%
	Preferred Stock	116,200	116,200	116,200	116,200	Preferred Stock	1.38%	1.38%	1.16%	1.15%
	Common Equity	3,577,902	3,533,418	3,501,843	3,456,072	Common Equity	42.64%	41.85%	34.98%	34.21%
	Total	8,391,253	8,442,977	10,011,897	10,102,872	Total	100.00%	100.00%	100.00%	100.00%
NST						NST				
	Short Term Debt	1,024,240	862,041	729,715	639,964	Short Term Debt	20.88%	18.26%	16.83%	14.67%
	Long-Term Debt	1,966,441	1,945,325	1,741,290	1,868,975	Long-Term Debt	40.08%	41.20%	40.17%	42.84%
	Preferred Stock	43,000	43,000	43,000	43,000	Preferred Stock	0.88%	0.91%	0.99%	0.99%
	Common Equity	1,872,606	1,870,769	1,821,286	1,810,506	Common Equity	38.17%	39.63%	42.01%	41.50%
	Total	4,906,287	4,721,135	4,335,291	4,362,445	Total	100.00%	100.00%	100.00%	100.00%

Kentucky Utilities Company
Capital Structure Ratios
Electric Proxy Group

PNW		12/31/09	9/30/09	6/30/09	3/31/09	PNW		12/31/09	9/30/09	6/30/09	3/31/09
	Short Term Debt	487,316	290,929	721,626	573,936		Short Term Debt	6.79%	4.04%	9.68%	7.90%
	Long-Term Debt	3,370,524	3,519,934	3,528,987	3,529,109		Long-Term Debt	46.98%	48.84%	47.32%	48.57%
	Preferred Stock						Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	3,316,109	3,396,662	3,206,805	3,162,902		Common Equity	46.22%	47.13%	43.00%	43.53%
	Total	7,173,949	7,207,525	7,457,418	7,265,947		Total	100.00%	100.00%	100.00%	100.00%
PPL						PPL					
	Short Term Debt	2,141,000	2,045,000	2,865,000	1,076,000		Short Term Debt	14.49%	12.66%	17.18%	8.22%
	Long-Term Debt	7,143,000	8,177,000	8,296,000	6,781,000		Long-Term Debt	48.33%	50.60%	49.74%	51.79%
	Preferred Stock						Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	5,496,000	5,937,000	5,519,000	5,237,000		Common Equity	37.19%	36.74%	33.09%	40.00%
	Total	14,780,000	16,159,000	16,680,000	13,094,000		Total	100.00%	100.00%	100.00%	100.00%
POR						POR					
	Short Term Debt	314,000	373,000	186,000	435,000		Short Term Debt	9.20%	10.76%	5.93%	12.42%
	Long-Term Debt	1,558,000	1,541,000	1,408,000	1,530,000		Long-Term Debt	45.64%	44.43%	44.90%	43.69%
	Preferred Stock						Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	1,542,000	1,554,000	1,542,000	1,537,000		Common Equity	45.17%	44.81%	49.17%	43.89%
	Total	3,414,000	3,468,000	3,136,000	3,502,000		Total	100.00%	100.00%	100.00%	100.00%
PGN						PGN					
	Short Term Debt	736,000	896,000	1,309,000	1,286,000		Short Term Debt	3.25%	4.11%	5.88%	5.68%
	Long-Term Debt	12,272,000	11,328,000	11,577,000	12,014,000		Long-Term Debt	54.20%	51.98%	51.99%	53.03%
	Preferred Stock	93,000	93,000	93,000	93,000		Preferred Stock	0.41%	0.43%	0.42%	0.41%
	Common Equity	9,542,000	9,474,000	9,289,000	9,261,000		Common Equity	42.14%	43.48%	41.71%	40.88%
	Total	22,643,000	21,791,000	22,268,000	22,654,000		Total	100.00%	100.00%	100.00%	100.00%
SO						SO					
	Short Term Debt	1,877,000	1,624,453	1,363,563	1,040,790		Short Term Debt	5.12%	4.54%	3.64%	3.14%
	Long-Term Debt	18,131,000	18,010,235	21,278,731	17,805,963		Long-Term Debt	49.44%	50.33%	56.73%	53.66%
	Preferred Stock	1,082,000	1,082,000	1,082,000	1,082,000		Preferred Stock	2.95%	3.02%	2.88%	3.26%
	Common Equity	15,585,000	15,069,416	13,783,670	13,252,708		Common Equity	42.49%	42.11%	36.75%	39.94%
	Total	36,675,000	35,786,104	37,507,964	33,181,461		Total	100.00%	100.00%	100.00%	100.00%
UIL						UIL					
	Short Term Debt	58,256	109,112	108,861	215,286		Short Term Debt	3.97%	8.30%	8.55%	16.77%
	Long-Term Debt	835,642	625,402	594,443	591,866		Long-Term Debt	56.92%	47.59%	46.68%	46.09%
	Preferred Stock						Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	574,176	579,543	570,248	476,943		Common Equity	39.11%	44.10%	44.78%	37.14%
	Total	1,468,074	1,314,057	1,273,552	1,284,095		Total	100.00%	100.00%	100.00%	100.00%
UNS						UNS					
	Short Term Debt	108,822	127,272	163,798	130,534		Short Term Debt	4.10%	4.76%	5.98%	4.93%
	Long-Term Debt	1,796,144	1,798,347	1,877,872	1,842,405		Long-Term Debt	67.63%	67.31%	68.55%	69.61%
	Preferred Stock						Preferred Stock	0.00%	0.00%	0.00%	0.00%
	Common Equity	750,865	746,230	697,747	673,867		Common Equity	28.27%	27.93%	25.47%	25.46%
	Total	2,655,831	2,671,849	2,739,417	2,646,806		Total	100.00%	100.00%	100.00%	100.00%
XEL						XEL					
	Short Term Debt	1,049,368	737,811	901,946	953,865		Short Term Debt	6.39%	4.50%	5.44%	5.88%
	Long-Term Debt	7,888,628	8,273,091	328,210	8,010,693		Long-Term Debt	48.01%	50.41%	1.98%	49.38%
	Preferred Stock	104,980	104,980	104,980	104,980		Preferred Stock	0.64%	0.64%	0.63%	0.65%
	Common Equity	7,388,225	7,296,160	15,234,341	7,154,062		Common Equity	44.96%	44.46%	91.94%	44.10%
	Total	16,431,201	16,412,042	16,569,477	16,223,600		Total	100.00%	100.00%	100.00%	100.00%
Summary		9/30/09	6/30/09	3/31/09	12/31/08	Summary		9/30/09	6/30/09	3/31/09	12/31/08
Mean	Short Term Debt	6.26%	6.89%	7.63%	7.34%	Median	Short Term Debt	4.61%	4.71%	5.98%	5.98%
	Long-Term Debt	49.80%	48.93%	46.96%	50.58%		Long-Term Debt	49.28%	50.22%	48.12%	50.33%
	Preferred Stock	0.67%	0.67%	0.65%	0.66%		Preferred Stock	0.02%	0.02%	0.02%	0.02%
	Common Equity	43.27%	43.50%	44.76%	41.42%		Common Equity	43.94%	43.79%	42.00%	40.80%
	Total	100.00%	100.00%	100.00%	100.00%		Total	100.00%	100.00%	100.00%	100.00%

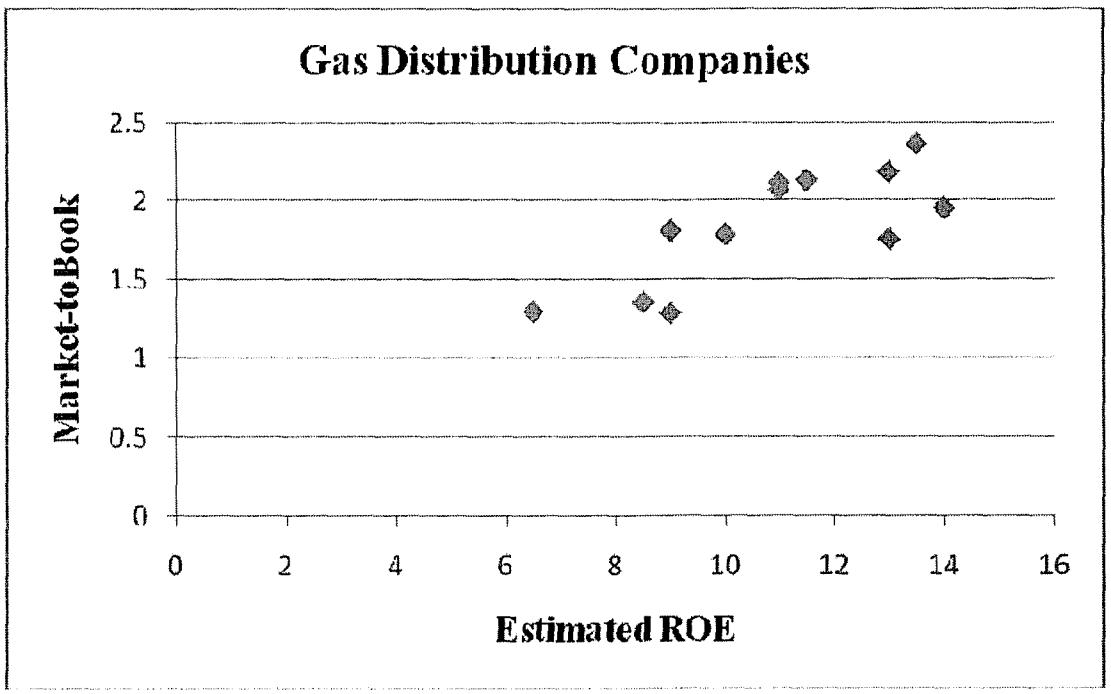
Exhibit JRW-6

Panel A



R-Square = .65, N=56.

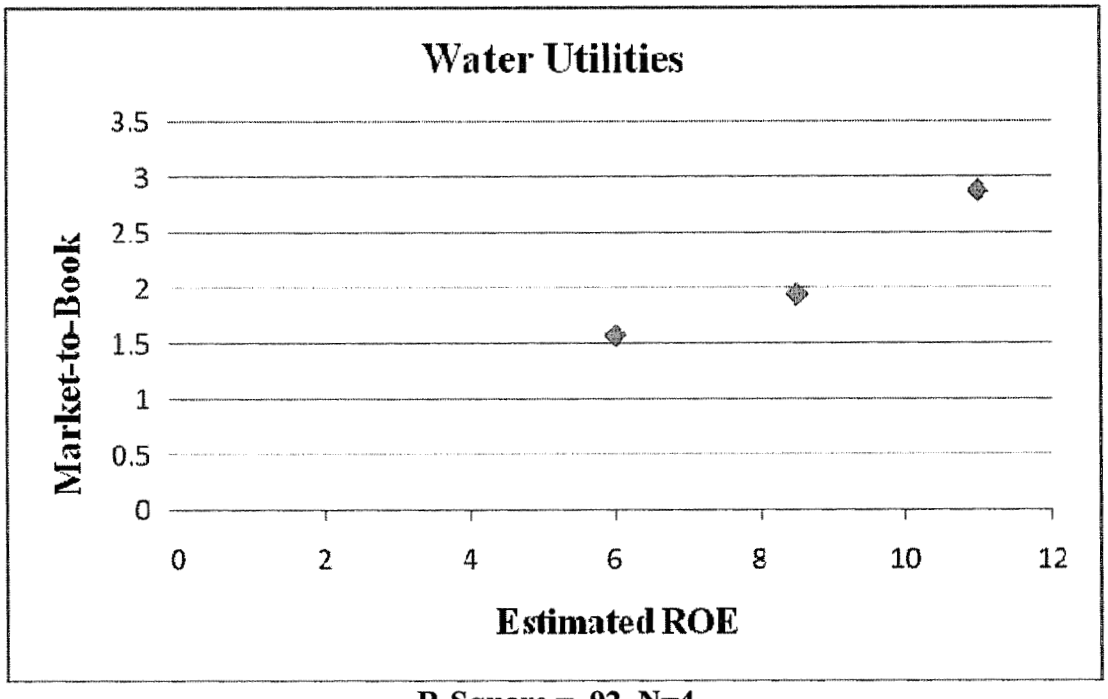
Panel B



R-Square = .60, N=12.

Exhibit JRW-6

Panel C



R-Square = .92, N=4.

Exhibit JRW-7
Long-Term 'A' Rated Public Utility Bonds

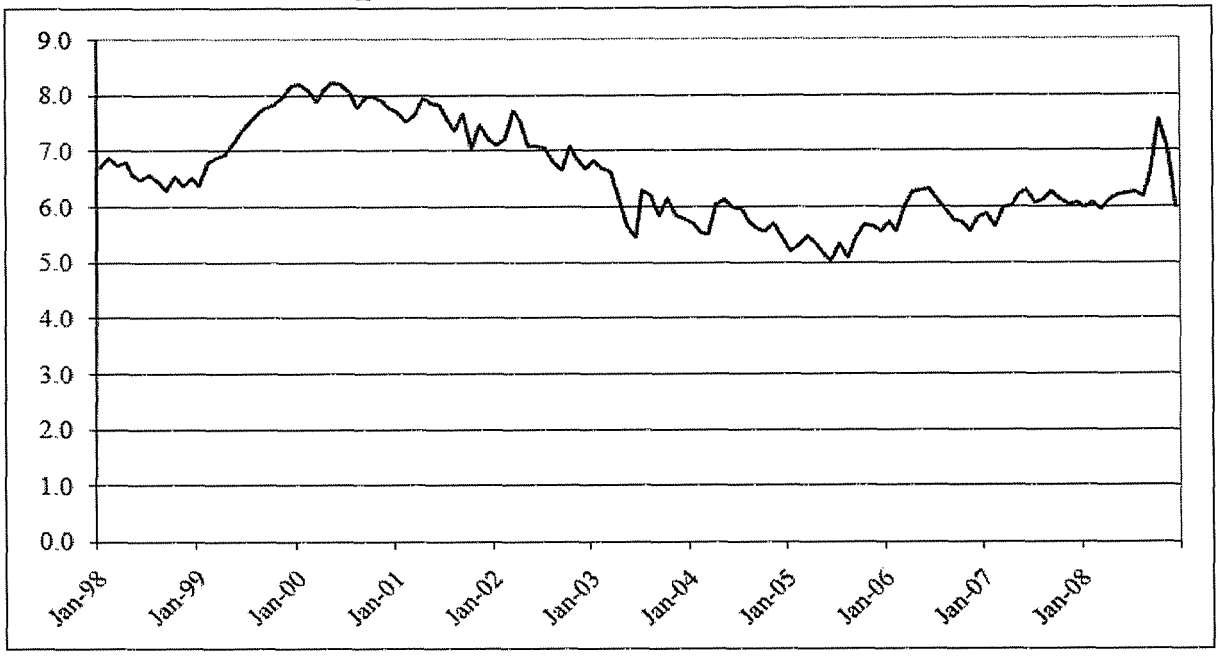


Exhibit JRW-7

Electric Proxy Group Average Dividend Yield

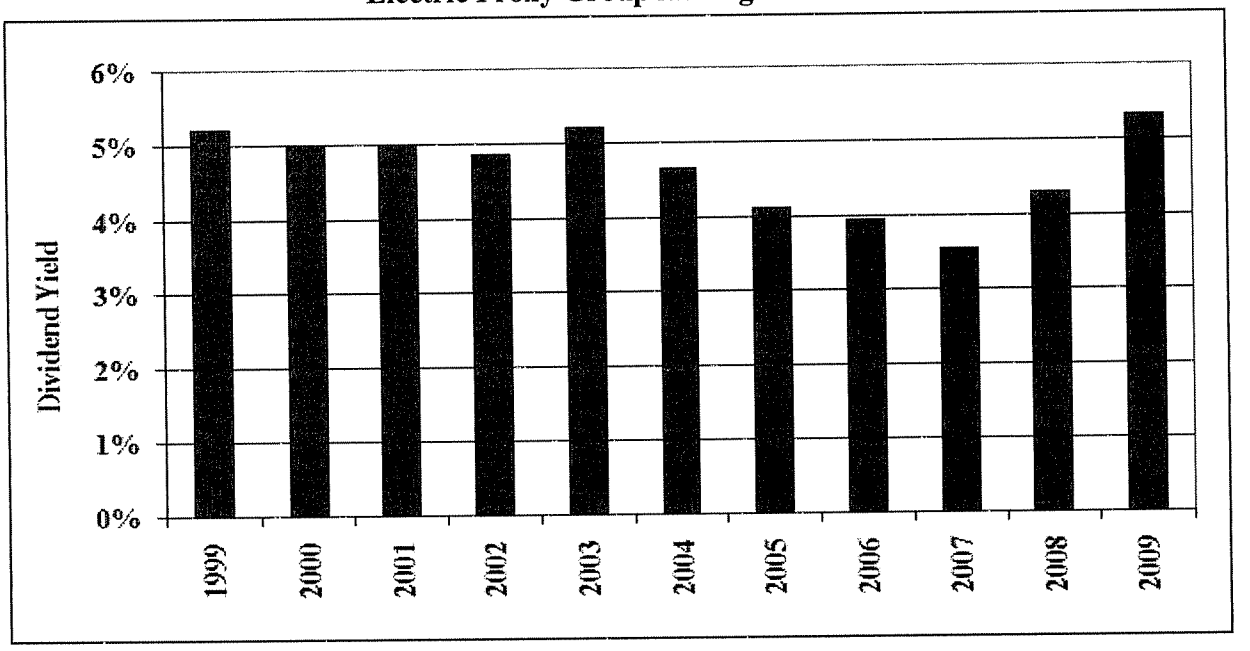
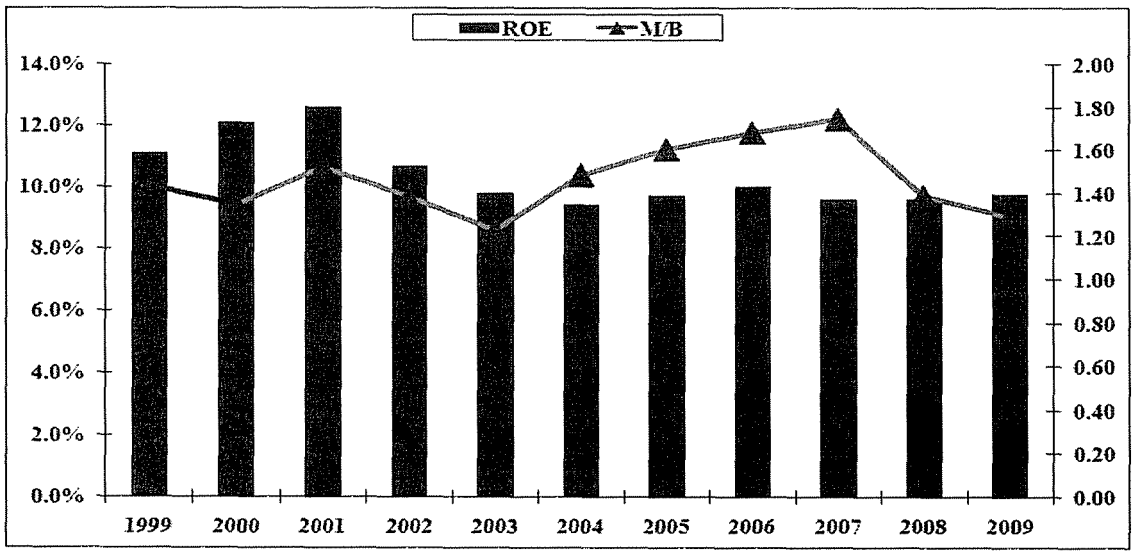


Exhibit JRW-7
Electric Proxy Group Average Return on Equity and Market-to-Book Ratios



Data Source: *Value Line Investment Survey.*

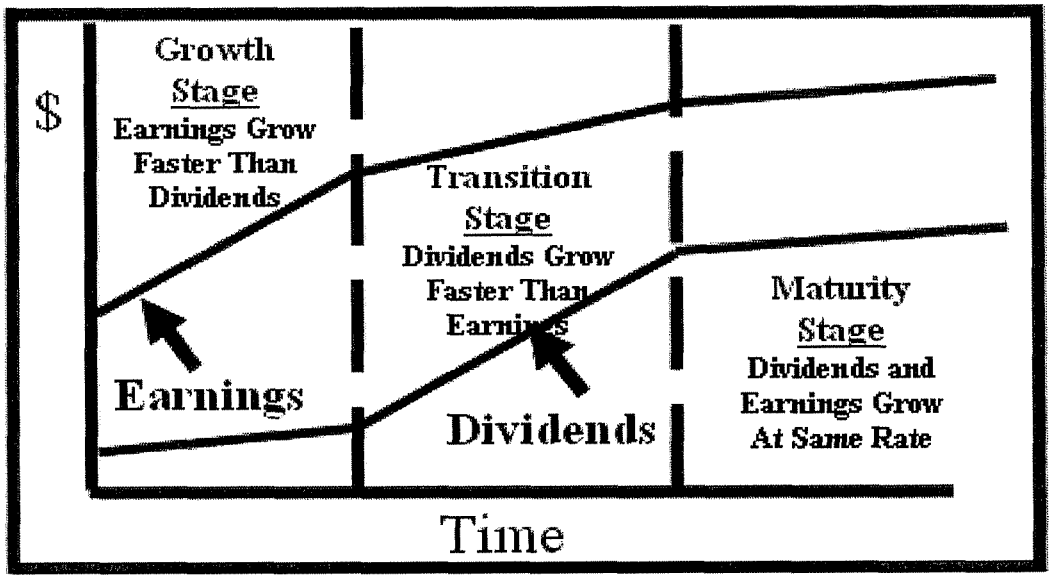
Exhibit JRW-8

Industry Average Betas

Industry Name	No.	Beta	Industry Name	No.	Beta	Industry Name	No.	Beta
Public/Private Equity	9	2.40	Retail Store	43	1.35	Telecom. Services	140	1.10
Newspaper	15	1.94	Restaurant	68	1.34	Biotechnology	121	1.10
Semiconductor Equip	14	1.93	Shoe	19	1.34	Industrial Services	168	1.07
Steel (Integrated)	15	1.85	Machinery	130	1.32	Reinsurance	8	1.07
Entertainment	95	1.81	Entertainment Tech	35	1.32	Utility (Foreign)	5	1.07
Auto Parts	54	1.75	Apparel	56	1.30	Air Transport	44	1.06
Hotel/Gaming	74	1.74	Trucking	33	1.30	Medical Supplies	264	1.04
Auto & Truck	22	1.72	Railroad	15	1.29	Internet	239	1.04
Cable TV	24	1.69	Natural Gas (Div.)	32	1.29	Beverage	41	1.04
Coal	21	1.67	Chemical (Specialty)	97	1.29	Computer Software/Svcs	333	1.02
Paper/Forest Products	39	1.63	Computers/Peripherals	129	1.29	Medical Services	162	0.97
Property Management	20	1.63	Information Services	29	1.28	Healthcare Information	33	0.97
Steel (General)	20	1.61	Chemical (Basic)	17	1.27	Environmental	91	0.97
Advertising	36	1.60	Petroleum (Integrated)	24	1.24	Bank (Midwest)	39	0.96
R.E.I.T.	143	1.60	Precision Instrument	98	1.24	Retail Building Supply	7	0.95
Semiconductor	125	1.56	Power	77	1.23	Insurance (Prop/Cas.)	85	0.92
Metal Fabricating	36	1.54	Toiletries/Cosmetics	19	1.23	Oil/Gas Distribution	19	0.89
Furn/Home Furnishings	35	1.52	Metals & Mining (Div.)	79	1.23	Pharmacy Services	21	0.88
Wireless Networking	60	1.50	Manuf. Housing/RV	15	1.21	Bank (Canadian)	7	0.86
Retail Automotive	15	1.46	Diversified Co.	121	1.20	Food Processing	121	0.86
Oilfield Svcs/Equip.	113	1.45	Packaging & Container	31	1.20	Water Utility	15	0.82
Homebuilding	28	1.45	Office Equip/Supplies	25	1.19	Electric Util. (Central)	23	0.79
Building Materials	53	1.45	Funeral Services	5	1.19	Tobacco	12	0.78
Publishing	30	1.43	Aerospace/Defense	67	1.19	Investment Co.	19	0.76
Retail (Special Lines)	157	1.43	Precious Metals	78	1.18	Electric Utility (West)	14	0.75
Recreation	65	1.43	E-Commerce	56	1.18	Educational Services	38	0.75
Heavy Construction	14	1.42	Canadian Energy	10	1.18	Bank	481	0.75
Electrical Equipment	87	1.41	Securities Brokerage	30	1.18	Electric Utility (East)	24	0.73
Financial Svcs. (Div.)	296	1.39	Electronics	183	1.16	Thrift	227	0.73
Investment Co.(Foreign)	16	1.39	Petroleum (Producing)	198	1.16	Retail/Wholesale Food	32	0.73
Maritime	53	1.38	Household Products	23	1.15	Natural Gas Utility	24	0.68
Human Resources	30	1.38	Telecom. Equipment	115	1.15	**Total Market**	**7036**	**1.17**
Insurance (Life)	31	1.38	Foreign Electronics	9	1.13			
Chemical (Diversified)	31	1.37	Drug	337	1.11			

Source: Damodaran Online

Exhibit JRW-9
Three-Stage DCF Model



Source: William F. Sharpe, Gordon J. Alexander, and Jeffrey V. Bailey, Investments (Prentice-Hall, 1995), pp. 590-91.

Exhibit JRW-10

Kentucky Utilities Company
Discounted Cash Flow Analysis

Electric Proxy Group

Dividend Yield*	4.9%
Adjustment Factor	1.0225
Adjusted Dividend Yield	5.0%
Growth Rate**	4.5%
Equity Cost Rate	9.5%

* Page 2 of Exhibit JRW-6

** Based on data provided on pages 3, 4, 5, and 6 of Exhibit JRW-10

Exhibit JRW-10

Kentucky Utilities Company
Monthly Dividend Yields

Electric Proxy Group

Company	Nov	Dec	Jan	Feb	Mar	Apr	Mean
ALLETE, Inc. (NYSE-ALE)	5.1%	5.3%	5.3%	5.7%	5.4%	5.3%	5.4%
American Electric Power Co. (NYSE-AEP)	5.3%	5.1%	4.7%	5.2%	4.9%	4.8%	5.0%
Central Vermont Public Serv. Corp. (NYSE-CV)	4.5%	4.7%	4.6%	4.5%	4.7%	4.6%	4.6%
Cleco Corporation (NYSE-CNL)	3.6%	3.5%	3.4%	4.2%	3.5%	3.4%	3.6%
DPL Inc.(NYSE-DPL)	4.4%	4.1%	4.1%	5.1%	4.5%	4.4%	4.4%
Edison International (NYSE-EIX)	3.7%	3.7%	3.5%	3.5%	3.8%	3.7%	3.7%
Empire District Electric Co. (NYSE-EDE)	6.9%	7.0%	6.9%	7.6%	6.9%	7.0%	7.1%
FirstEnergy Corporation (NYSE-FE)	4.7%	5.2%	4.7%	4.7%	5.7%	5.5%	5.1%
Hawaiian Electric Industries, Inc. (NYSE-HE)	6.8%	6.4%	6.1%	5.7%	6.1%	5.7%	6.1%
IDACORP, Inc. (NYSE-IDA)	4.2%	4.1%	3.9%	4.2%	3.7%	3.4%	3.9%
Northeast Utilities (NYSE-NU)	4.0%	4.0%	3.7%	3.7%	4.0%	3.8%	3.9%
NSTAR (NYSE-NST)	4.7%	4.6%	4.2%	4.3%	4.7%	4.5%	4.5%
Pinnacle West Capital Corp. (NYSE-PNW)	6.2%	6.2%	5.6%	6.5%	5.7%	5.6%	6.0%
PPL Corporation (NYSE-PPL)	4.5%	4.5%	4.3%	4.3%	4.7%	4.9%	4.5%
Portland General Electric (NYSE-POR)	5.1%	5.2%	4.9%	5.4%	5.3%	5.3%	5.2%
Progress Energy Inc. (NYSE-PGN)	6.5%	6.4%	6.0%	6.6%	6.6%	6.4%	6.4%
uthern Company (NYSE-SO)	5.5%	5.5%	5.2%	4.8%	5.5%	5.3%	5.3%
iL Holdings Corporation (NYSE-UIL)	6.3%	6.4%	6.3%	5.9%	6.4%	6.2%	6.3%
UniSource Energy Corporation (NYSE-UNS)	3.9%	3.8%	3.6%	3.5%	3.7%	4.9%	3.9%
Xcel Energy Inc. (NYSE-XEL)	5.0%	4.9%	4.6%	5.3%	4.8%	4.6%	4.9%
Mean	5.0%	5.0%	4.8%	5.0%	5.0%	5.0%	5.0%
Median	4.9%	5.0%	4.7%	5.0%	4.9%	4.9%	4.9%

Source: *AUS Utility Reports*, monthly issues.

Exhibit JRW-10

Kentucky Utilities Company
DCF Equity Cost Growth Rate Measures
Value Line Historic Growth Rates

Electric Proxy Group

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
ALLETE, Inc. (NYSE-ALE)	NA	NA	NA	14.0%	nmf	3.5%
American Electric Power Co. (NYSE-AEP)	0.0%	-4.0%	0.5%	2.0%	-2.5%	5.0%
Central Vermont Public Serv. Corp. (NYSE-CV)	5.0%	0.5%	1.5%	3.5%	1.0%	1.5%
Cleco Corporation (NYSE-CNL)	3.0%	1.5%	6.5%	0.5%	0.5%	9.0%
DPL Inc.(NYSE-DPL)	4.5%	1.5%	0.0%	10.5%	3.0%	3.0%
Edison International (NYSE-EIX)	7.0%	1.5%	6.0%	13.5%	0.0%	14.5%
Empire District Electric Co. (NYSE-EDE)	-1.5%	0.0%	1.5%	0.5%	0.0%	1.0%
FirstEnergy Corporation (NYSE-FE)	7.5%	3.0%	5.0%	12.5%	6.5%	3.0%
Hawaiian Electric Industries, Inc. (NYSE-HE)	-1.5%	0.0%	1.5%	-6.0%	0.0%	1.0%
IDACORP, Inc. (NYSE-IDA)	-1.0%	-4.5%	3.5%	1.5%	-8.0%	3.0%
Northeast Utilities (NYSE-NU)	0.0%	3.5%	1.0%	3.0%	8.5%	2.0%
NSTAR (NYSE-NST)	5.0%	4.0%	3.5%	5.0%	5.5%	5.5%
Pinnacle West Capital Corp. (NYSE-PNW)	0.0%	6.5%	3.5%	-1.0%	5.0%	3.0%
PPL Corporation (NYSE-PPL)	9.0%	4.5%	6.5%	7.5%	12.5%	13.5%
Portland General Electric (NYSE-POR)	NA	NA	NA	NA	NA	NA
Progress Energy Inc. (NYSE-PGN)	-0.5%	2.5%	5.5%	-6.5%	2.0%	2.5%
Southern Company (NYSE-SO)	3.0%	2.0%	1.5%	4.0%	3.0%	5.5%
UIL Holdings Corporation (NYSE-UIL)	0.0%	0.0%	0.0%	0.0%	0.0%	-2.0%
UniSource Energy Corporation (NYSE-UNS)	-6.0%	0.0%	12.0%	-1.5%	12.5%	6.5%
Xcel Energy Inc. (NYSE-XEL)	-2.5%	-4.0%	-0.5%	1.0%	-4.0%	1.0%
Mean	1.7%	1.0%	3.3%	3.4%	2.5%	4.3%
Median	0.0%	1.5%	2.5%	2.0%	1.5%	3.0%
	Average of Median Figures =			1.8%		

Data Source: *Value Line Investment Survey.*

Exhibit JRW-10

Kentucky Utilities Company
DCF Equity Cost Growth Rate Measures
Value Line Projected Growth Rates

Electric Proxy Group

Company	*Value Line* Projected Growth Est'd. '07-'09 to '13-'15			*Value Line* Internal Growth		
	Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
ALLETE, Inc. (NYSE-ALE)	-0.5%	1.0%	2.5%	8.0%	25.0%	2.0%
American Electric Power Co. (NYSE-AEP)	3.0%	2.5%	5.0%	10.0%	47.0%	4.7%
Central Vermont Public Serv. Corp. (NYSE-CV)	3.0%	1.0%	6.5%	6.5%	47.0%	3.1%
Cleco Corporation (NYSE-CNL)	8.0%	6.5%	5.0%	11.0%	46.0%	5.1%
DPL Inc.(NYSE-DPL)	6.5%	5.5%	4.0%	28.0%	48.0%	13.4%
Edison International (NYSE-EIX)	3.5%	4.0%	7.0%	11.0%	66.0%	7.3%
Empire District Electric Co. (NYSE-EDE)	7.0%	1.0%	1.5%	10.0%	25.0%	2.5%
FirstEnergy Corporation (NYSE-FE)	2.0%	2.5%	4.0%	13.0%	50.0%	6.5%
Hawaiian Electric Industries, Inc. (NYSE-HE)	7.0%	0.0%	2.0%	10.5%	28.0%	2.9%
IDACORP, Inc. (NYSE-IDA)	4.5%	2.5%	5.0%	7.5%	46.0%	3.5%
Northeast Utilities (NYSE-NU)	7.0%	7.0%	4.0%	9.0%	43.0%	3.9%
NSTAR (NYSE-NST)	5.5%	6.0%	5.0%	14.0%	32.0%	4.5%
Pinnacle West Capital Corp. (NYSE-PNW)	3.0%	1.0%	1.0%	9.0%	34.0%	3.1%
PPL Corporation (NYSE-PPL)	5.0%	5.5%	6.5%	16.5%	48.0%	7.9%
Portland General Electric (NYSE-POR)	3.5%	5.5%	2.5%	8.5%	40.0%	3.4%
Progress Energy Inc. (NYSE-PGN)	4.5%	1.0%	2.5%	9.0%	27.0%	2.4%
Southern Company (NYSE-SO)	4.5%	4.0%	5.0%	13.0%	30.0%	3.9%
UIL Holdings Corporation (NYSE-UIL)	3.0%	0.0%	2.5%	10.5%	25.0%	2.6%
UniSource Energy Corporation (NYSE-UNS)	17.0%	10.0%	7.0%	11.0%	50.0%	5.5%
Xcel Energy Inc. (NYSE-XEL)	6.5%	3.0%	4.5%	10.5%	46.0%	4.8%
Mean	5.2%	3.5%	4.2%	11.3%	40.2%	4.5%
Median	4.5%	2.8%	4.3%	10.5%	44.5%	3.9%
Average of Median Figures =		3.8%			Median =	3.9%

Data Source: *Value Line Investment Survey.*

Exhibit JRW-10

Kentucky Utilities Company
DCF Equity Cost Growth Rate Measures
Analysts Projected EPS Growth Rate Estimates

Electric Proxy Group

Company	Yahoo First Call	Zack's	Reuters	Average
ALLETE, Inc. (NYSE-ALE)	5.3%	3.7%	6.5%	5.2%
American Electric Power Co. (NYSE-AEP)	4.0%	3.6%	4.7%	4.1%
Central Vermont Public Serv. Corp. (NYSE-CV)	8.9%	N/A	N/A	8.9%
Cleco Corporation (NYSE-CNL)	4.0%	9.0%	4.0%	5.7%
DPL Inc.(NYSE-DPL)	4.5%	5.0%	11.7%	7.1%
Edison International (NYSE-EIX)	2.0%	5.0%	3.0%	3.3%
Empire District Electric Co. (NYSE-EDE)	6.0%	N/A	N/A	6.0%
FirstEnergy Corporation (NYSE-FE)	3.3%	3.5%	4.0%	3.6%
Hawaiian Electric Industries, Inc. (NYSE-HE)	8.8%	8.6%	5.8%	7.7%
IDACORP, Inc. (NYSE-IDA)	5.0%	5.0%	5.0%	5.0%
Northeast Utilities (NYSE-NU)	7.8%	7.9%	7.6%	7.8%
NSTAR (NYSE-NST)	5.7%	6.0%	5.4%	5.7%
Pinnacle West Capital Corp. (NYSE-PNW)	7.0%	7.0%	6.5%	6.8%
PPL Corporation (NYSE-PPL)	11.0%	11.4%	8.6%	10.3%
Portland General Electric (NYSE-POR)	6.0%	5.8%	7.0%	6.3%
Progress Energy Inc. (NYSE-PGN)	3.7%	4.0%	3.9%	3.9%
Southern Company (NYSE-SO)	4.8%	7.1%	4.9%	5.6%
UIL Holdings Corporation (NYSE-UIL)	4.4%	4.0%	4.1%	4.2%
UniSource Energy Corporation (NYSE-UNS)	5.0%	5.0%	N/A	5.0%
Xcel Energy Inc. (NYSE-XEL)	6.1%	5.7%	6.1%	6.0%
Mean	5.7%	6.0%	5.8%	5.9%
Median	5.2%	5.4%	5.4%	5.4%

Data Sources: www.reuters.com, www.zacks.com, http://quote.yahoo.com, April 6, 2010.

Exhibit JRW-10

Kentucky Utilities Company
DCF Growth Rate Indicators

Summary Growth Rates

Growth Rate Indicator	Electric Proxy Group
Historic *Value Line* Growth in EPS, DPS, and BVPS	1.8%
Projected *Value Line* Growth in EPS, DPS, and BVPS	3.8%
Sustainable Growth ROE * Retention Rate	3.9%
Projected EPS Growth from First Call, Zacks, and Reuters	5.4%
Average of Historic and Projected Growth Rates	3.7%

Exhibit JRW-11

Kentucky Utilities Company
Capital Asset Pricing Model

Electric Proxy Group

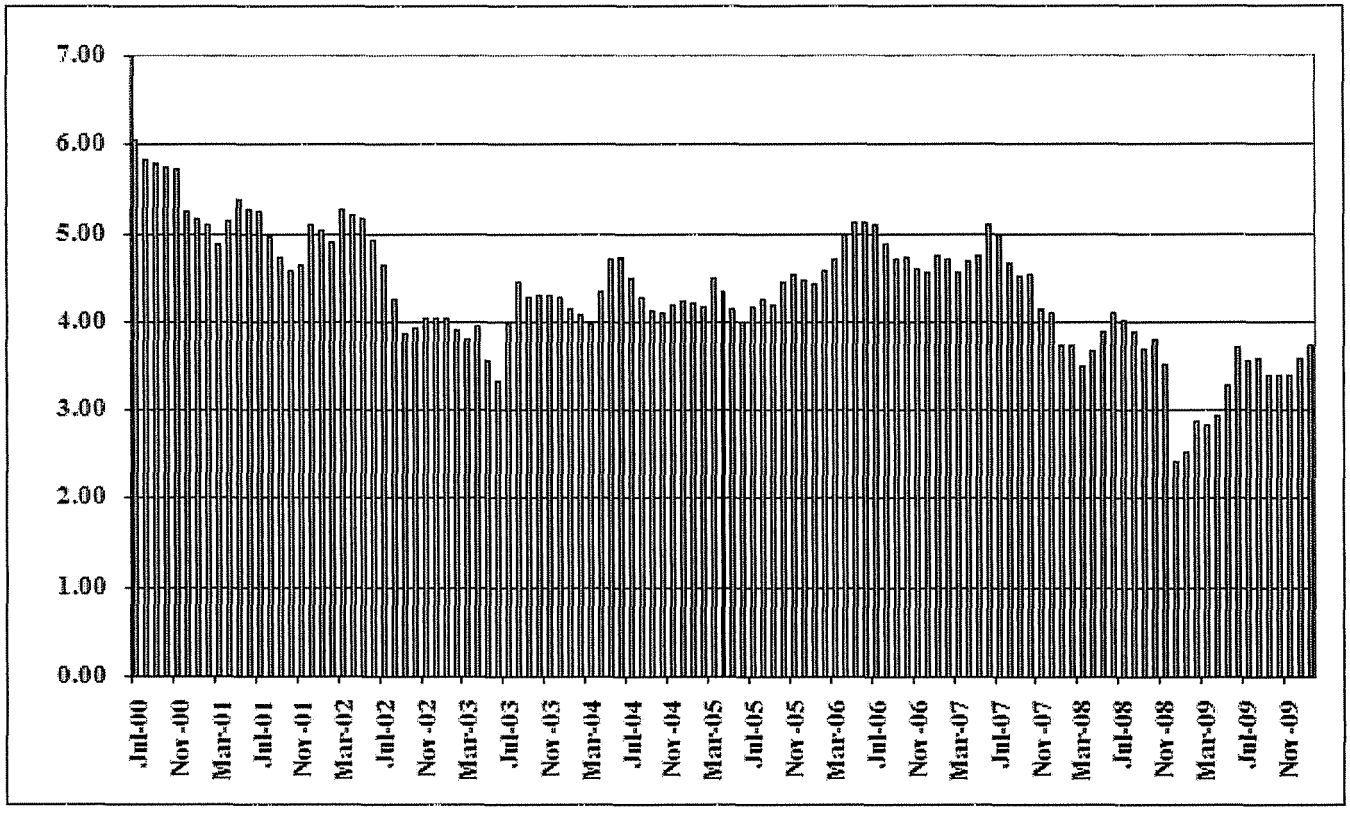
Risk-Free Interest Rate	**4.75%**
Beta*	**0.70**
Ex Ante Equity Risk Premium**	**4.35%**
CAPM Cost of Equity	**7.8%**

* See page 3 of Exhibit JRW-11

** See pages 5 and 6 of Exhibit JRW-11

Exhibit JRW-11

Panel A
Ten-Year U.S. Treasury Yields
January 2000-January 2010



Panel B
Current Rates

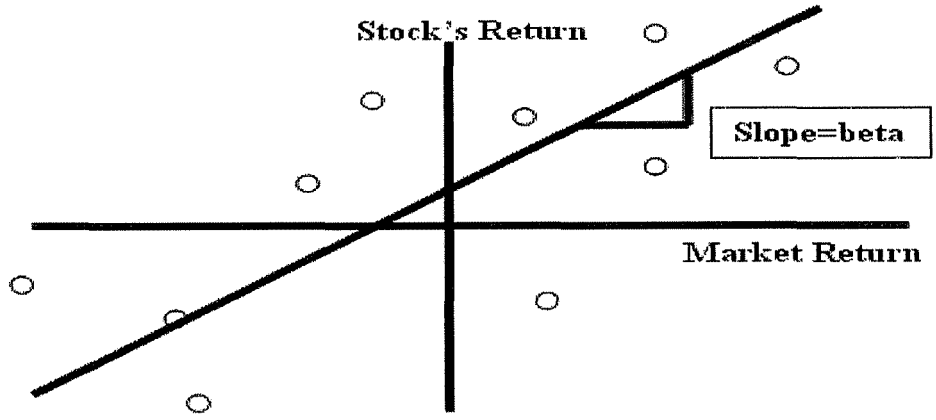
U.S. Treasuries

	COUPON	MATURITY DATE	CURRENT PRICE/YIELD
3-MONTH	0.000	07/08/2010	0.15 / .15
6-MONTH	0.000	10/07/2010	0.22 / .23
12-MONTH	0.000	04/07/2011	0.44 / .44
2-YEAR	1.000	03/31/2012	99-28 / 1.06
3-YEAR	1.750	04/15/2013	100-05½ / 1.69
5-YEAR	2.500	03/31/2015	99-12½ / 2.63
7-YEAR	3.250	03/31/2017	99-13½ / 3.34
10-YEAR	3.625	02/15/2020	97-28½ / 3.88
30-YEAR	4.625	02/15/2040	98-01½ / 4.75

Exhibit JRW-11

Panel A

Calculation of Beta



Panel B
Proxy Group Betas
Electric Proxy Group

Company	Beta
ALLETE, Inc. (NYSE-ALE)	0.70
American Electric Power Co. (NYSE-AEP)	0.70
Central Vermont Public Serv. Corp. (NYSE-CV)	0.75
Cleco Corporation (NYSE-CNL)	0.65
DPL Inc.(NYSE-DPL)	0.60
Edison International (NYSE-EIX)	0.80
Empire District Electric Co. (NYSE-EDE)	0.70
FirstEnergy Corporation (NYSE-FE)	0.85
Hawaiian Electric Industries, Inc. (NYSE-HE)	0.70
IDACORP, Inc. (NYSE-IDA)	0.70
Northeast Utilities (NYSE-NU)	0.70
NSTAR (NYSE-NST)	0.65
Pinnacle West Capital Corp. (NYSE-PNW)	0.75
PPL Corporation (NYSE-PPL)	0.70
Portland General Electric (NYSE-POR)	0.75
Progress Energy Inc. (NYSE-PGN)	0.60
Southern Company (NYSE-SO)	0.55
UIL Holdings Corporation (NYSE-UIL)	0.70
UniSource Energy Corporation (NYSE-UNS)	0.70
Xcel Energy Inc. (NYSE-XEL)	0.65
Mean	0.70
Median	0.70

Exhibit JRW-11

Risk Premium Approaches

	Historical Ex Post Excess Returns	Surveys	Ex Ante Models and Market Data
Means of Assessing the Equity-Bond Risk Premium	Historical average is a popular proxy for the ex ante premium – but likely to be misleading	Investor and expert surveys can provide direct estimates of prevailing expected returns/premiums	Current financial market prices (simple valuation ratios or DCF-based measures) can give most objective estimates of feasible ex ante equity-bond risk premium
Problems/Debated Issues	Time variation in required returns and systematic selection and other biases have boosted valuations over time, and have exaggerated realized excess equity returns compared with ex ante expected premiums	Limited survey histories and questions of survey representativeness. Surveys may tell more about hoped-for expected returns than about objective required premiums due to irrational biases such as extrapolation.	Assumptions needed for DCF inputs, notably the trend earnings growth rate, make even these models' outputs subjective. The range of views on the growth rate, as well as the debate on the relevant stock and bond yields, leads to a range of premium estimates.

Source: Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003).

Exhibit JRW-11

Kentucky Utilities Company
Capital Asset Pricing Model
Equity Risk Premium

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Average
Historical Risk Premium										
	Ibbotson	2010	1926-2009	Historical Stock Returns - Bond Returns	Arithmetic				6.00%	
					Geometric				4.40%	
	Bate	2008	1900-2007	Historical Stock Returns - Bond Returns	Geometric				4.50%	
	Shiller	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				7.00%	
					Geometric				5.50%	
	Damodoran	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.70%	
					Geometric				5.10%	
	Siegel	2005	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.10%	
					Geometric				4.60%	
	Dimson, Marsh, and Staunton	2006	1900-2005	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
	Goyal & Welch	2006	1872-2004	Historical Stock Returns - Bond Returns					4.77%	
	AVERAGE									5.47%
Ex Ante Models (Puzzle Research)										
	Claus Thomas	2001	1985-1998	Abnormal Earnings Model					3.00%	
	Arnott and Bernstein	2002	1810-2001	Fundamentals - Div Yld + Growth					2.40%	
	Constantinides	2002	1872-2000	Historical Returns & Fundamentals - P/D & P/E					6.90%	
	Cornell	1999	1926-1997	Historical Returns & Fundamental GDP/Earnings		3.50%	5.50%	4.50%	4.50%	
	Easton, Taylor, et al	2002	1981-1998	Residual Income Model					5.30%	
	Fama French	2002	1951-2000	Fundamental DCF with EPS and DPS Growth		2.55%	4.32%		3.44%	
	Harris & Marston	2001	1982-1998	Fundamental DCF with Analysts' EPS Growth					7.14%	
	Best & Byrne	2001								
	McKinsey	2002	1962-2002	Fundamental (P/E, D/P, & Earnings Growth)		3.50%	4.00%		3.75%	
	Siegel	2005	1802-2001	Historical Earnings Yield	Geometric				2.50%	
	Grabowski	2006	1926-2005	Historical and Projected		3.50%	6.00%	4.75%	4.75%	
	Maheu & McCurdy	2006	1885-2003	Historical Excess Returns, Structural Breaks,		4.02%	5.10%	4.56%	4.56%	
	Bostock	2004	1960-2002	Bond Yields, Credit Risk, and Income Volatility		3.90%	1.30%	2.60%	2.60%	
	Bakshi & Chen	2005	1982-1998	Fundamentals - Interest Rates					7.31%	
	Donaldson, Kamstra, & Kramer	2006	1952-2004	Fundamental, Dividend yld., Returns,, & Volatility		3.00%	4.00%	3.50%	3.50%	
	Campbell	2008	1982-2007	Historical & Projections (D/P & Earnings Growth)		4.10%	5.40%		4.75%	
	Best & Byrne	2001	Projection	Fundamentals - Div Yld + Growth					2.00%	
	Fernandez	2007	Projection	Required Equity Risk Premium					4.00%	
	DeLong & Magin	2008	Projection	Earnings Yield - TIPS					3.22%	
	Damodoran	2010	Projection	Fundamentals - Implied from FCF to Equity Model					4.36%	
	Social Security									
	Office of Chief Actuary		1900-1995							
	John Campbell	2001	1860-2000	Historical & Projections (D/P & Earnings Growth)	Arithmetic	3.00%	4.00%	3.50%	3.50%	
			Projected for 75 Years		Geometric	1.50%	2.50%	2.00%	2.00%	
	Peter Diamond	2001	Projected for 75 Years	Fundamentals (D/P, GDP Growth)		3.00%	4.80%	3.90%	3.90%	
	John Shoven	2001	Projected for 75 Years	Fundamentals (D/P, P/E, GDP Growth)		3.00%	3.50%	3.25%	3.25%	
	AVERAGE									4.03%
Surveys										
	Survey of Financial Forecasters	2010	10-Year Projection	About 50 Financial Forecastsers					2.75%	
	Duke - CFO Magazine Survey	2010	10-Year Projection	Approximately 500 CFOs					3.92%	
	Welch - Academics	2008	30-Year Projection	Random Academics		5.00%	5.74%	5.37%	5.94%	
	Fernandez - Academics	2009	Long-Term	Fernandez - Academics				6.50%		
	AVERAGE									4.20%
Building Block										
	Ibbotson and Chen	2009	1926-2008	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			5.73%	4.68%	
					Geometric			3.62%		
	Woolridge		2010	Current Supply Model (D/P & Earnings Growth)					2.25%	
	AVERAGE									3.46%
OVERALL AVERAGE										**4.29%**

Exhibit JRW-11

Kentucky Utilities Company
Capital Asset Pricing Model
Equity Risk Premium
Summary of 2009-2010 Equity Risk Premium Studies

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Average
Historical Risk Premium										
	Ibbotson	2010	1926-2009	Historical Stock Returns - Bond Returns	Arithmetic				6.00%	
					Geometric				4.40%	
	AVERAGE									5.20%
Ex Ante Models (Puzzle Research)										
	Damodoran	2010	Projection	Fundamentals - Implied from FCF to Equity Model					4.36%	
	AVERAGE									4.36%
Surveys										
	Survey of Financial Forecasters	2010	10-Year Projection	About 50 Financial Forecastsers					2.75%	
	Duke - CFO Magazine Survey	2010	10-Year Projection	Approximately 500 CFOs					3.92%	
	Fernandez - Academics	2009	Long-Term	Fernandez - Academics					6.50%	
	AVERAGE									4.39%
Building Block										
	Ibbotson and Chen	2009	1926-2008	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			5.73%	4.68%	
					Geometric			3.62%		
	Woolridge		2009	Current Supply Model (D/P & Earnings Growth)					2.25%	
	AVERAGE									3.46%
OVERALL AVERAGE										**4.35%**

Exhibit JRW-11

Kentucky Utilities Company
Decomposing Equity Market Returns
The Building Blocks Methodology

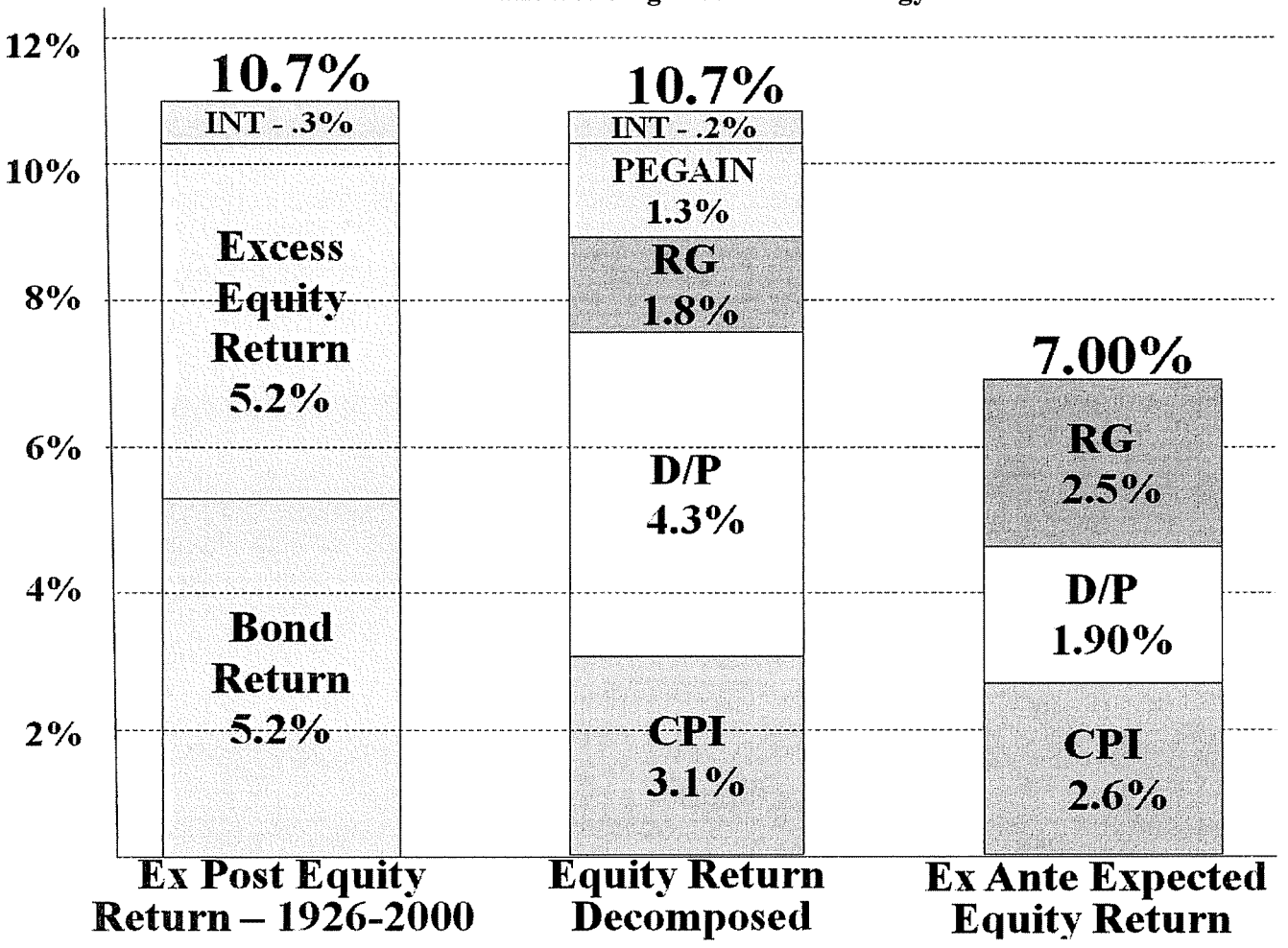


Exhibit JRW-11

Kentucky Utilities Company

2010 Survey of Professional Forecasters
Philadelphia Federal Reserve Bank
Long-Term Forecasts

Table Seven
LONG-TERM (10 YEAR) FORECASTS

Panel A

SERIES: CPI INFLATION RATE	
STATISTIC	
MINIMUM	1.00
LOWER QUARTILE	2.12
MEDIAN	2.39
UPPER QUARTILE	2.56
MAXIMUM	4.50
MEAN	2.39
STD. DEV.	0.60
N	36
MISSING	6

Panel B

SERIES: REAL GDP GROWTH RATE	
STATISTIC	
MINIMUM	2.20
LOWER QUARTILE	2.50
MEDIAN	2.70
UPPER QUARTILE	2.90
MAXIMUM	3.80
MEAN	2.72
STD. DEV.	0.37
N	34
MISSING	8

Panel C

SERIES: PRODUCTIVITY GROWTH	
STATISTIC	
MINIMUM	1.30
LOWER QUARTILE	1.70
MEDIAN	2.00
UPPER QUARTILE	2.10
MAXIMUM	3.50
MEAN	1.99
STD. DEV.	0.46
N	33
MISSING	9

Panel D

SERIES: STOCK RETURNS (S&P 500)	
STATISTIC	
MINIMUM	5.00
LOWER QUARTILE	6.43
MEDIAN	7.00
UPPER QUARTILE	8.00
MAXIMUM	15.00
MEAN	7.27
STD. DEV.	1.96
N	25
MISSING	17

Panel E

SERIES: BOND RETURNS (10-YEAR)	
STATISTIC	
MINIMUM	0.00
LOWER QUARTILE	4.00
MEDIAN	4.95
UPPER QUARTILE	5.20
MAXIMUM	6.00
MEAN	4.52
STD. DEV.	1.18
N	30
MISSING	12

Panel F

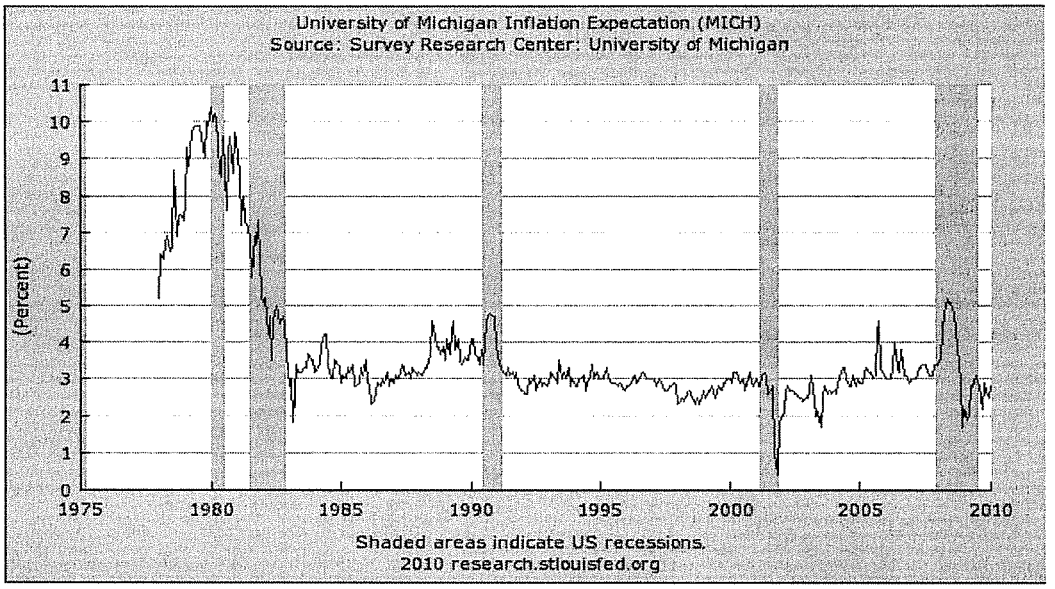
SERIES: BILL RETURNS (3-MONTH)	
STATISTIC	
MINIMUM	0.00
LOWER QUARTILE	2.53
MEDIAN	3.00
UPPER QUARTILE	3.70
MAXIMUM	2.25
MEAN	3.09
STD. DEV.	1.06
N	30
MISSING	12

Source: Philadelphia Federal Researve Bank, Survey of Professional Forecasters, February 12, 2010.

Exhibit JRW-11

Kentucky Utilities Company

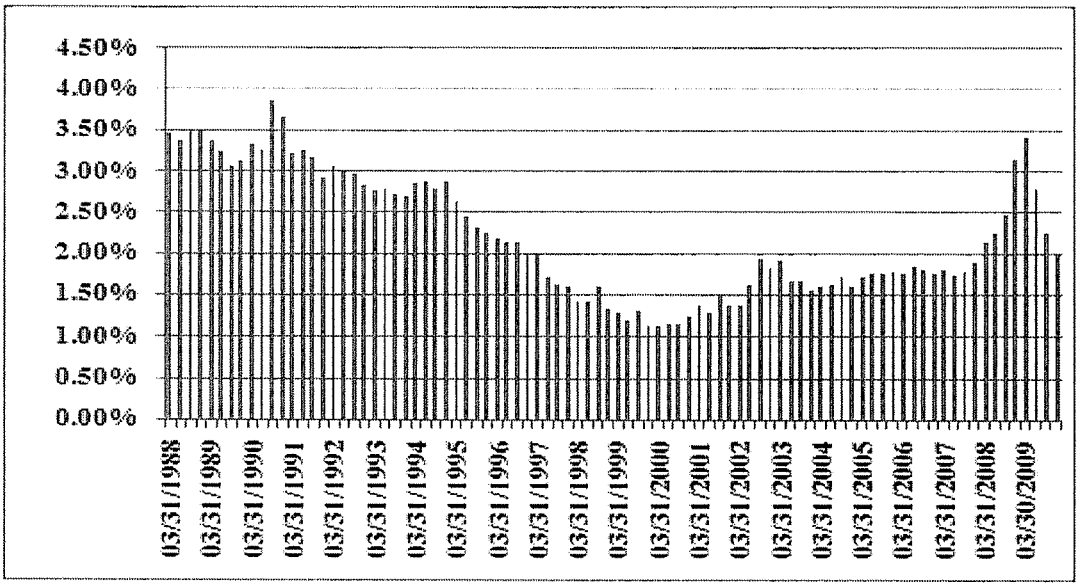
University of Michigan Survey Research Center
Expected Short-Term Inflation Rate



Data Source: http://research.stlouisfed.org/fred2/series/MICH?cid=98

Exhibit JRW-11

Panel A
S&P 500 Dividend Yield



Panel B
S&P 500 P/E Ratio

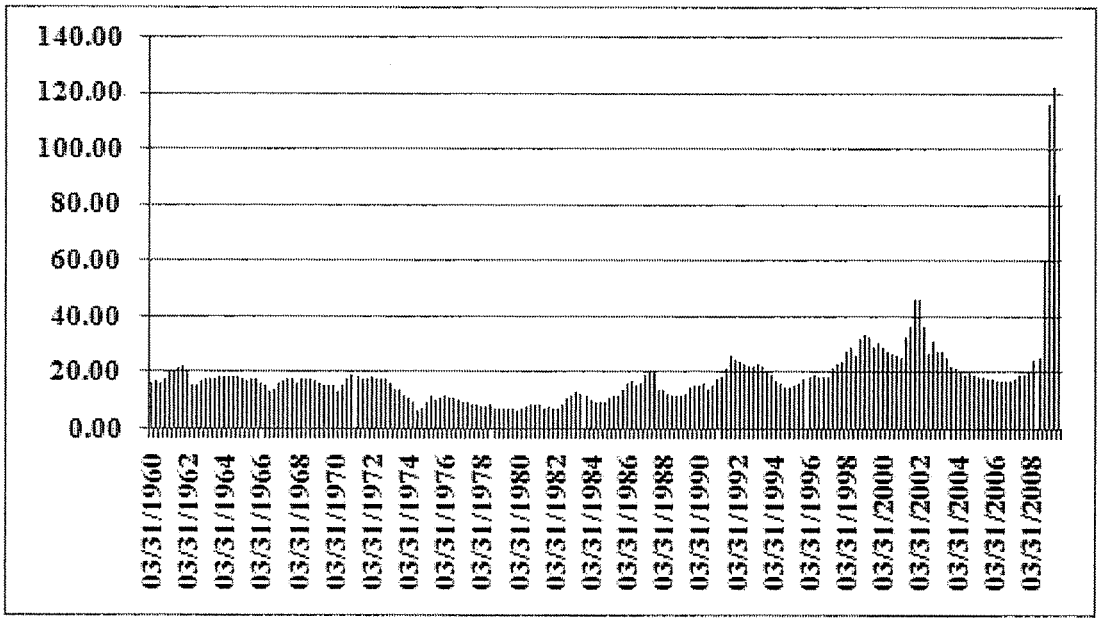


Exhibit JRW-11

Kentucky Utilities Company
CAPM
Real S&P 500 EPS Growth Rate

Year	S&P 500 EPS	Annual Inflation CPI	Inflation Adjustment Factor	Real S&P 500 EPS	
1960	3.10	1.48		3.10	
1961	3.37	0.07	1.01	3.35	
1962	3.67	1.22	1.02	3.59	
1963	4.13	1.65	1.04	3.99	
1964	4.76	1.19	1.05	4.55	
1965	5.30	1.92	1.07	4.97	
1966	5.41	3.35	1.10	4.90	
1967	5.46	3.04	1.14	4.80	
1968	5.72	4.72	1.19	4.81	
1969	6.10	6.11	1.26	4.83	10-Year
1970	5.51	5.49	1.34	4.13	2.89%
1971	5.57	3.36	1.38	4.04	
1972	6.17	3.41	1.43	4.33	
1973	7.96	8.80	1.55	5.13	
1974	9.35	12.20	1.74	5.37	
1975	7.71	7.01	1.86	4.14	
1976	9.75	4.81	1.95	4.99	
1977	10.87	6.77	2.08	5.22	
1978	11.64	9.03	2.27	5.13	
1979	14.55	13.31	2.57	5.66	10-Year
1980	14.99	12.40	2.89	5.18	2.30%
1981	15.18	8.94	3.15	4.82	
1982	13.82	3.87	3.27	4.23	
1983	13.29	3.80	3.40	3.91	
1984	16.84	3.95	3.53	4.77	
1985	15.68	3.77	3.66	4.28	
1986	14.43	1.13	3.70	3.90	
1987	16.04	4.41	3.87	4.15	
1988	22.77	4.42	4.04	5.64	
1989	24.03	4.65	4.22	5.69	10-Year
1990	21.73	6.11	4.48	4.85	-0.65%
1991	19.10	3.06	4.62	4.14	
1992	18.13	2.90	4.75	3.81	
1993	19.82	2.75	4.88	4.06	
1994	27.05	2.67	5.01	5.40	
1995	35.35	2.54	5.14	6.88	
1996	35.78	3.32	5.31	6.74	
1997	39.56	1.70	5.40	7.33	
1998	38.23	1.61	5.48	6.97	
1999	45.17	2.68	5.63	8.02	10-Year
2000	52.00	3.39	5.82	8.93	6.29%
2001	44.23	1.55	5.92	7.48	
2002	47.24	2.38	6.06	7.80	
2003	54.15	1.88	6.17	8.77	
2004	67.01	3.26	6.37	10.51	5-Year
2005	68.32	3.42	6.60	10.35	3.00%
2006	81.96	2.54	6.77	12.11	
2007	87.51	4.08	7.04	12.43	
2008	65.39	0.09	7.05	9.28	
2009	59.65	2.72	7.24	8.24	
Data Source: http://pages.stern.nyu.edu/~adamodar/				Real EPS Growth	**2.0%**

Exhibit JRW-12
Kentucky Utilities Company

Kentucky Utilities Company
Cost of Capital

Electric and Gas Utility Operations
Capitalization at October 31, 2009

Capital Source	Capitalization Amount*	Capitalization Ratio*	Cost Rate	Weighted Cost Rate
Short-Term Debt	0	0.00%	0.22%	0.00%
Long-Term Debt	833,116,472	46.14%	4.61%	2.13%
Common Equity	972,675,295	53.86%	11.50%	6.19%
Total	1,805,791,767	100.00%		8.32%

Panel A
Summary of Dr. Avera's Equity Cost Rate Approaches and Results

Approach	Utility Proxy Group	Non-Utility Proxy Group
DCF		
Value Line	10.20%	12.00%
IBES	10.50%	12.60%
First Cal	10.30%	12.80%
Zack's	10.10%	12.70%
br+sv	10.50%	12.20%
Stock Price	11.40%	13.70%
CAPM	9.60%	10.30%
Expected Earnings	10.50%	N/A

Panel B
Summary of Dr. Avera's DCF Results

	Utility Proxy Group	Non-Utility Proxy Group
Average Adjusted Dividend Yield	4.70%	2.70%
Growth*	5.80%	10.00%
DCF Result	10.50%	12.70%

* Expected EPS Growth from V-Line, LBES, First Call, Zacks, and br+sv growth and V-Line expected stock price growth.

Panel C
Summary of Dr. Avera's CAPM Results

	Utility Proxy Group	Non-Utility Proxy Group
Risk-Free Rate	4.40%	4.40%
Beta	0.69	0.79
Market Risk Premium	7.50%	7.50%
CAPM Result	9.58%	10.33%

Panel D
Summary of Dr. Avera Expected Earnings Results

	Utility Proxy Group	Non-Utility Proxy Group
Adjusted Projected ROE	11.40%	N/A

Exhibit JRW-13
Kentucky Utilities Company
Summary Financial Statistics for Avera Utility Proxy Group

Company	Operating Revenue ($mil)	Percent Elec Revenue	Net Plant ($mil)	S&P Bond Rating	Moody's Bond Rating	Common Equity Ratio	Return on Equity	Market to Book Ratio
ALLETE, Inc. (NYSE-ALE)	759.1	91	1,622.7	A-	A2	57	6.9	127
Alliant Energy Corporation (NYSE-LNT)	3,432.8	72	6,203.0	A-	A2	50	4.0	134
Consolidated Edison, Inc. (NYSE-ED)	13,032.0	64	22,439.0	A-	A3	49	8.7	119
Dominion Resources, Inc. (NYSE-D)	15,131.0	43	25,592.0	A	Baa1	38	12.1	213
Duke Energy Corporation (NYSE-DUK)	12,731.0	79	37,950.0	BBB+	A2	56	5.0	98
Entergy Corporation (NYSE-ETR)	10,745.7	73	23,389.4	A-	Baa1	42	14.9	179
Exelon Corporation (NYSE-EXC)	17,318.0	55	27,341.0	A-	A3	50	22.6	233
PG&E Corporation (NYSE-PCG)	13,399.0	77	28,892.0	BBB+	A3	48	12.4	119
Progress Energy Inc. (NYSE-PGN)	9,885.0	97	19,733.0	A-	A1	43	8.3	115
SCANA Corporation (NYSE-SCG)	4,237.0	51	9,089.0	A-	A3	41	10.8	133
SEMPRA Energy (NYSE-SRE)	8,106.0	60	18,281.0	A+	Aa3	50	13.2	136
Vectren Corporation (NYSE-VVC)	2,088.9	25	2,878.8	A	A2	44	9.7	139
Wisconsin Energy Corporation (NYSE-WEC)	4,127.9	66	9,070.5	A-	A1	42	11.1	166
Xcel Energy Inc. (NYSE-XEL)	9,644.3	80	18,508.3	A-	A2	45	9.5	133
Mean	8,902.7	66	17,922.1	A-	A2	47	10.7	146
Median	9,764.7	69	19,120.6	A-	A2	47	10.2	133

Data Source: AUS *Utility Reports.*

Exhibit JRW-13

Kentucky Utilities Company
Avera DCF Growth Rate Summary

Panel A
Value Line Historic Growth Rates
Utility Proxy Group

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
ALLETE, Inc. (NYSE-ALE)	NA	NA	NA	14.0%	nmf	3.5%
Alliant Energy Corporation (NYSE-LNT)	3.0%	-3.5%	1.0%	9.0%	0.5%	3.5%
Consolidated Edison, Inc. (NYSE-ED)	1.0%	1.0%	3.0%	1.5%	1.0%	3.5%
Dominion Resources, Inc. (NYSE-D)	7.5%	1.5%	2.5%	5.5%	2.5%	1.5%
Duke Energy Corporation (NYSE-DUK)	NA	NA	NA	NA	NA	NA
Entergy Corporation (NYSE-ETR)	10.5%	6.5%	4.0%	10.0%	12.0%	3.0%
Exelon Corporation (NYSE-EXC)	NA	NA	NA	10.5%	15.0%	4.5%
PG&E Corporation (NYSE-PCG)	4.5%	0.5%	1.5%	nmf	na	18.0%
Progress Energy Inc. (NYSE-PGN)	-0.5%	2.5%	5.5%	-6.5%	2.0%	2.5%
SCANA Corporation (NYSE-SCG)	3.0%	1.5%	4.5%	3.5%	6.5%	4.0%
SEMPRA Energy (NYSE-SRE)	9.0%	-2.0%	9.0%	9.0%	5.0%	16.0%
Vectren Corporation (NYSE-VVC)	NA	NA	NA	2.5%	3.5%	4.0%
Wisconsin Energy Corporation (NYSE-WEC)	8.5%	-3.0%	5.5%	7.0%	7.0%	7.0%
Xcel Energy Inc. (NYSE-XEL)	-2.5%	-4.0%	-0.5%	1.0%	-4.0%	1.0%
Mean	4.6%	0.5%	3.9%	4.4%	5.1%	5.9%
Median	4.5%	1.0%	4.0%	4.5%	4.3%	4.0%

Data Source: *Value Line Investment Survey.*

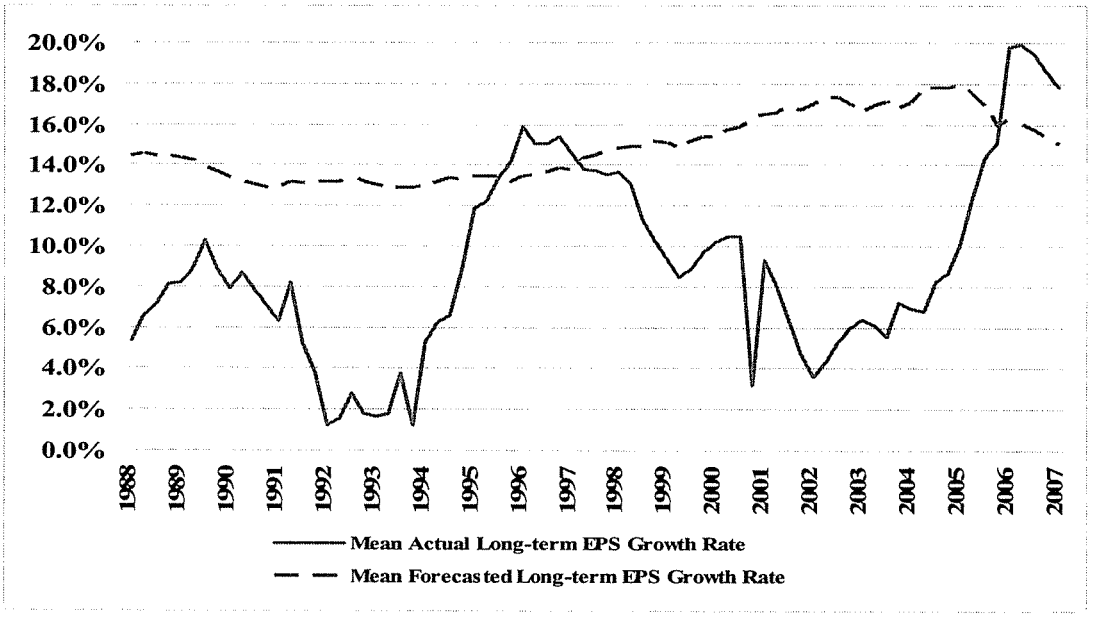
Average of Median Figures = 3.7%

Panel B
Value Line Projected Growth Rates
Utility Proxy Group

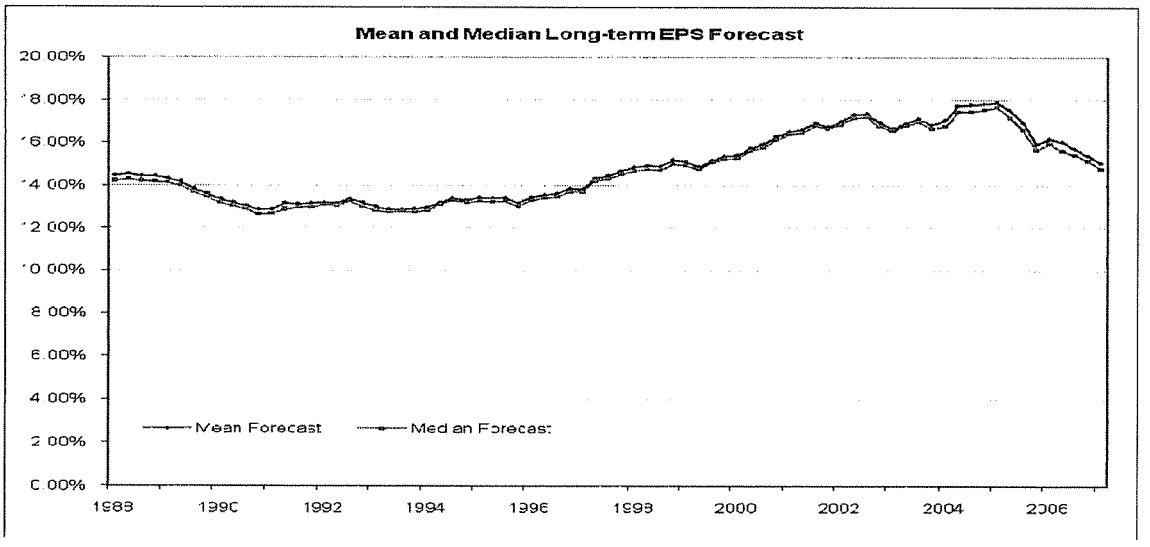
Company	*Value Line* Projected Growth Est'd. '06-'08 to '13-'15			*Value Line* Internal Growth		
	Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
ALLETE, Inc. (NYSE-ALE)	-0.5%	1.0%	2.5%	8.0%	25.0%	2.0%
Alliant Energy Corporation (NYSE-LNT)	7.0%	5.5%	3.5%	11.5%	43.0%	4.9%
Consolidated Edison, Inc. (NYSE-ED)	2.5%	1.0%	3.0%	9.5%	36.0%	3.4%
Dominion Resources, Inc. (NYSE-D)	7.0%	5.5%	7.0%	14.5%	46.0%	6.7%
Duke Energy Corporation (NYSE-DUK)	5.5%	nmf	0.5%	8.0%	28.0%	2.2%
Entergy Corporation (NYSE-ETR)	5.0%	4.0%	7.5%	12.5%	56.0%	7.0%
Exelon Corporation (NYSE-EXC)	1.5%	2.0%	8.0%	16.0%	52.0%	8.3%
PG&E Corporation (NYSE-PCG)	6.5%	7.5%	6.5%	12.0%	49.0%	5.9%
Progress Energy Inc. (NYSE-PGN)	4.5%	1.0%	2.5%	9.0%	27.0%	2.4%
SCANA Corporation (NYSE-SCG)	3.5%	2.0%	4.5%	10.0%	40.0%	4.0%
SEMPRA Energy (NYSE-SRE)	5.5%	8.5%	8.5%	12.0%	65.0%	7.8%
Vectren Corporation (NYSE-VVC)	4.5%	2.5%	3.5%	11.0%	34.0%	3.7%
Wisconsin Energy Corporation (NYSE-WEC)	8.0%	13.0%	6.0%	12.0%	51.0%	6.1%
Xcel Energy Inc. (NYSE-XEL)	6.5%	3.0%	4.5%	10.5%	46.0%	4.8%
Mean	4.8%	4.3%	4.9%	11.2%	42.7%	5.0%
Median	5.3%	3.0%	4.5%	11.3%	44.5%	4.9%
Average of Median Figures =	4.3%			Median =		4.9%

Data Source: *Value Line Investment Survey.*

Panel A
Long-Term Forecasted Versus Actual EPS Growth Rates
1988-2007



Panel B
Long-Term Forecasted EPS Growth Rates
1988-2007



Source: Patrick J. Cusatis and J. Randall Woolridge, "The Accuracy of Analysts' Long-Term Earnings Per Share Growth Rate Forecasts," (July, 2008).

THE WALL STREET JOURNAL.

Study Suggests Bias in Analysts' Rosy Forecasts

By ANDREW EDWARDS
March 21, 2006; Page C6

Despite an economy teetering on the brink of a recession -- if not already in one -- analysts are still painting a rosy picture of earnings growth, according to a study done by Penn State's Smeal College of Business.

The report questions analysts' impartiality five years after then-New York Attorney General Eliot Spitzer forced analysts to pay $1.5 billion in damages after finding evidence of bias.

"Wall Street analysts basically do two things: recommend stocks to buy and forecast earnings," said J. Randall Woolridge, professor of finance. "Previous studies suggest their stock recommendations do not perform well, and now we show that their long-term earnings-per-share growth-rate forecasts are excessive and upwardly biased."

The report, which examined analysts' long-term (three to five years) and one-year per-share earnings expectations from 1984 through 2006 found that companies' long-term earnings growth surpassed analysts' expectations in only two instances, and those came right after recessions.

Over the entire time period, analysts' long-term forecast earnings-per-share growth averaged 14.7%, compared with actual growth of 9.1%. One-year per-share earnings expectations were slightly more accurate: The average forecast was for 13.8% growth and the average actual growth rate was 9.8%.

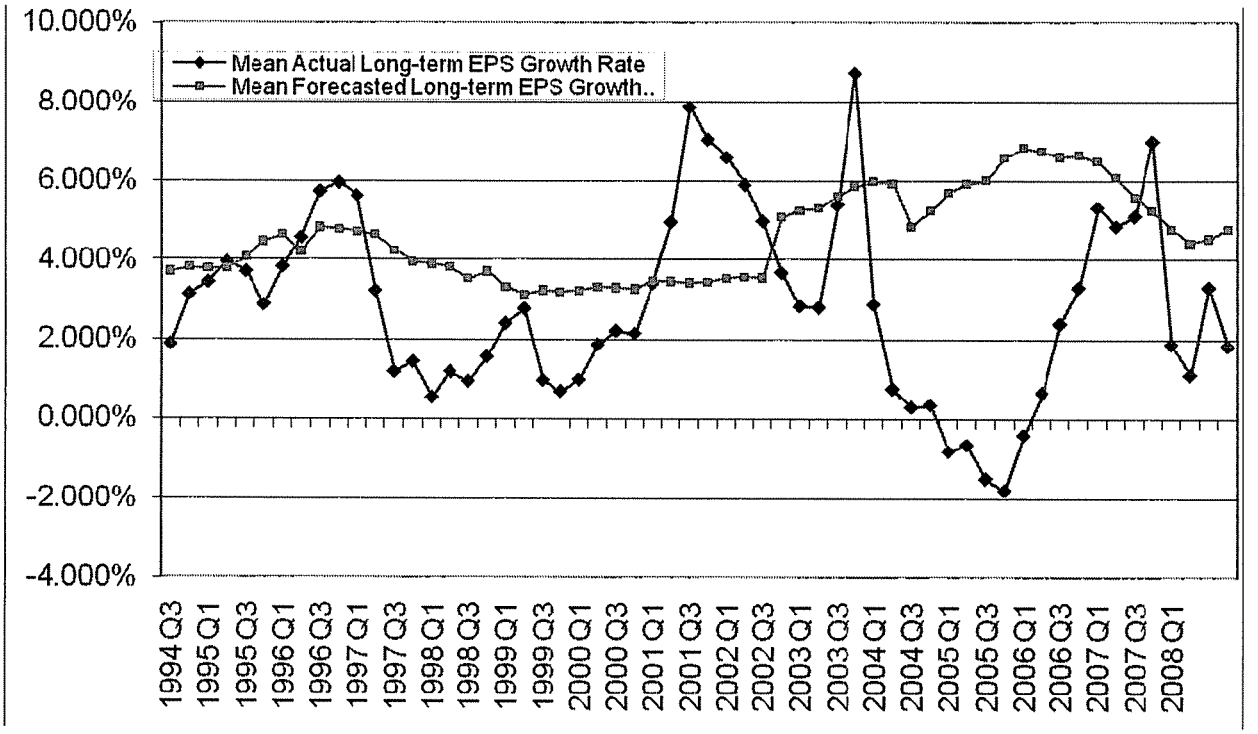
"A significant factor in the upward bias in long-term earnings-rate forecasts is the reluctance of analysts to forecast" profit declines, Mr. Woolridge said. The study found that nearly one-third of all companies experienced profit drops over successive three-to-five-year periods, but analysts projected drops less than 1% of the time.

The study's authors said, "Analysts are rewarded for biased forecasts by their employers, who want them to hype stocks so that the brokerage house can garner trading commissions and win underwriting deals."

They also concluded that analysts are under pressure to hype stocks to generate trading commissions, and they often don't follow stocks they don't like.

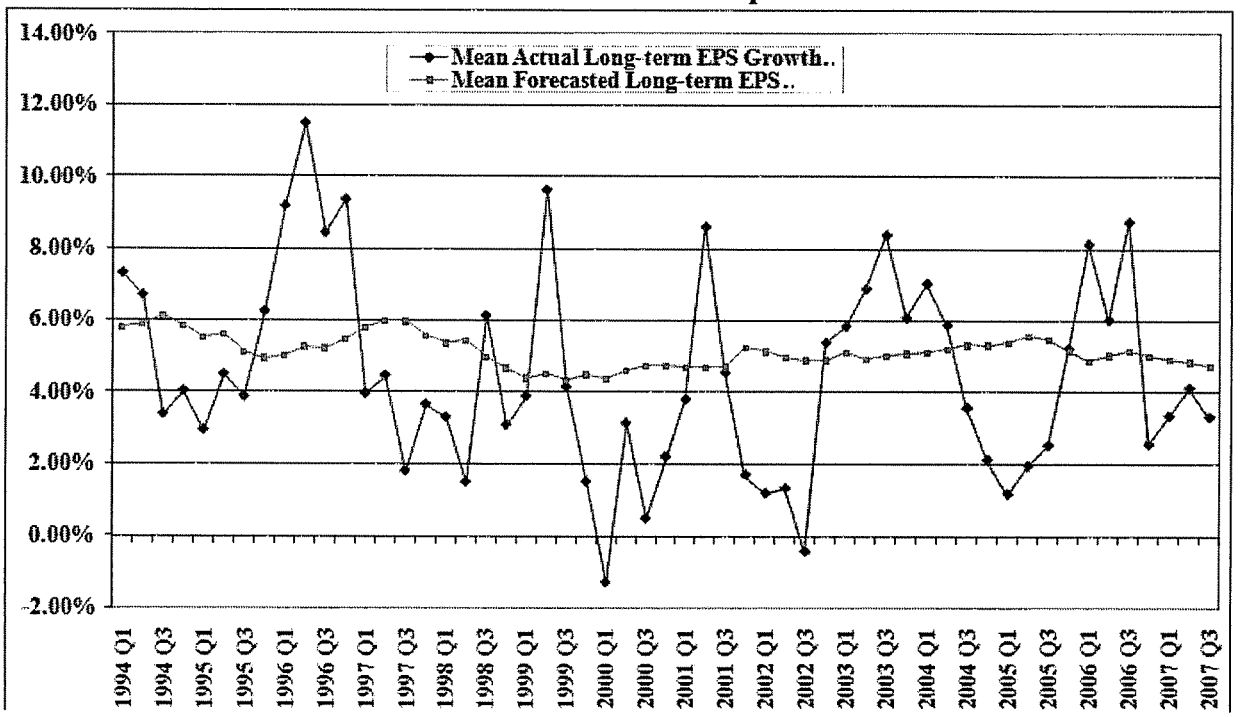
Write to Andrew Edwards at andrew.edwards@dowjones.com

Long-Term Forecasted Versus Actual EPS Growth Rates
Electric Utility Companies
1988-2008



Data Source: IBES

Long-Term Forecasted Versus Actual EPS Growth Rates
Gas Distribution Companies



Panel A
Value Line 3-5 year EPS Growth Rate Forecasts

	Average Projected EPS Growth rate	Number of Negative EPS Growth Projections	Percent of Negative EPS Growth Projections
2,619 Companies	13.28%	124	4.73%

Panel B
Historical Five-Year EPS Growth Rates for Value Line Companies

	Average Historical EPS Growth rate	Number with Negative Historical EPS Growth	Percent with Negative Historical EPS Growth
2,281 Companies	14.12%	421	18.46%

Source: *Value Line Investment Analyzer*, January 2009.

Growth Rates
GNP, S&P 500 Price, EPS, and DPS

	GDP	S&P 500	Earnings	Dividends	
1960	526.4	58.11	3.10	1.98	
1961	544.8	71.55	3.37	2.04	
1962	585.7	63.1	3.67	2.15	
1963	617.8	75.02	4.13	2.35	
1964	663.6	84.75	4.76	2.58	
1965	719.1	92.43	5.30	2.83	
1966	787.7	80.33	5.41	2.88	
1967	832.4	96.47	5.46	2.98	
1968	909.8	103.86	5.72	3.04	
1969	984.4	92.06	6.10	3.24	
1970	1038.3	92.15	5.51	3.19	
1971	1126.8	102.09	5.57	3.16	
1972	1237.9	118.05	6.17	3.19	
1973	1382.3	97.55	7.96	3.61	
1974	1499.5	68.56	9.35	3.72	
1975	1637.7	90.19	7.71	3.73	
1976	1824.6	107.46	9.75	4.22	
1977	2030.1	95.1	10.87	4.86	
1978	2293.8	96.11	11.64	5.18	
1979	2562.2	107.94	14.55	5.97	
1980	2788.1	135.76	14.99	6.44	
1981	3126.8	122.55	15.18	6.83	
1982	3253.2	140.64	13.82	6.93	
1983	3534.6	164.93	13.29	7.12	
1984	3930.9	167.24	16.84	7.83	
1985	4217.5	211.28	15.68	8.20	
1986	4460.1	242.17	14.43	8.19	
1987	4736.4	247.08	16.04	9.17	
1988	5100.4	277.72	22.77	10.22	
1989	5482.1	353.4	24.03	11.73	
1990	5800.5	330.22	21.73	12.35	
1991	5992.1	417.09	19.10	12.97	
1992	6342.3	435.71	18.13	12.64	
1993	6667.4	466.45	19.82	12.69	
1994	7085.2	459.27	27.05	13.36	
1995	7414.7	615.93	35.35	14.17	
1996	7838.5	740.74	35.78	14.89	
1997	8332.4	970.43	39.56	15.52	
1998	8793.5	1229.23	38.23	16.20	
1999	9353.5	1469.25	45.17	16.71	
2000	9951.5	1320.28	52.00	16.27	
2001	10286.2	1148.09	44.23	15.74	
2002	10642.3	879.82	47.24	16.08	
2003	11142.1	1111.91	54.15	17.88	
2004	11867.8	1211.92	67.01	19.41	
2005	12638.4	1248.29	68.32	22.38	
2006	13398.9	1418.3	81.96	25.05	
2007	14077.6	1468.36	87.51	27.73	
2008	14441.4	903.25	65.39	28.05	
2009	14258.7	1115.10	59.65	22.31	**Average**
Growth	**6.96%**	**6.21%**	**6.22%**	**5.07%**	**6.12%**

Data Sources: GDPA - http://research.stlouisfed.org/fred2/categories/106
S&P 500, EPS and DPS - http://pages.stern.nyu.edu/~adamodar/

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF BASE RATES	)))	CASE NO. 2009-00548

AFFIDAVIT OF DR. J. RANDALL WOOLRIDGE

Commonwealth of Pennsylvania))))

Dr. J. Randall Woolridge, being first duly sworn, states the following: The prepared Pre-Filed Direct Testimony, and the Schedules and Appendix attached thereto constitute the direct testimony of Affiant in the above-styled case. Affiant states that he would give the answers set forth in the Pre-Filed Direct Testimony if asked the questions propounded therein. Affiant further states that, to the best of his knowledge, his statements made are true and correct. Further affiant saith not.

Dr. J. Randall Woolridge

SUBSCRIBED AND SWORN to before me this 21 day of April, 2010.

Mary L. Hart
NOTARY PUBLIC

My Commission Expires:

NOTARIAL SEAL
MARY L HART
Notary Public
STATE COLLEGE BORO., CENTRE COUNTY
My Commission Expires Aug 25, 2013