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Witness:	Kathleen C. McShane
Sponsoring Party:	Union Electric Company
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NOS. ER-2007-0002/GR-2007-0003

REBUTTAL TESTIMONY

OF

KATHLEEN C. McSHANE

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
January, 2007

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REBUTTAL TESTIMONY

OF

KATHLEEN C. McSHANE

CASE NOS. ER-2007-0002/GR-2007-0003

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Kathleen C. McShane. My business address is 4550 Montgomery Avenue, Bethesda, Maryland 20814.

Q. Are you the same Kathleen C. McShane that filed Direct Testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your Rebuttal Testimony in this proceeding?

A. I will address the return on equity testimony of the following witnesses: Stephen G. Hill (Missouri Public Service Commission), J. Randall Woolridge (State of Missouri), Michael Gorman (Missouri Industrial Energy Consumers), Charles W. King (Office of the Public Counsel), Billie S. LaConte (Missouri Energy Group). I am also addressing specific comments made in the Direct Testimony of Michael L. Brosch (State of Missouri).

My evidence is structured as follows: First, I will present a summary of my rebuttal testimony. Second, I will address generally the concerns that I have with the direct testimony of all of the witnesses. Third, I will address specific concerns with the testimony of each of the witnesses individually. Fourth, I will address Mr. Gorman's critiques of my evidence.

Q. Please summarize your rebuttal testimony.

A. The principal conclusions of my rebuttal testimony are as follows:

(1) Based on my review and analysis of currently allowed rates of return, investor expectations, and current market conditions, I conclude that my originally recommended rates of return on equity of 12.0% and 11.5% remain my best estimates of the ROEs that AmerenUE should be afforded an opportunity to earn on its regulated electric and gas operations respectively in Missouri.

(2) The recommended returns on equity of the intervenor witnesses are well below the level investors would reasonably expect to earn on investments of comparable risk, as demonstrated by returns recently allowed for other utilities of comparable or lower risk, and significantly lower than returns forecast to be earned on investments of comparable risk. Setting an allowed return anywhere in the range recommended by the witnesses would be sending the wrong signal to investors when utilities will be required to make significant infrastructure investments in generation, transmission, distribution and environmental abatement. Acceptance of any of the witnesses' recommendations would signal to the investment community, both debt and equity, that they should direct their future capital investments elsewhere.

(3) The intervenor witnesses all estimate a cost of equity for samples of comparable firms that reflects market value capital structures and then recommend that the cost of equity be applied to AmerenUE's book value capital structure without recognizing that the financial risk reflected in the market value capital structures of the comparable companies is significantly lower than the financial risk in AmerenUE's book value capital

structure. The failure to recognize the differences in financial risk results in an understatement of the cost of equity to AmerenUE.

(4) Several of the intervenor witnesses rely on flawed models or make subjective judgements regarding the data that enter the models used to determine the cost of equity. This is likely to bias the cost of equity estimates and should be avoided.

(5) With respect to Mr. Hill, he presents a number of indicators that he claims support his recommended return of 9.25%. The interpretation of each of these indicators is flawed. Specifically,

(a) The expected return on pension assets is not informative for the purpose of estimating the cost of equity for AmerenUE, nor is it informative with respect to the returns available on comparable risk investments. The expected return on pension assets is an accounting concept, reflects returns on a portfolio of assets, not equity alone, and its measurement does not incorporate the riskiness of equity investments that an estimate of the cost of equity requires;

(b) The forecast market returns for utilities cited by Mr. Hill are considerably lower than the returns that investors expect utilities to earn;

(c) The market research cited by Mr. Hill in support of a low market risk premium and thus a low allowed return on equity for AmerenUE contains significant shortcomings and thus must be discounted as a basis of support for Mr. Hill's recommendations.

(6) Mr. Hill relies solely on the discounted cash flow approach to estimate the cost of equity. More than one test should be used to estimate the cost of equity, since no single test or its results is determinative of the cost of equity. Two out of three of these

corroborative tests are simply restatements of the DCF model. One of the two, the Modified Earnings-Price Ratio model, is premised in part on a test that has long been discarded as a reasonable means of estimating the cost of equity.

(7) Mr. Hill's implementation of the discounted cash flow test and the Capital Asset Pricing Model is flawed.

(a) Mr. Hill's discounted cash flow test relies on his own subjective estimate of growth expectations for his utility samples. Use of the consensus of analysts' growth forecasts and a proper application of the annual constant growth model increase his DCF estimates for his electric utility sample by approximately 1.25 percentage points.

(b) In performing the Capital Asset Pricing Model, Mr. Hill underestimates the market risk premium, which results in an understatement of the cost of equity of 200 basis points for his sample of electric utilities. Revising his CAPM result for an appropriate estimate of the market risk premium raises the result for his electric utility sample from 9.2% to 11.2%.

(8) With respect to Dr. Woolridge, his recommended return of 9.0% is based solely on the discounted cash flow model. Replacement of his subjective estimates of investors' expectations of growth with the consensus of analysts' forecasts and the proper application of the annual constant growth model raise the results of his DCF test by 50 to 120 basis points (to 9.5% to 10.2%).

(9) In performing the Capital Asset Pricing Model, Dr. Woolridge underestimates the market risk premium by almost 300 basis points. The underestimate arises primarily from his reliance on market research whose weaknesses preclude its

reliability in estimating the forward looking market risk premium. With a more reasonable estimate of the market risk premium, Dr. Woolridge's CAPM result for his electric utility sample increases by 250 basis points to above 11%.

(10) With respect to Mr. Gorman, who recommends a return on equity of 9.8%, his risk premium tests fail to take into account the inverse relationship between equity risk premiums and interest rates. Had Mr. Gorman recognized that, as interest rates decline, risk premiums rise (and vice versa), his risk premium test results would have been in the approximate range of 10.6% to 10.8% rather than the 10.0% to 10.3% range calculated on the basis of a simple average of the observed risk premiums.

(11) In applying the CAPM, Mr. Gorman underestimates the market risk premium and thus underestimates the cost of equity for his sample of electric utilities. The understatement of the market risk premium alone would raise his CAPM estimate for the specific sample of utilities from his range of 10.0%-10.3% to an estimate of 10.8%.

(12) Mr. King's recommended return of 9.65% for AmerenUE's electric utility operations is based on cost of equity estimates that reflect a downward biased implementation of the FERC discounted cash flow model and downward biased estimates of the risk-free rate, the market risk premium and beta in his CAPM test. The downward bias in the FERC DCF model arises from his reliance on a single (low) estimate the long-term forecast of growth in the economy, rather than the consensus forecast. Correction of his CAPM test increases the cost of equity for his electric utility sample from 9.03% to 11.2%.

(13) With respect to Mr. Gorman's critiques of my testimony, my principal conclusions are as follows:

(a) His critique of my financial risk adjustment for the higher financial risk in AmerenUE's ratemaking capital structure versus the financial risk in the market value capital structures of the comparable utilities is misplaced. The financial literature makes it clear that the cost of capital is estimated in relation to market value capital structures. Mr. Gorman appears to agree that financial leverage does not affect the risk or the return on the firm's assets, but it does push up the risk of the common stock, and that shareholders demand a correspondingly higher return because of this financial risk. Thus, all other things equal (e.g., a similar level of business risk), a higher debt ratio means a higher degree of financial risk, and a higher cost of equity.

(b) The growth rates used in my application of the constant growth discounted cash flow model are not overstated. They represent analysts' forecasts of growth, which Mr. Gorman himself concludes are the appropriate estimates to use.

(c) In my application of the CAPM, in contrast to Mr. Gorman's claims, the estimate of the market risk premium estimates the expected differential between the expected equity market return and the corresponding risk-free rate. Further, the beta I utilized to estimate the CAPM cost of equity for AmerenUE's electric utility operations is, contrary to Mr. Gorman's assertion, compatible with their relative risk.

(d) The comparable earnings test, applied to unregulated companies, provides a meaningful guideline for testing the reasonableness of the recommended return derived from capital market based cost of equity tests. The results of the comparable earnings test confirm the reasonableness of my recommended returns on equity of 12.0% and 11.5% for AmerenUE's electric and gas utility operations respectively.

II. GENERAL CONCERNS

Q. What is each of the witnesses recommending in this case?

A. The following table summarizes the recommendations of each of the witnesses:

Table 1

Recommended Return on Equity		
	Electric	**Gas**
Hill	9.25%	9.25%
Woolridge	9.00%	9.00%
Gorman	9.80%	na
King	9.65%	9.05%

Ms. LeConte does not make a recommendation. Her evidence simply (1) critiques the incorporation of the adjustment for AmerenUE's higher financial risk relative to that of the comparable companies, and (2) argues that AmerenUE's electric utility operations are of no greater business risk than other electric utilities.

Q. What is your reaction to the returns recommended by the witnesses?

A. In sum, the recommendations are well below investor return requirements and expectations, fail to recognize the distinction between an equity return requirement estimated on the basis of market value capital structures but applied to a book value capital structure, and are not commensurate with returns in other enterprises with corresponding risks. The recommended returns of 9.0% to 9.8% are well below the level investors would reasonably expect to earn on investments of comparable risk, as demonstrated by returns recently allowed for other utilities of comparable or lower risk, and significantly lower than returns forecast to be earned on investments of comparable risk.

Setting an allowed return anywhere in the range recommended by the witnesses would be sending the wrong signal to investors when utilities will be required to

make significant infrastructure investments in generation, transmission, distribution and environmental abatement. The International Energy Agency, *World Energy Investment Outlook 2003* estimated that more than $1.6 trillion will need to be invested in the North American power sector over the next 30 years, and that the world-wide requirement for electric utility investment will approach $10 trillion. AmerenUE will need to compete for capital both domestically and globally. To do so, it must be allowed the opportunity to earn a return that will continue to allow it to attract capital on reasonable terms and conditions and that will be compatible with the standard of comparability with returns of other enterprises with corresponding risks. Acceptance of any of the witnesses' recommendations would signal to the investment community, both debt and equity, that they should direct their future capital investments elsewhere.

Q. Do you agree with Mr. King's conclusion that the capital attraction and comparable return standards are one and the same?

A. No. The two standards are separate and distinct. As I discussed in my direct testimony, the ability to attract capital is not synonymous with being allowed a return comparable with those of similar risk entities. A return that simply allows a utility to attract capital, irrespective of the cost, does not lead to the conclusion that it is compatible with the comparable returns standard. The fact that the allowed return is applied to an original cost rate base is key to distinguishing between the capital attraction and comparable earnings standards. Investors pay market prices for shares in the company. If the estimated cost of equity is 10.0%, the dollar return investors require is in reference to the market price. When an equity cost rate based on market prices is applied to the book value of equity, the resulting dollar return will only meet the comparable return standard if it takes into account the

difference in financial risk inherent in the market price of equity compared to the ratemaking book equity.

Q. Shouldn't investors expect the market value of utility shares to be equal to book value, as Mr. Woolridge's testimony suggests?

A. No, for both measurement reasons and for economic reasons. The book value of a utility's common equity is an accounting measure that reflects the historic impacts of various financial statement accounting conventions (and changes in those conventions) for recording such items as depreciation reserves, deferred taxes, pension assets and liabilities, etc. The sole impact of accounting conventions over time on the recorded amount of equity can cause the book value of equity to diverge significantly from the economic value, which represents the present value of the expected future cash flows.

Further, economic principles do not support the equality of market and book values. A basic economic principle establishes the expected relationship between market value and replacement cost which provides support for market prices in excess of original cost book value. That economic principle holds that, in the longer-run, in the aggregate for an industry, market value should equal replacement cost of the assets. The principle is based on the notion that, if the market value of firms exceeds the replacement cost of the productive capacity, there is an incentive to establish new firms. The existence of additional firms would lower prices of goods and services, lower profits and thus reduce market values of all the firms in the industry. In the opposite circumstance, there is an incentive to disinvest, i.e., to not replace depreciated assets. The disappearance of firms would push up prices of goods and services; raise the profits of the remaining firms, thereby raising the market values of the remaining firms. In equilibrium, market value should equal replacement cost. In the

presence of inflation, even at moderate levels, absent significant technological advances, replacement cost should exceed the original cost book value of assets. Consequently, from an economic principles basis, the market value of common equity should be expected to exceed its book value.

The ratio of market value to replacement cost is called the "Q Ratio", a term coined by the Nobel Prize winning economist James Tobin in the late 1960s.[1] Essentially, the economic theory is that the market value of assets in the aggregate should equate to their replacement cost, that is, the "Q Ratio" (market value/replacement cost) should trend toward 1.0.[2]

The importance was of the Q ratio was underscored in a March 2002 *New York Times* article which stated, referring to Tobin's obituaries:

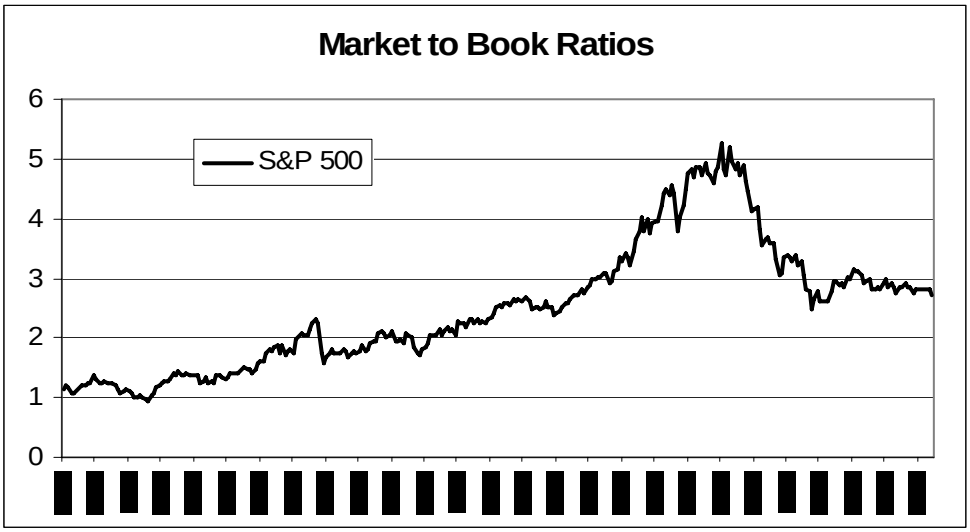
> Great emphasis was placed on how revolutionary his insights were three, four or five decades ago. Yet most were relatively silent on how those insights can lead us to be more successful investors today. It is a shame. Investors greatly handicap themselves if they ignore Dr. Tobin's work.
>
> Consider Tobin's Q, the ratio for which Dr. Tobin, at least at one time, was most famous among investors. This is the ratio of a company's total market capitalization to the replacement value of that company's total assets. <u>While the Q ratio – as Tobin's Q is often called – is conceptually similar to the price-to-book ratio, it avoids the myriad accounting difficulties associated with book value. For example, while book value carries assets at depreciated original cost, replacement value focuses on how much it would cost to buy those assets today</u>. [emphasis added]

[1] The general idea had been expressed decades earlier by the economist John Keynes.

[2] Standard corporate finance textbooks reference the Q ratio. For example, the widely used text, Stephen A. Ross, Randolph W. Westerfield, and Jeffrey E. Jaffe, *Corporate Finance*, Sixth Edition, New York: McGraw-Hill, 2002, pages 39-40, discusses the Q ratio in conjunction with the market-to-book ratio. They note that the Q ratio is an indicator of investors' incentive to invest and that a Q ratio (market-to-replacement cost ratio) less than 1.0 could mean the firm has not been successful in creating value for its shareholders.

In fact, data for the S&P 500 demonstrate that market values have indeed exceeded book values by a large margin. Figure 1 below tracks the market/book values for the S&P 500 from 1980-2005.

Figure 1



Source: RBC Capital Markets

The data from which the figure was created indicate that the market/book ratio for the S&P 500 has averaged approximately 2.5 times from 1980-2005, and approximately 3.4 times over the last business cycle (1993-2005). By comparison, the market/book ratios of my electric and gas utility samples over the past decade have been quite modest, averaging approximately 1.6 times and 1.7 times respectively.

Q. Since utilities are unique in the sense that they are regulated on the basis of original cost book values and are allowed a return that is applied to the book value of equity, does the economic principle still apply?

A. Yes. Regulation is intended to be a surrogate for competition. Mr. Hill, Mr. Gorman and Mr. King all agreed with the proposition that "[R]egulation should be not only a

substitute for competition, but a closely imitative substitute." [Source: J.C. Bonbright, *PRINCIPLES OF PUBLIC UTILITY RATES* (1969), at p. 39.][3]

If unregulated competitive enterprises are able to maintain market/book ratios in excess of 1.0, consistent with economic principles, it would be patently contrary to the to the objective of regulation and to the comparable earnings standard to set the allowed return for a utility to target a market value equal to book value.

Q. Do any of the intervenor witnesses "target" a market value of equity equal to book value?

A. Yes, implicitly they all do. The witnesses estimate a cost of equity for samples of comparable firms that reflects market value capital structures and then recommend that the cost of equity be applied to AmerenUE's book value capital structure without recognizing that the financial risk reflected in the market value capital structures of the comparable companies is significantly lower than the financial risk in AmerenUE's book value capital structure.

Q. Can you provide a common sense example of why it is market values of debt and equity that equity investors are concerned with in assessing risk?

A. Yes. The logic is easier to understand if I use the illustration of a mortgage on a house. Suppose I own a house which I bought for $80,000 and is now worth $100,000. I have a mortgage for $40,000. The net worth of my house is thus $60,000. My income is $50,000 a year, and I make interest-only mortgage payments of $2,500 a year. I decide to refinance the house because interest rates have declined, and I take out a larger mortgage. Now I have a mortgage of $50,000. Because of the decline in interest rates, my mortgage

[3] DR KCM-Staff-006 (Hill), DR KCM-MIEC-007(Gorman), and DR KCM-0PC-006 and TMB-002 (King).

payments are still $2,500 a year. My income is still $50,000 per year and my house is still worth $100,000. My financial risk is higher after I refinance, because, if my income does drop, I have a significantly lower equity cushion when my net worth is $50,000 (equity ratio of 50%) than it was when my net worth was $60,000 (equity ratio of 60%) before I refinanced. No mortgage lender is going to be concerned with how much I originally paid for the house (book value) when he assesses whether or not to refinance my house. He is concerned with the market value. It is the market value of the house that determines how much financial risk he is taking on if he decides to extend a new loan and the rate that he will charge. This is the same principle that applies in the equity markets when investors set the cost of equity.

Q. Mr. King and Ms. LaConte appear to believe that if the Commission adjusts the market-derived return on equity to recognize the additional financial risk in AmerenUE's book value capital structure relative to the market value capital structures on which underlie the cost of equity estimates, that would perpetuate further increases in earnings and further increases in the market value of the stock. Are they correct?

A. No, for two reasons. First, in principle, if the utility is allowed to earn (and does earn) the return on equity that investors expect, the investor's market return will equal the cost of equity, and the market/book ratio should remain unchanged. The table below demonstrates why. The table assumes that, at an illustrative cost of equity of 10.0%, a return on equity of 11.5%, and a market/book ratio of 1.5, the investor will earn a market return of 9.5%, the utility will earn a return on book value of 11.5%, and the market/book ratio will remain at 1.5.

Table 2

Effect on Realized Expected Book Return and Constant Market Return Requirement on Market/Book Ratio						
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1	Book Value $(1)_{t-1} + (6)_{t-1} - (7)_{t-1}$	$10.00	$10.55	$11.13	$11.75	$12.40
2	Market Value $(2)_{t-1}$ x (+ $(8)_{t-1}$)	$15.00	$15.83	$16.70	$17.62	$18.60
3	Market/Book Ratio (2)/(1)	1.50	1.50	1.50	1.50	1.50
4	Payout Ratio	52%	52%	52%	52%	52%
5	Book Return on Equity	11.5%	11.5%	11.5%	11.5%	11.5%
6	Earnings per Share (1) x (5)	$1.15	$1.21	$1.28	$1.35	$1.43
7	Dividends per Share (4) x (6)	$0.60	$0.63	$0.67	$0.70	$0.70
8	Growth (5) x (1-(4))	5.5%	5.5%	5.5%	5.5%	5.5%
9	Dividend Yield (7)/(2)	4.0%	4.0%	4.0%	4.0%	4.0%
10	Market Return $[((2) + (7)_{t-1})/(2)_{t-1}] - 1$	--	9.5%	9.5%	9.5%	9.5%

Table 2 shows that, consistent with the assumptions of the constant growth DCF model, earnings, dividends, book and market values will all increase at the same rate, and the market/book ratio does not change. Changes in market/book ratio would occur only if the cost of capital changes or the expected return on book equity changes.

Q. What would be the outcome if the allowed return on equity underestimates the higher financial risk inherent in AmerenUE's book value capital

structure relative to the market value capital structures that underpin the estimated cost of equity?

A. The logical outcome is that the value of the shareholders' investment would decline as they bid down the price of the shares in reaction to a non-compensatory return. That outcome follows from basic principles of finance.

The financial literature makes two propositions crystal clear:

(1) The higher the financial risk faced by a company, the higher is the required rate of return on equity.

(2) The cost of capital is determined by reference to market value capital structures.

Suppose the cost of equity for a firm is estimated by reference to a sample of comparable companies with a given level of financial risk as reflected in their market value capital structures. If that cost of equity becomes the allowed return for a utility which is exposed to a similar level of business risk to the comparable companies, but higher financial risk, investors will not be compensated for the level of risk that they are bearing. The failure to properly recognize the relatively higher level of financial risk in AmerenUE's book value capital structure (to which the allowed return is applied) results in an underestimate of its cost of equity. Allowing a non-compensatory return will result in a destruction of market value.

Q. Are you suggesting that it is the role of the Commission to set returns that will maintain the market value of a utility's equity?

A. No, their role is to set an allowed return for a utility that meets the criteria for a fair and reasonable return, namely one that provides the utility an opportunity to earn a

return on investment commensurate with that of comparable risk enterprises, to maintain its financial integrity and to attract capital on reasonable terms. The recognition in the allowed return of the impact of financial risk differences on the cost of capital is required to ensure that AmerenUE is afforded the opportunity to earn a return commensurate with that of comparable risk enterprises.

Q. Mr. King concludes that using Ameren's market value capital structure would be circular and relies on the Hope Natural Gas U.S. Supreme Court decision [4] to support his conclusion. Is he correct?

A. I agree with the conclusion of *Hope* cited by Mr. King, that is, fair value is the end product of rate making, not the starting point. The issue in *Hope* was the method of measuring the rate base on which the allowed return would be set. Ultimately, *Hope* opted for the "reasonableness of the end result" rather than the specification of a particular method of rate base determination. A historic rate base (as is used in Missouri) provides an objective, measurable point of departure to which the allowed return is applied and avoids the circularity to which Mr. King and *Hope* refer. *Hope* does not prescribe, however, that the historic cost rate base itself constitutes the "fair value" of the investment.

To be clear, no one in this proceeding is relying on Ameren's market value capital structure in determining the amount of equity on which the return on equity will be earned. My recommended return on equity is to be applied to the book value of the common equity that is financing AmerenUE's rate base assets. The recommended return on equity is

[4] *Federal Power Comm'n v. Hope Natural Gas Co.,* 320 U.S. 591 (1944) ("*Hope*").

developed from the cost of equity for proxy companies using market data[5]; their cost of equity reflects the level of financial risk inherent in their market value capital structures.

Q. Do the witnesses' general approaches to estimating the cost of equity amplify the impact of their failure to properly recognize the impact of market vs. book value financial risk on their final recommendations?

A. Yes, with the exception of Mr. Gorman, the other three witnesses who have provided recommendations rely virtually solely on the discounted cash flow test results. In general, it is dangerous to rely solely on one test when estimating the cost of equity. As I stated in my direct testimony, reliance on multiple tests recognizes that no single test can provide a definitive estimate of the cost of equity. With specific respect to the DCF test, since it is developed expressly on current stock market prices of utility shares, the difference in financial risk between their market value capital structures and AmerenUE's book value capital structure is most acutely manifested in the discounted cash flow test.

Q. Is there any other reason the Commission should not rely solely on the discounted cash flow test?

A. Yes, for at least two reasons, as discussed at pages 24 and 25 of my Direct Testimony. First, the individual company values are widely dispersed, not only among utilities that are of relatively similar risk, but also among the different estimates for each utility. Second, the DCF estimates, particularly for electric utilities, have been very volatile over time. Despite the fact that utilities are interest rate sensitive stocks, changes in the DCF cost of equity estimates have been inconsistent with changes in interest rates.

[5] I have used the comparable earnings test as a check on the reasonableness of the results of the market cost of equity methods, but the results of the comparable earnings test are not reflected in my cost of equity estimates or my recommended returns on equity.

The frailties of the model should lead the Commission to base its decisions on the approach it took in *Empire District*[6], that is, to rely on multiple tests to satisfy the criterion of allowing a return on investment commensurate with those of comparable risk enterprises.

Q. Before you discuss the cost of equity testimony of other witnesses, is there any other testimony you wish to comment on?

A. Yes, I wish to make a comment on the direct testimony of Michael L. Brosch, testifying on behalf of the State of Missouri on the issue of AmerenUE's proposed Fuel Adjustment Clause (FAC). In his testimony, he addresses the question of whether AmerenUE has reduced its recommended return on common equity to reflect its proposed FAC. His testimony states that AmerenUE has not explicitly done so, and cites the premise of my recommended return on equity which is "AmerenUE's ability to fully recover its fuel costs, similar to the typical utility in my comparable sample, which has a fuel adjustment clause. In the absence of a means to recover the anticipated increases in fuel costs, the cost of capital for Ameren would be higher" (Testimony of M. L. Brosch, page 14). The critical point in my testimony is that the vast majority of the utilities that I used as comparable companies for estimating the cost of equity have fuel adjustment clauses. Consequently, my cost of equity estimates already take into account any reduced risk that would arise from the approval of a FAC for AmerenUE.

[6] *In the Matter of the Tariff Filing of the Empire District Electric Company to Implement a General Rate Increase for Retail Electric Service Provided to Customers in its Missouri Service Area,* Case No. ER-2004-0570, at 45 (March 10, 2005) ("*Empire District*").

III. COMMENTS ON MR. HILL'S TESTIMONY

Q. What are Mr. Hill's recommended returns on equity for AmerenUE's gas and electric utility operations?

A. Mr. Hill recommends a return on equity for both the gas and electric utility operations in the range of 9.0-9.75% or a mid-point of 9.25%.

Q. Please summarize your principal concerns with Mr. Hill's testimony.

A. My principal concerns, which I discuss below, are as follows:

(1) The various indicators that Mr. Hill points to that purport to demonstrate the reasonableness of his recommended returns on equity do not support a return on equity of 9.25%;

(2) Mr. Hill relies on a single test, the discounted cash flow test, to arrive at his recommended return;

(3) Mr. Hill's choice of growth rates in the application of his discounted cash flow test to his sample of electric utilities understates investor expectations;

(4) Mr. Hill underestimates the equity market risk premium in his application of the Capital Asset Pricing Model; and

(5) Mr. Hill fails to properly recognize the lower financial risk in the market value capital structures of his proxy companies compared to AmerenUE's ratemaking capital structure in arriving at his recommended return.

Q. Would you please summarize the differences in the results of the DCF and CAPM tests had Mr. Hill properly applied them?

A. The table below provides the revised results of the DCF and CAPM tests for Mr. Hill's sample of electric utilities, as compared to his own calculations. The revised

values do not take into account the adjustment required for financial risk differences between the market value capital structures of his proxy companies and AmerenUE's ratemaking capital structure.

Table 3

	Mr. Hill's Results as Revised	Mr. Hill's Results as Filed
DCF	10.55%	9.25%
CAPM	11.20%	9.19%

Q. How do Mr. Hill's recommended returns compare to returns investors expect to earn on comparable risk investments?

A. They are well below the returns investors expect to earn on investments of comparable risk. To illustrate, the returns allowed for both electric and gas utilities in 2006 averaged 10.4%. The average allowed return for integrated utilities only (i.e., those with generation plants) was 10.7%. Recent returns allowed for other Missouri electric utilities have been 10.9% for Empire District and 11.25% for Kansas City Power and Light. The baseline returns (i.e., exclusive of incentives) allowed by the FERC for transmission operations (considered to be less risky than integrated electrics) during 2005 and 2006 have averaged approximately 11.5%. *Value Line* (Investment Survey, Issue 5, December 29, 2006) forecasts that the electric utility industry will earn 11.0% in 2007, 11.0% in 2008 and 11.5% in 2009-2011. *Value Line*'s projected returns on equity for the gas distribution industry are identical. All of these data indicate that investors are expecting an integrated electric utility or a gas distribution utility to earn a return on equity well in excess of 9.25%.

Q. Mr. Hill purports to demonstrate the reasonableness of his recommendation by reference to a number of studies that he claims support his recommended return on equity. Do you agree with his findings?

A. No. Mr. Hill notes that the average allowed return for utilities has been 10.5%, but contends that there are a number of factors that support the reasonableness of his 9.25% recommendation. These factors include financial statement information regarding pension returns, market return forecasts reported by A.G. Edwards and *Value Line* for electric and gas utilities, and research on the market equity risk premium which he believes regulators may be unaware of. I will discuss each of these in turn.

Q. Mr. Hill takes the position that the returns on pension fund assets can be used as support for the reasonableness of his recommended ROE for AmerenUE. Is he correct?

A. No. The expected return on plan assets is not directly comparable to the fair and reasonable return on equity for AmerenUE. The expected return on plan assets is not informative for the purpose of determining the cost of equity capital nor is it informative with respect to returns available to investments of comparable risk to AmerenUE.

The calculation of the expected return on pension plan assets (the investment return) is part of a process that has a very specific objective: to calculate pension expense for the period in which such expense is to be recorded. The investment return is only one of several economic assumptions required to make this calculation. The determination of the investment return assumption, which is only one of several economic assumptions required to estimate pension expense for the period, is an accounting concept, governed by Generally

Accepted Accounting Principles (GAAP). The investment return specifically is described in Paragraph 45 of FAS 87, which states,

> The expected long-term rate of return on plan assets shall reflect the average rate of earnings expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. In estimating that rate, appropriate consideration should be given to the returns being earned by the plan assets in the fund and the rates of return expected to be available for reinvestment. The expected long-term rate of return on plan assets is used (with the market-related value of assets) to compute the expected return on assets.

Further guidance for the investment return assumption is provided in Actuarial Standard of Practice No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) of the Pension Committee of the Actuarial Standards Board. The Standard requires the actuary to construct a best-estimate investment return range. The definition of best-estimate range is given as "the narrowest range within which the actuary reasonably anticipates that the actual results, compounded over the measurement period, are more likely than not to fall." The guidance contained in the Standard sets forth data that may be considered by the actuary when establishing the best-estimate investment return range, including current yields to maturity for fixed income securities, forecasts of inflation and total returns for each asset class, historical plan performance, historical investment data, including real risk-free returns, the inflation component of the return, and the real return or risk premium for each asset class. The Standard also provides examples of methods that are acceptable for constructing the best-estimate investment return range, one of which is the building block method. The building block method entails (1) calculation of the expected future range of the real return of each asset class, (2) calculation of the weighted average real return range reflecting the plan's future expected asset mix, and then (3) combining the weighted average real return range with the expected rate of inflation.

The calculated best-estimate investment return may thus be specific to the measurement period over which the actual results are assumed to apply, the specific historic period over which past returns were calculated, the particular asset mix of the fund, and the specific assets held by the fund. Further, as suggested in the Standard, "Many actuaries maintain a long-term **conservative** view (emphasis added), especially when selecting economic assumptions for funding purposes where adverse economic experience could jeopardize the delivery of plan benefits." For each and all of these reasons, it is impossible to rely on the assumed investment return on plan assets to derive either a fair and reasonable return on equity for AmerenUE or a required return for the equity market as a whole.[7]

Q. Mr. Hill refers to investment return assumptions specific to the equity market as whole, as set out in Mr. Vogl's response to DR No. 0158 and as reflected in the assumed rate of return on U.S. equity securities used by Northeast Utilities in its 2005 pension expense calculations, as support for the conclusion that his recommended return is reasonable, if not conservative. Why aren't the numbers in those two documents useful for the purpose of estimating a fair return on equity for AmerenUE or for assessing the reasonableness of Mr. Hill's recommendation?

A. In the response to DR No. 0158, Mr. Vogl presented a building block approach to estimating a range of investment return assumptions based on actual achieved real returns for the equity market over two historic periods, 40 years and 80 years, which when added to an estimate of future inflation, produce a nominal return on the market value of equity in the range of 8.4% to 10.6%, or a mid-point of 9.5%. The Northeast Utilities

[7]At the end of 2005, Ameren Corporation's pension plan contained 62% equity securities, 31% debt securities, 5% real estate and 2% other. The 8.5% assumed return on plan assets used by Ameren to calculate pension expense represents the return on that specific portfolio of assets, which is a mix of debt and equity investments, not a return on equity.

10-K presents an assumed rate of return for the U.S. equity market of 9.25%. Mr. Vogl's building block illustration is based on **compound** returns over two very specific periods of time. The basis for the Northeast Utilities return of 9.25% cannot be discerned from the information available, but based on the FASB requirements, it may be inferred that it also reflects **compound** returns, as required by Standard 27. Compound returns are relevant for some purposes, e.g., pension planning, but not for estimating the cost of equity capital.[8]

Q. Please explain what is meant by a compound return and for what purpose it is appropriate.

A. A compound return, or geometric average return, is the constant annual rate of return that an investment would have achieved if it had earned the same return year after year.[9] The compound average is appropriate for reporting historic performance for an investment portfolio.

Q. Why is the compound average not appropriate for estimating the cost of equity capital?

A. The cost of equity is an expected forward- looking rate of return. The estimation of the expected return needs to take account of the probability distribution of

[8] The calculation of annual pension expense captures risk by adjusting the constant expected investment return for actual returns (gains and losses) achieved on the pension assets.

[9] In mathematical terms, it is calculated by adding one to each of the holding period returns, multiplying all of the values together, raising the product of the values to the power of one divided by the number of returns in the sample, and then subtracting one. An illustration of the compound return calculation is as follows:

Year	Holding Period Return	Year	1+ Holding Period Return
1	12%	1	1.12
2	-6%	2	0.94
3	28%	3	1.28
4	-2%	4	0.98
		Product	**1.3206**
		Geometric Average $(1.3206)^{¼}$-1	**7.2%**

possible return outcomes. The compound average return ignores the fact that there is uncertainty surrounding the actual return that an investor will ultimately achieve over the investment period.

Q. If past actual returns are to be used as an input to estimating the forward-looking cost of equity, what type of average should be used?

A. The arithmetic average of past returns should be used. The arithmetic average is simply the sum of all possible annual return outcomes divided by the number of observations.

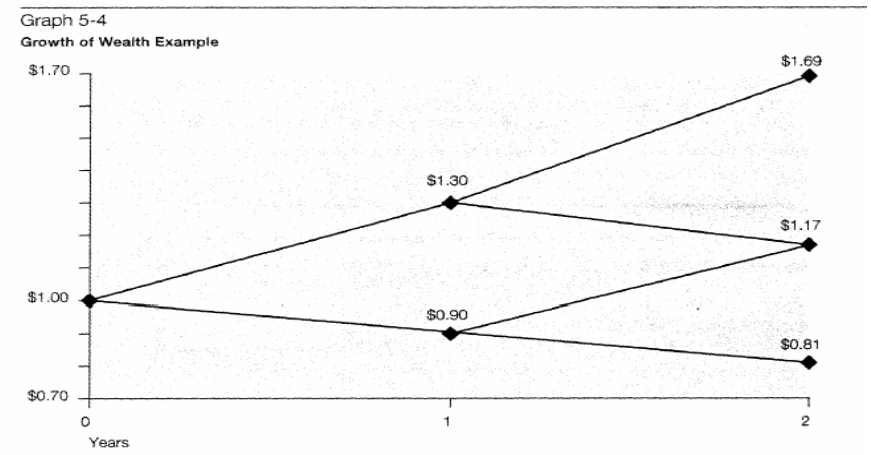
The appropriateness of using arithmetic averages, as opposed to compound or geometric averages, for the purpose of estimating the cost of equity was explained in Ibbotson Associates; *Stocks, Bonds, Bills and Inflation*, *1998 Yearbook*, pp. 157-159:

> The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values . . . in the investment markets, where returns are described by a probability distribution, the arithmetic mean is the measure that accounts for uncertainty, and is the appropriate one for estimating discount rates and the cost of capital.

Ibbotson Associates, *Stocks, Bonds, Bills and Inflation: Valuation Edition, 2005,* p. 76-77 provides the following illustration of why the arithmetic average, and not the compound or geometric average should be used when using historic returns to estimate the cost of equity:

> To illustrate how the arithmetic mean is more appropriate than the geometric mean in discounting cash flows, suppose the expected return on a stock is 10 percent per year with a standard deviation of 20 percent. Also assume that only two outcomes are possible each year — +30 percent and -10 percent (i.e., the mean plus or minus one standard deviation). The probability of occurrence for each outcome is equal. The growth of wealth over a two-year period is illustrated in Graph 5-4.

Figure 3



The most common outcome of $1.17 is given by the geometric mean of 8.2 percent. Compounding the possible outcomes as follows derives the geometric mean:

$$[(1+0.30)x(1-0.10)]^{½} - 1 = 0.082$$

However, the expected value is predicted by compounding the arithmetic, not the geometric, mean. To illustrate this, we need to look at the probability-weighted average of all possible outcomes:

$$(0.25 \times \$1.69) = \$0.4225$$

$$+ \quad (0.50 \times \$1.17) = \$0.5850$$

$$+ \quad (0.25 \times \$0.81) = \underline{\$0.2025}$$

$$\text{Total} \qquad \$1.2100$$

Therefore, $1.21 is the probability-weighted expected value. The rate that must be compounded to achieve the terminal value of $1.21 after 2 years is 10 percent, the arithmetic mean.

$$\$1 \times (1+0.10)^2 = \$1.21$$

The geometric mean, when compounded, results in the median of the distribution:

$$\$1 \times (1+0.0.082)^2 = \$1.17$$

The arithmetic mean equates the expected future value with the present value; it is therefore the appropriate discount rate.

Triumph of the Optimists: 101 Years of Global Investment Returns by Elroy Dimson, Paul Marsh and Mike Staunton, Princeton: Princeton University Press, 2002 (p. 182), also provides the rationale for using arithmetic averages:

> The arithmetic mean of a sequence of different returns is always larger than the geometric mean. To see this, consider equally likely returns of +25 and –20 percent. Their arithmetic mean is 2½ percent, since (25 – 20)/2 = 2½. Their geometric mean is zero, since (1 + 25/100) x (1 – 20/100) – 1 = 0. But which mean is the right one for discounting risky expected future cash flows? For forward-looking decisions, the arithmetic mean is the appropriate measure.
>
> To verify that the arithmetic mean is the correct choice, we can use the 2½ percent required return to value the investment we just described. A $1 stake would offer equal probabilities of receiving back $1.25 or $0.80. To value this, we discount the cash flows at the arithmetic mean rate of 2½ percent. The present values are respectively $1.25/1.025 = $1.22 and $0.80/1.025 = $0.78, each with equal probability, so the value is $1.22 x ½ + $0.80 x ½ = $1.00. If there were a sequence of equally likely returns of +25 and –20 percent, the geometric mean return will eventually converge on zero. The 2½ percent forward-looking arithmetic mean is required to compensate for the year-to-year volatility of returns.

A common sense example may help understand why the arithmetic average is more appropriate. Assume two securities with the following annual returns:

Table 4

Year	A	B
1	7.2	12
2	7.2	-6
3	7.2	28
4	7.2	-2
Compound Average	**7.2**	**7.2**
Arithmetic Average	**7.2**	**8.0**

In this example, both securities have the same compound return, but security A's returns are constant from year to year, and security B's annual returns vary significantly. No informed investor would conclude that the two securities were of the same risk, yet reliance on the compound average return to estimate their costs of equity erroneously implies that they are. The arithmetic average, on the other hand, correctly incorporates the difference in the two securities' volatility and thus in their different required returns.

Q. How is this discussion relevant to the expected investment returns for the pension plans?

A. As indicated above, investment returns assumed for the pension planning purposes are compound returns. The difference between the compound returns and the corresponding arithmetic averages relevant to cost of equity estimation is a function of the variability in the year to year annual returns. The higher the volatility, the greater is the difference between the compound and arithmetic averages. For example, over the 80-year historic period used by Mr. Vogl in his building block example (DR No. 0158), the arithmetic average real return of the equity market was 9.1%[10] compared to only 7.1% on a geometric basis. When the forecast inflation rate of 3.0-3.5% used in DR No. 0158 is added to a 9.1% real return, the resulting nominal equity return (related to the market value) would be 12.1-12.6%.[11]

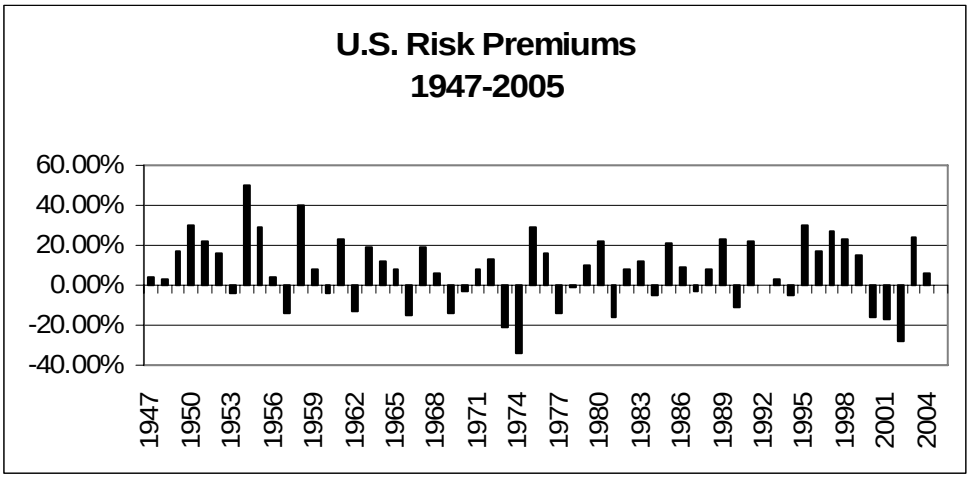
[10] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation: 2006 Yearbook*, pp. 95-96

[11] The 40-year period cited in DR No. 0158 is unrepresentative of the real returns achieved over the longer-term; the sub-7% real return is highly influenced by the negative real returns of the 1966-1975 period, which was characterized by a high rate of inflation.

Q. Doesn't the use of an arithmetic average require that past and future returns and risk premiums are unpredictable?

A. Yes. The following graph illustrates the uncertainty in the future risk premiums by reference to the historic annual risk premiums. The graph of achieved U.S. risk premiums since the end of World War II suggests that each year's actual risk premium has been random, that is, not serially correlated with the preceding year's risk premium.[12] Hence, for purposes of estimating the cost of equity, an arithmetic average is the appropriate measure to use for estimating the expected return for the equity market.

Figure 4



Source: Ibbotson Associates, *Stocks, Bonds, Bills & Inflation, 2006 Yearbook.*

[12] A test for serial correlation between the year-to-year equity risk premiums shows that the serial correlation between the current year's risk premium and that of the prior year for the period 1947-2005 is -.01 for the U.S. If the current year's risk premium were predictable based on the prior year's risk premium, the serial correlation would be close to positive or negative 1.0.

Q. What is the corresponding expected return on market value for a utility based on an expected return of 12.1%-12.6% (mid-point of 12.35%) for the market as a whole?

A. Using the betas used by Mr. Hill for his electric and gas utility samples of 0.89 and 0.85 respectively, and his risk-free rate of 4.83%, the indicated return on the market value of equity for comparable risk utilities would be in the range of 11.2-11.5%.[13] While these are returns on market value, and not expected returns on book value, they are 200 to 230 basis points higher than Mr. Hill's recommended return on equity of 9.25% for AmerenUE's electric and gas utility operations.

Q. Mr. Hill says that a recent A.G. Edwards report on the gas distribution industry states that their total market return expectations for gas distributors are in the range of 8.1% to 8.2%, a statement he uses in support of the reasonableness of his recommended return. What is your response?

A. The returns that Mr. Hill cites are expected returns on market value, not the returns that A.G. Edwards expects these companies to earn on book value. The same report indicates that A.G. Edwards expects the firms in Mr. Hill's gas utility sample to earn returns on book value over the long-term of approximately 10.75%-11.0%, based on the median and average respectively.[14] These returns are 150-175 basis points higher than Mr. Hill's recommended return of 9.25%. It also bears noting that A.G. Edwards considers these firms to be fairly valued. Moreover, A.G. Edwards also recently estimated the return on equity for Ameren Corporation at 12.0% for 2007.[15]

[13] For the electric utilities, the calculation is 4.83% + 0.89 (12.35%-4.83%) = 11.5%

[14] Excludes Nicor and Southwest Gas, for which no long-term return on equity is provided.

[15] Bloomberg, IBES estimates, January 24, 2007. Bloomberg also provided an ROE estimate for 2007 by

Q. What is the relevance of the finding that the firms are fairly valued?

A. If the firms are fairly valued, it can be inferred that A.G. Edwards does not believe that that a return on market value of 8.1% to 8.2% would be a reasonable return on book equity, nor that regulators would be expected to allow returns in that range. If they did, presumably A.G. Edwards would indicate to investors that the shares were over-valued and recommend that they be sold.

Q. Mr. Hill cites *Value Line*'s forecasts of total market returns for his samples over the next three to five years in the range of 0% to 9% for the electric utilities and 4% to 11% for the gas utilities, contending that these returns are representative of the equity return expectations presented to investors today. What are your comments?

A. The *Value Line* returns cited by Mr. Hill are total returns on market value, and only for the next three to five years. The total returns for the next three to five years are not measures of the cost of the equity, but simply the sum of the dividend yield (the prevailing dividend divided by the price at the time the forecast was made) plus the expected capital appreciation of the shares in the next three to five years.

Value Line's expected returns on market value for these utility shares are consistent with its outlook for interest rates. V*alue Line* expects long-term interest rates to increase, averaging 5.4% in 2008, as indicated on p. 19 of Mr. Hill's testimony, as compared to the average level of approximately 4.9% over the same six-week period Mr. Hill used to calculate dividend yields when he applied the DCF test. Utilities are quintessential interest-sensitive stocks whose prices move in the opposite direction of interest rates. Thus, it is not

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KeyBanc Capital of 11.3%. The average of the two estimates is 11.65%.

surprising that *Value Line* would forecast that total returns on for utilities would be relatively low in a period of rising interest rates. Moreover, as indicated on page 20, based on the *Value Line* forecasts, investors should expect the electric and gas utility industries to earn returns on their book value in the 2007-2011 period of 11.0% to 11.5%.

Q. Please discuss the market research on the market risk premium to which Mr. Hill refers and that he believes supports the reasonableness of his 9.25% recommended return.

A. Mr. Hill refers to various studies that he believes lead to the conclusion that the equity market risk premium going forward will be lower than the equity market risk premium based on the historical data from Ibbotson Associates that is widely relied upon for purposes of estimating the expected equity market risk premium. The market research on the equity risk premium to which Mr. Hill refers was in large part an outgrowth of the equity market bubble that was experienced during the mid-to late-1990s. From 1990-1999, the U.S. equity market soared. The average annual compound total return on the S&P 500 between 1989 and 1999, for example, was 18%. The price/earnings ratio of the S&P 500, which had been under 15 times in 1989 rose to 33 times in 1999. The significant market gains during the bubble were instrumental in leading both academics and practitioners to question the ability of the U.S. equity market to continue to sustain returns similar to those that had been achieved historically. A number of the studies that have concluded that the future risk premium in the U.S will be lower than in the past are premised on data series that terminate during the market bubble. However, during the subsequent equity market "bust" from 2000-2002, the S&P 500 fell by close to 40% from its 1999 peak to its 2002 low. The recent P/E

ratio of the S&P 500, at 18 times,[16] is significantly lower than the levels attained during the market bubble and is much closer to its average 1947-1989 level of 13.3 times. The significant market correction experienced in 2002 calls into question the whole notion that investors would reasonably expect future equity market returns to be lower than historic returns.

Q. Mr. Hill refers to an article entitled Dimson, March and Staunton, "Risk and Return in the 20th and 21st Centuries", *Business Strategy Review,* Volume 11, Issue 2, 2000, which concludes, based on analysis of global returns from 1900 to 2000, that the future risk premium in U.S. markets will be lower than in the past. Do you have any comments on the Dimson *et al*. article?

A. Yes. The Dimson *et al.* article is drawn from a more extensive study entitled Dimson, Marsh and Staunton, *The Millenium Book: A Century of Investment Returns*, London: ABN-Amro and London Business School, updated and published as *Triumph of the Optimists: 101 Years of Global Investment Returns,* Princeton: Princeton University Press, 2002. The Dimson et. al. article summarizes findings drawn from their studies of historic returns from twelve countries. They conclude that (1) earlier studies of historic returns suffer from survivor bias, that is, the data used to conduct analyses of the market return and market risk premiums in previous studies were constructed with hindsight and excluded sectors of the market that have since disappeared, and (2) that previous studies focus on the second half of the 20th century, during which the equity market performed better relative to the first half of the century.

[16] *Barron's*, January 1, 2007.

Despite Dimson et al.'s reliance on data designed to eliminate survivor bias, the article cited by Mr. Hill shows a equity market risk premium in relation to bonds for the U.S. covering the period 1900 to 2000 of 7.2% (equity market return of 12.2% and a bond return of 5.0%).[17] That risk premium compares to the 7.1% arithmetic average difference between stocks and bonds for the period 1926-2005 that was presented on Schedule (KCM) E-7 in my Direct Testimony. Moreover, despite Dimson et.al.'s concerns that previous studies focused on the second half of the century, Schedule (KCM) E-7 also shows that the risk premium in the post-World War II period of 7.0% was virtually identical to the Dimson et al. data for the U.S.

In addition, as discussed further below, the composition of the equity market in the early 20th century was concentrated in two industries, railroads and banks. Thus, the equity market of the first quarter of the 20th century has little comparability to the U.S. equity market of today, which is significantly more diversified among industries. *Triumph of the Optimists* (page 24) finds that close to 70% of the market in 1899 was made up of banks and railroads; in 2006, the largest sector of the S&P 500 (financials) accounts for just over 20% of the total market.

Dimson et al. also base their argument on lower risk premiums in the future based on data from other countries that have achieved lower equity returns historically than the U.S. As indicated in Ibbotson Associates, *Stocks, Bonds, Bills and Inflation: Valuation Edition, 2006 Yearbook* (p. 89), referring to analysis of survivorship from the history of world markets, "While the survivorship bias evidence may be compelling on a world-wide basis, one can question its relevance to a purely U.S. analysis. If the entity being valued is a

[17] Dimson, March and Staunton, "Risk and Return in the 20th and 21st Centuries", *Business Strategy Review*, Volume 11, Issue 2, 2000, Figure 10, p.16.

U.S. company, then the relevant data set should be the performance of equities in the U.S. market."

Q. Mr. Hill also references Jeremy Siegel, *Stocks for the Long Run*, Chicago: Irwin Professional Publishing, 1994 as support for a lower risk premium going forward than achieved during the period covered by the Ibbotson data. What is your response to Mr. Hill's use of the Siegel analysis to support his recommended return of 9.25%?

A. The Siegel study covers data from 1802-1992. It purports to show that when equity returns and equity risk premiums for the entire 1802-1992 period are considered, the returns and risk premiums for the full period are lower than those achieved in the 1926-1992 period. The study breaks down returns into three major sub-periods, and compares the returns and risk premiums achieved from 1802-1870, 1871-1925 and 1925-1992. The data provided show lower equity returns in the 1802-1870 and 1871-1925 periods than during the 1925-1992 period.

There are several reasons why the data in the 19th century and early 20th century are not reliable indicators of investors' expected returns. First, as suggested in Rajnish Mehra and Edward C. Prescott, "The Equity Premium in Retrospect", *Handbook of the Economics of Finance*, 2003, the distinction between stocks and bonds in the 19th century was not as clear as today. Second, from 1802-1871, the equity market index was made up entirely of railroads and banks, and the collected data excluded dividends. From 1871-1926 (the year the Ibbotson data commence), while the returns do include dividends, the data set starts out with only 12 stocks. Thus, the equity market of the 19th century was not at all comparable to the equity market of the 20th and 21st centuries.

Siegel also argued that the historically measured risk premiums during the 20th century were higher than could have been expected because the achieved real returns on bonds were lower than investors would have anticipated due to the impact of inflation. He concludes that low real rates of returns on bonds contributed to high equity returns, since firms finance a large part of their capital investment with debt. For the period 1926-1992, Siegel reports a real return on bonds of 2.1%. That yield is very similar to the current (2.4% mid-January 2007) yield on long-term U.S. inflation-indexed bonds (which is a proxy for the expected real return on bonds) and to the average yield on those bonds since the beginning of 2003. A similar impact on equity returns of the current low real returns on bonds supports the conclusion that the expected future market returns for equities would be similarly supported by low real costs of debt and equity risk premiums similar to those achieved over the 1926-2005 period covered by the Ibbotson data.

Q. Mr. Hill cites a study by Fama and French[18] that concludes that past achieved returns were primarily the result of a decline in investor expectations of future returns, and consequently that the expected risk premium was much lower than the achieved risk premium. Do you have any concerns with the Fama and French study cited by Mr. Hill?

A. Yes. The authors attempt to recreate the growth in dividends and earnings that they believe that investors might have expected based on actual growth rates in dividends and earnings. It is impossible to know what investors were expecting with respect to growth in earnings and dividends over the extended periods covered by this study. Essentially, the study proceeds on the premise that investors were pricing stocks on the basis

[18] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, Volume LVII, No. 2, April 2002.

of historic growth. As noted in my direct testimony, studies of analysts' forecasts of growth as compared to historic growth rates demonstrate that forecasts are more closely related to investors' expectations than historic growth rates.

A published study that did use a DCF model and analysts' forecasts of growth for the period 1982-1998 showed that the expected equity market risk premium for the S&P 500 in relation to 30-year government bonds over that period averaged 7.1%, virtually identical to the risk premium based on the Ibbotson 1926-2005 historic return data.[19] I have updated that study through 2006. The results as updated for more recent data (which include the years subsequent to the equity market bubble) continue to support an equity market risk premium at least equal to that estimated by reference to the historic data for the 1926-2005 period (See Schedule KCM-R-1).

Q. Mr. Hill also cites surveys of equity risk premiums which he believes are supportive of his recommended returns for AmerenUE. Do you have any comments?

A. Mr. Hill cites two surveys. The first is a survey of financial economists (Welch); the second is a survey of CFOs (Campbell and Harvey). With respect to the Welch survey, the survey results appear to be very dependent on the state of the equity market at the time of the survey. The Welch survey cited by Mr. Hill was a follow-up to a survey Welch had previously conducted at the height of the equity bubble. The Welch survey quoted by Mr. Hill was taken in 2001 after the equity market bubble burst, and the U.S. equity market was experiencing a significant downturn. The 2001 Welch follow-up survey results are in sharp contrast to the results of the earlier survey taken in 1998. At the time of the first survey, when the market was booming, financial economists anticipated a market risk

[19] Robert S. Harris and Felicia C. Marston, "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts", *Journal of Applied Finance*, Vol. 11, No. 1, 2001.

premium of 7.1%. At the time of the second survey, when the outlook for the market was more pessimistic, the survey indicated that financial economists anticipated a lower equity risk premium (5%). Since the survey results seem to be tied to time-specific market sentiment, and the results are not backed by any objective quantitative data, they are of limited, if any, value in the estimation of the equity market risk premium.

With respect to the Campbell and Harvey survey of CFOs, the survey reports that CFOs expect a risk premium of 2.4% relative to the S&P 500 over the next 10 years. A striking finding of the survey (p. 6) is that when the CFOs develop costs of capital for their own companies to be used as hurdle rates, "often their 10-year risk premium is supplemented so that the company's hurdle rate exceeds their expected excess return on the S&P 500." While it is not clear what their motivation is in making an upward adjustment, their inclination to do so cautions against giving any weight to the survey results, which similar to the Welch results, are not backed by any objective quantitative analysis.

Q. Finally, Mr. Hill cites an article by Ibbotson and Chen in support of lower market risk premiums. Do you have any comments?

A. Yes. Mr. Hill references an Ibbotson and Chen study that was conducted using data from 1926 to 2000 which decomposed the historic equity market returns into several components, including income and capital appreciation from earnings growth and capital appreciation from an increase in the price/earnings ratio. Their analysis found that one of the components of the achieved returns was an expansion over time of the price/earnings ratio of the equity market. On the premise that there would be no further capital appreciation from further expansion of the price/earnings ratio, Ibbotson and Chen concluded that the forward-looking equity risk premium in relation to long-term government

bonds was 4.0%-5.9%, based on compound and arithmetic averages respectively. That analysis has since been updated to include data through 2005; the authors' most recent reported estimate of the equity market risk premium based on this approach is 6.3%, which represents the arithmetic average.[20] While Ibbotson Associates discusses the results of this study (as updated) in their most recent publication, they conclude immediately after presenting the results of this and related risk premium research (e.g., on survivorship bias): "This section has briefly discussed some of the more common arguments that seek to reduce the equity risk premium. While some of these are compelling in an academic framework, most do little to prove that the equity risk premium is too high."[21]

Q. Mr. Hill states that regulators are "not aware of the significant new research regarding the market risk premium and the reduction of long-term investor return expectations? Do you agree?

A. The studies cited by Mr. Hill are not new. As I indicated earlier, the driving force of the studies seems to have been the market bubble of the mid- to late-1990s. It is hard to believe that regulators would not be aware of their existence.

Q. What are the conclusions that the Commission is to draw from your response to these studies?

A. The conclusions are that there is no reason to depart from the estimate of the equity risk premium drawn from the Ibbotson data. That estimate is 7.1%. The indicated expected equity market return is thus approximately 12.0% based on Mr. Hill's risk-free rate of 4.83%. Given his betas for his electric (0.89) and gas (0.85) samples, the indicated returns

[20] Ibbotson Associates, *Stocks, Bonds, Bills and Inflation: Valuation Edition, 2006 Yearbook*, p.98.

[21] *Ibid*., p. 98.

on the market value of the utilities' equity would be 11.2% and 10.9% respectively. These returns are 1.6 to 1.9 percentage points higher than the 9.25% return Mr. Hill recommends.

Q. What concerns do you have regarding Mr. Hill's general approach to estimating his 9.25% recommended return on equity?

A. Essentially he uses one model, the discounted cash flow model, to estimate the cost of equity. While Mr. Hill reports the results of four tests, he uses three of them only as corroborative analyses to support his DCF results. Moreover, two of the three tests used to corroborate his DCF results are DCF tests themselves. In principle, no single test should be relied on to estimate a fair return. Each test has different premises and brings its own perspective to the estimation of a fair return.

Q. Do you have any specific concerns with Mr. Hill's application of the DCF test?

A. Yes. First, there are some apparent inconsistencies in Mr. Hill's selection of his comparable electric utilities. His selection criteria require each of the utilities to have a senior bond rating in the range of A and BBB-. However, his sample of companies includes three companies whose S&P ratings are BB+ (Central Vermont, DPL, and Tucson Electric, the principal operating subsidiary of UniSource Energy). Further, Mr. Hill failed to include Southern Company, although his Schedule 3 indicates that it met all of the selection criteria. It is not clear what impact these inconsistencies in sample selection had on his results.

Second, each of Mr. Hill's growth estimates for the comparable companies represents his own view of what investors would regard as reasonable. His estimated growth rates for each company essentially substitute his own subjective views of what investors should expect in place of the more objective estimates of investor expectations that are

provided by the widely available consensus of analysts' earnings forecasts. With respect to his electric utility sample, the substitution of his own views for the analysts' consensus long-term earnings growth forecasts reduces the average forecast growth rate for his sample from 6.4%-6.5% to 5.35%. Replacing Mr. Hill's own assessment of expected growth with the consensus of analysts' forecasts raises his DCF estimate for the electric utility sample from 9.26% to 10.40%.

Second, Mr. Hill uses an annual constant growth model for estimating the DCF cost, but he does not apply it properly. The formula for the annual constant growth model is:

$$\text{Cost of Equity (k)} = \frac{D_1}{P_o} + g,$$

where,

D_1 = next expected dividend
P_o = current price
g = constant growth rate

The annual constant growth model is based on the premise that investors expect the same growth rate in earnings, dividends and book value in perpetuity. The proper application of the annual constant growth model requires increasing the current dividend yield by the same full growth rate, g, used as the growth component in the model. Mr. Hill only increases the dividend yield of the companies in his sample when the company is expected to increase its dividend in the next quarter. Failure to reflect the full long-term expected growth rate in the dividend yield component of the annual constant growth DCF model, will understate the cost of equity.[22]

[22] The annual model itself tends to understate the cost of equity because it does not consider the compounding effect of quarterly dividend payments, which can be reinvested.

Substituting into the model both the analysts' forecasts of growth for Mr. Hill's own views of investor expectations and an expected dividend yield that reflects the constant perpetual growth rate raises Mr. Hill's DCF cost for his electric utility sample from 9.26% to 10.55% (See Schedule KCM-R-2).

Q. Do you have disagreements with Mr. Hill's application of the Capital Asset Pricing Model (CAPM)?

A. Yes. Mr. Hill's CAPM uses a market risk premium in the range of 4.9% to 6.5%. The 4.9% represents the difference between the compound (or geometric) average of stock returns and the compound average of total bond returns over the period 1926-2005. The 6.5% represents the difference between the arithmetic average of stock returns and total bond returns over the same period.

My concerns with his views on the size of the market risk premium in general were discussed in detail above. I have also discussed my disagreement with the use of geometric rather than arithmetic returns in developing an estimated of the expected market risk premium. Further, I disagree with the manner in which he estimates the differential between stock returns and bond returns to arrive at the estimated equity risk premium.

Q. Please explain your disagreement.

A. The CAPM estimates the return required by a diversified investor above the risk-free rate. Mr. Hill uses the total returns achieved on bonds (income plus capital gains/losses) as the proxy for the historical risk-free rate. Ibbotson and Associates, *Stocks, Bonds, Bills and Inflation, Valuation Edition, 2006 Yearbook*, pages 75-76, explain why the income return, not the total return, on bonds should be used as the proxy for the historical risk-free rate when estimating the expected market risk premium.

Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return. The income return is defined as the portion of the total return that results from a periodic cash flow or, in this case, the bond coupon payment. The capital appreciation return results from the price change of a bond over a specific period. Bond prices generally change in reaction to unexpected fluctuations in yields. Reinvestment return is the return on a given month's investment income when reinvested into the same asset class in the subsequent months of the year. The income return is thus used in the estimation of the equity risk premium because it represents the truly riskless portion of the return.

Q. What is the impact of the corrections to the market risk premium on Mr. Hill's CAPM estimates of the cost of equity?

A. Utilizing a market risk premium of 7.1%, his risk-free rate of 4.83%, and the betas of 0.89 and 0.85 respectively for his electric and gas samples, the costs of equity are 11.1% and 10.9%. These corrected results are significantly higher than the 9.2%-10.6% (electric) and 9.0%-10.4% (gas) CAPM results obtained by Mr. Hill.

Q. Do you have any comments on Mr. Hill's Modified Earnings-Price Ratio Analysis?

A. Yes. Mr. Hill's modified earnings-price ratio analysis is an average of two separate and distinct calculations, an earnings-price ratio and an expected return on book equity. An earnings-price ratio is no more than what the term says it is: past earnings per share divided by the current price. It is not a measure of the return that investors require on the market value of their equity investment. It says nothing about what investors expect with respect to future earnings. Unless expected growth is zero, the earnings-price ratio underestimates the required return on market value. It is obvious from all of the discounted cash flow tests performed by the witnesses that investors in electric and gas utility stocks

expect significant growth. The earnings-price ratio has long been discarded as a measure of the cost of equity, specifically because it does not incorporate investors' estimates of future growth in earnings.

The return on book equity with which Mr. Hill averages the earnings-price ratio does not measure the return required on the market value of utility shares either. It is the return that investors expect the utilities to earn on the book value of the equity. It makes no sense to take two values that represent two totally different concepts, and expect that their average will equal a meaningful estimate of the market return that investors require or expect. In principle, the test implies, using Mr. Hill's values for earnings-price ratios and returns on book value, that the cost of equity for his electric utility sample could range anywhere from 6.6% to 10.6%. The corresponding implied range of equity costs for his gas utility sample is 5.9% to 11.3%. While Mr. Hill states that the FERC found this methodology useful during the 1980s when they published quarterly generic estimates of the cost of equity for electric utilities, he fails to mention that the FERC also indicated that the results were not entitled to great weight because they were imprecise and could have supported a return within a wide range.[23] A review of the FERC's current methodologies for estimating the cost of equity (for electric transmission, gas and oil pipelines) reveals that FERC no longer relies at all on this approach. Moreover, other than Mr. Hill, I am not aware of anyone else who uses this approach to estimate the cost of equity.

[23] Reg-Preamble, FERCSR 1986-1990 ¶ 30,795 Generic Determination of Rate of Return on Common Equity for Public Utilities, Order No. 489, January 29, 1988, Docket No. RM87-35-000, 18 CFR 37, 53 RR 3342.

Q. Do you have any comments on Mr. Hill's Market-to-Book Ratio Analysis?

A. Yes. Mr. Hill's Market-to-Book Ratio Analysis is simply the DCF test in another form. Mr. Hill agrees that is the case when he says at page 50 that the method is derived algebraically from the DCF model and cannot be considered a strictly independent check of that method. Indeed the inputs to the Market-to-Book Ratio Analysis are similar to those Mr. Hill used in the "conventional" DCF model and thus the results are similar to those of the "conventional" model. The results provide no more insight into a reasonable return on equity for AmerenUE than did his application of the "conventional" DCF model.

Q. Mr. Hill arrives at a range of estimates of 9.0-9.75% for AmerenUE but chooses a value in the lower end of the range, that is, 9.25% to reflect what he considers to be AmerenUE's lower financial risk relative to that of the companies in his sample. Is this appropriate?

A. No. Mr. Hill chooses a value in the lower end of the range because AmerenUE's book value common equity ratio is higher than the average book value common equity ratio of his sample of companies. Thus Mr. Hill concludes that AmerenUE has less financial risk than his sample of companies. Mr. Hill fails to recognize that the financial risk that is important to equity investors in their estimation of the return that they require on the market value of common shares is a function of the market value capital structures of the companies, not the book value capital structures. As a result, Mr. Hill should have made an upward adjustment for the higher financial risk of AmerenUE, not a downward adjustment, because the ratemaking common equity ratio to which the return on equity will be applied is

lower than the market value common equity ratios which underpin the cost of equity as determined in the equity markets.

IV. COMMENTS ON DR. WOOLRIDGE'S TESTIMONY

Q. What are Dr. Woolridge's recommended returns on equity for AmerenUE's gas and electric utility operations?

A. Dr. Woolridge recommends a return on equity for both the gas and electric utility operations of 9.0%. A 9.0% return on equity, similar to Mr. Hill's recommended return on equity, is well outside the range of returns that investors would view as fair and reasonable.

Q. Would you please summarize your critiques of Dr. Woolridge's testimony?

A. My principal critiques, as discussed in more detail below, include:

(1) His DCF results, to which he gives the most weight, include his own subjective estimates of investors' growth expectations. Replacing his own estimates with the analysts' growth forecasts and properly applying the annual constant growth model increase his DCF result from 9.0% to 9.5-10.2%.

(2) His CAPM result is premised on an equity market risk premium of 4.2%, which is approximately 300 basis points lower than is reasonable. Revising Dr. Woolridge's CAPM results for a reasonable estimate of the equity market risk premium raises his CAPM result from 8.5% to 11.1%.

(3) His test of the reasonableness of his recommendation by reference to the market-to-book ratios of utilities is fatally flawed.

In addition, similar to Mr. Hill, in arriving at his recommended return, Dr. Woolridge fails to account for the financial risk differences between the market value capital structures of his sample of comparable companies and AmerenUE's book value capital structure proposed for ratemaking purposes.

Q. How does Dr. Woolridge develop his recommended return on equity?

A. His recommended return is based on the application of the discounted cash flow test. He also presents the Capital Asset Pricing Model, but states that he gives it less weight because he believes equity risk premium tests are less reliable indicators of the cost of equity for utilities. Dr. Woolridge also states that he tests the reasonableness of his 9.0% recommended return by reference to the relationship between returns on equity and market-to-book ratios.

Q. How does Dr. Woolridge perform his discounted cash flow test?

A. He adopts the same sample of electric utilities that has been used by Dr. Vander Weide, to which he applies the annual constant growth DCF model.

Q. Does he apply the annual model correctly?

A. No. As I stated in my discussion of Mr. Hill's testimony, the proper application of the annual growth model requires that the expected dividend yield include the full long-term expected growth rate. Dr. Woolridge only increases the current dividend yield by one-half of the expected growth rate, which biases the estimated cost downward.

Q. How did he estimate the long-term expected rate of growth that is required in the constant growth model?

A. Dr. Woolridge examined historic and forecast growth rates and made an estimate of the internal rate of growth. From all of these growth rates, he concluded that that an expected growth rate of 5.0% is reasonable.

Q. Is there any objective means with which his expected rate of growth can be tied to the various growth rates that he examined?

A. No. The growth rate he chose appears to be a subjective estimate of what he believes investors should think is a reasonable rate of future growth.

Q. Do you have any concerns with how he came to his estimate?

A. Yes. One concern that I have is the consideration of historical growth rates in the "mix". As I stated in my direct testimony, to the extent history is relevant in deriving the outlook for earnings, it should already be reflected in the forecasts. Therefore, reliance on historic growth rates is at best redundant, and, at worst, potentially double counts growth rates which are irrelevant to future expectations. As Schedule JRW-7, pages 3 and 4 of 5 demonstrate, the historic growth rates in earnings, dividends and book value reported by *Value Line* are materially lower than those *Value Line* is forecasting.

A second concern is Dr. Woolridge's estimate of internal growth. Internal, or sustainable growth is premised on the notion that future dividend growth depends on the firm replowing or reinvesting a portion of its earnings in order to produce dividends in the future. Internal growth is comprised of two components. The largest component reflects the internal growth of the firm, and is estimated as the expected return on equity multiplied by the portion of earnings retained in the business. This is frequently referred to as "BR" growth.

The second component is the external component of growth, called "SV growth". That component is the amount of growth expected to be achieved from the issuance of additional shares of common stock over time. The "SV" component is estimated as the percent expected growth rate in the number of shares outstanding (S) multiplied by the percent of funds from new equity financing that accrues to existing shareholders (V).[24] In Dr. Woolridge's application of the internal growth method, he did not consider the SV component of growth. Failure to include the SV component can seriously understate the expected sustainable growth rate. This is particularly true during periods when utilities need to raise substantial amounts of capital to invest in infrastructure. To provide some perspective on the potential magnitude of understatement, Mr. Hill forecast average share growth for his sample of electric utilities of 1.6%. The average market/book ratio reported by Dr. Woolridge for his sample of electric utilities was 1.8 times. Share growth of 1.6% at a market-to-book ratio of 1.8 times adds 0.7 % to the internal rate of growth. Since Mr. Hill's and Dr. Woolridge's samples are not the same, and Mr. Hill's forecasts of share growth for each of his companies are his own judgment, the estimate of 0.7% should only be viewed as a potential order of magnitude.

Q. Do you have any other comments respecting Dr. Woolridge's internal rate of growth calculations?

A. Yes. The inputs into the internal growth calculation demonstrate the unreasonablenss of Dr. Woolridge's recommended return of 9.0%. The internal growth rate calculated by Dr. Woolridge is premised on the utilities in the sample earning close to 11.0% (average of mean and median *Value Line* forecast returns on equity as per Schedule JRW-7,

[24] Formula for V is (1-Book Value/Market Value).

page 4 of 5). If investors thought the cost of equity to these utilities was 9.0%, presumably they would expect the utilities to earn 9.0%, not 11.0%.

Q. What do you recommend with respect to Dr. Woolridge's DCF model?

A. I recommend that instead of using a subjective combination of forecast and historical growth rates that he use the consensus of analysts' forecasts, and apply the full forecast growth rate in the annual model that he is using.

Q. What impact would that have on the results?

A. As indicated on Schedule KCM-R-3, using his six-month average dividend yield, the average of the analysts' consensus growth forecasts for each company from the three sources (First Call, Reuters and Zack's) that he uses, and the full growth in the dividend yield component, the average DCF cost for the companies in the electric sample is 10.2% and the median is 9.5% (mid-point of 9.9%).

Q. Please discuss Dr. Woolridge's CAPM results.

A. Dr. Woolridge finds that the CAPM cost of equity for the sample of electric utilities is 8.5%, well below any of the estimates made by any of the other witnesses. He uses a risk-free rate of 4.75%, which appears to be based on 10 and 30 year Treasury bonds, but is non-specific. He also uses a beta of 0.89, which is similar to the betas used by other witnesses in this case. His risk premium test result is so low because he uses a market risk premium of 4.2%.

Q. How does Dr. Woolridge support his 4.2% market risk premium?

A. He looks at various studies on the size of the market risk premium and then averages the results to arrive at his 4.2% estimate. To a large extent he covers the same ground that Mr. Hill did, and to the extent that the studies cited by the two witnesses overlap,

my comments on Dr. Woolridge's testimony are the same as for Mr. Hill. The specific studies Dr. Woolridge used to develop his 4.2% risk premium were summarized in a single article by Richard A. Derrig and Elisha D. Orr, entitled "Equity Risk Premium: Expectations Great and Small" cited by Dr. Woolridge. Two key messages can be drawn from the Derrig and Orr article: 1) be wary of studies based on data that precede the severe equity market decline in 2000 that conclude that the future risk premium is low; and (2) it is dangerous for actuaries (to whom the article was addressed) to engage in simplistic analyses of historical equity risk premiums to generate results that differ from the realized average. Moreover, the very authors (Mehra and Prescott) who are often given credit for first raising what is sometimes referred to as the "equity risk premium puzzle", have themselves revisited the equity risk premium, and, after assessing the data, have arrived at the conclusion that over the long horizon, the equity premium is likely to be similar to what it was in the past.[25]

Q. On that basis, what are your conclusions regarding Dr. Woolridge's application of the CAPM?

A. His 4.2% equity market risk premium should be replaced with the historic average, which has been estimated by Ibbotson Associates at 7.1% based on the 1926-2005 period. The resulting CAPM estimate using his 4.75% risk-free rate and 0.89 beta is 11.1%, 250 basis points higher than his estimate of 8.5%.

Q. Does Dr. Woolridge's "test of the reasonableness" of his 9.0% return on equity lend any credence to the results?

A. No. Dr. Woolridge's "test of the reasonableness" of his 9.0% return recommendation boils down to the following: He believes that if a utility has a market-to-

[25]Rajnish Mehra and Edward C. Prescott, "The Equity Premium in Retrospect", *Handbook of the Economics of Finance*, Elsevier BV, 2003.

book ratio in excess of 1.0, the utility is earning a return in excess of its cost of equity. That conclusion is flawed on several counts. First, as I indicated earlier, book values reflect accounting conventions that can result in a significant divergence between the recorded values and true economic values. Second, market values do not reflect current or past earnings, but future expected earnings. As Dr. Wooldridge's own workpapers show, there are utilities that have earned returns equal to or below their cost of debt and which have market-to-book ratios in excess of 1.0 (e.g., Semco Energy, CMS Energy, Southwest Water). Third, market valuations are relative, not absolute. They will reflect the tenor of the overall market. At January 1, 2007, the market-to-book ratio of the S&P 500 was 3.1 times; the corresponding market-to-book ratio of the S&P Industrial Index was 3.6 times.[26] By those measures, the 1.8 times market-to-book ratio reported by Dr. Wooldridge is relatively modest. Fourth, there is no economic reason that market-to-book ratios should equal one. As discussed earlier, economic theory holds that the market value should, in equilibrium, be equivalent to the replacement cost of the assets, not the accounting book value.

V. COMMENTS ON MR. GORMAN'S TESTIMONY

Q. Please summarize Mr. Gorman's equity return testimony.

A. Mr. Gorman uses three tests to estimate the cost of equity: the constant growth DCF model, an equity risk premium test and the CAPM. His results for the three tests are, respectively, 9.2%, 10.2% and 10.3%. His recommended return on equity for AmerenUE is 9.8%.

Q. Please summarize your main concerns with Mr. Gorman's testimony.

A. My main concerns are as follows:

[26] *Barron's*, January 1, 2007.

(1) His utility risk premium test understates the cost of equity because it fails to recognize the inverse relationship between interest rates and equity risk premiums;

(2) His application of the CAPM understates both the expected equity market return and equity market risk premium

Q. Do you have any comments on Mr. Gorman's Discounted Cash Flow Test?

A. In principle, I have no problems with the manner in which Mr. Gorman applied the constant growth DCF model. He relied on analysts' forecasts to estimate investors' growth expectations and, and in applying the constant growth model, correctly applied the full rate of growth to the current dividend yield to arrive at the expected dividend yield. However, I would question the stringency of his selection criteria for his sample, which led him to select the smallest sample of all of the witnesses in this proceeding (13 companies). For that reason, his DCF results may be less reliable than estimates derived from larger samples.

Q. Please describe Mr. Gorman's equity risk premium test.

A. Mr. Gorman estimates the equity risk premium by averaging the results of two approaches. In the first, the differences between the allowed rates of return on equity and the yield on 20-year government bonds for the period 1986-September 2006 are determined. Using the 5.2% mid-point of a range of differences of 4.4% to 5.9% (in which 15 of his 20 observations fall), he adds his forecast 20-year Treasury bond yield of 5.1% to arrive at a return on equity of 10.3%. Mr. Gorman's second risk premium approach adds a utility risk premium over utility bonds of 3.7% (mid-point of a range of 3.0% to 4.4%) to the 13-week

average yield on Baa rated utility bonds for the period ending November 13, 2006, producing a cost of equity of 10.0%.

My main concern with this analysis is the fact that it averages the risk premiums over years when the risk of bonds was higher than it is today. From 1986-1995, the rate of inflation averaged 3.5%, with a maximum rate of 5.4%. From 1996 to 2006, inflation has been contained within a range of 1.6 to 3.4%, averaging 2.6%, virtually identical to the long-term inflation forecast.[27] The combination of higher and more volatile rates of inflation raises the risk of investing in bonds (relative to equities). If inflation rises above expected levels, bond investors will be impacted more negatively than equity investors, since bond investors are locked-in at the rate at which they invested. If there is a strong fear of unanticipated inflation, bond investors will require an additional premium above the expected rate of inflation (a lock-in premium). Since equities are a better hedge against unanticipated inflation, equity investors will not demand a lock-in premium of the same magnitude. During periods when the fear of unanticipated inflation is high, and the lock-in premium in bond yields is also high, the equity risk premium will be lower. When the fear of unanticipated inflation dissipates, the equity risk premium will expand. Using the longer 1986-2006 period to measure the differential between allowed returns and bond yields masks the expansion in the equity risk premium that occurred as bond investors became increasingly comfortable that inflation would not reignite to levels that had been experienced in the 1970s and early to mid-1980s.

In other words, there is an inverse relationship between interest rates and equity risk premiums. Using the simple average of the risk premiums over the period 1986-

[27] Blue Chip *Economic Indicators*, October 10, 2006

2006 fails to recognize that relationship and thus understates the required risk premiums at current and forecast interest rates.

The required risk premium at current interest rates can be estimated from Mr. Gorman's data through a simple regression analysis using the indicated historic bond yields as the independent variable and the corresponding risk premiums (allowed return on equity minus the bond yield) as the dependent variable. The resulting two regressions are as follows:

1) Equity Risk Premium = .077 – 0.40 (20-Year Treasury yield)

t-statistic = -5.5

R^2 = 56%

2) Equity Risk Premium = .068 – 0.39 (A-rated utility bond yield)

t-statistic = -5.6

R^2 = 61%

At Mr. Gorman's forecast Treasury yield of 5.1%, the indicated equity risk premium is 5.7%, and the resulting equity return is 10.8%, 50 basis points higher than Mr. Gorman's result of 10.3%. At his utility bond yield of 6.3%, the indicated risk premium is 4.25%, for an equity return of 10.6%, 60 basis points higher than his calculated 10.0%. The corrected resulting range of Mr. Gorman's two risk premium approaches is 10.6-10.8%, approximately 55 basis points higher than his calculated values of 10.0% to 10.3% that were based on simple historic average risk premiums.

Q. Do you have any comments regarding Mr. Gorman's CAPM?

A. Yes. I disagree with his estimates of the market risk premium. Mr. Gorman estimates the market risk premium two ways. For his first approach, he adds the average

historic real return on equities to the long-term forecast of inflation to arrive at an estimate of the future market return of 11.7%. From that estimated market return, he subtracts the forecast risk-free rate of 5.1% to arrive at an estimated market risk premium of 6.5%. His second approach takes the nominal historic return on equities from which he subtracts the historic achieved total return on government bonds, arriving at a market risk premium of 6.5%.

With respect to the first approach, adding the real return achieved on the market to expected inflation would be appropriate if there were any evidence that the expected return on the market moves in tandem with the rate of inflation. There is no evidence based on the historic market results that it does. There has been no correlation between inflation and market returns historically. In the absence of any observable relationship between inflation and real returns, or any indication that there is any secular upward or downward trend in the nominal market returns (which there is not), the nominal achieved market return is the better estimate of the forward looking market return. The nominal market return, as utilized in Mr. Gorman's second approach, is 12.3%, leading to a market risk premium over his 5.1% forecast risk-free rate of 7.2%.

Mr. Gorman's second approach to estimating the market risk premium, as noted above, uses the nominal return on market returns less the total return on bonds. As discussed in my critique of Mr. Hill, the income return, not the total return, on bonds should be used to estimate the market risk premium.

Using the income return of 5.2% instead of the total return on bonds of 5.8% produces a virtually identical risk premium to the corrected first approach, since the average

income return on bonds of 5.2% over the historical period used is within 10 basis points of Mr. Gorman's forecast Treasury bond yield of 5.1%.

With the change in the market risk premium to a range of 7.1%-7.2%, given the average beta for Mr. Gorman's sample of 0.80, the CAPM results for his electric utility sample would be 10.8%, compared to his estimate of 10.3%.

VI. RESPONSE TO MR. GORMAN'S CRITIQUES

Discounted Cash Flow Test

Q. With respect to your constant growth DCF test, Mr. Gorman takes issue with the reasonableness of the growth forecasts you use. What is your response?

A. At page 8 of his testimony, Mr. Gorman states

> However, for purposes of determining the market required return on common equity, one must attempt to estimate what the consensus of investors believe about the dividend or earnings growth rate, and not what an individual investor or analyst may use to form individual investment decisions .
>
> Security analysts' growth estimates have been shown to be more accurate predictors of future returns than growth rates derived from historical data.[1] They are more reliable estimates and, assuming the market generally makes rational investment decisions, analysts' growth projections are the most likely growth estimates that are built into stock prices.
>
> 1/ See e.g., David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield", *The Journal of Portfolio Management*, Spring 1989.

Apparently, however, that conclusion only applies when the forecast rates of growth are all below a level Mr. Gorman believes is reasonable. It bears noting that Mr. Gorman does not suggest disregarding growth rates of utilities that might be "abnormally low." Mr. Gorman has performed DCF analyses in recent years that have relied on significantly higher estimates of utilities' long-term growth rates. To illustrate, in Docket 02-

0432 September 2001 for Illinois Power, Mr. Gorman used a forecast growth rate of 6.8% based on analysts' forecasts for a sample of electric utilities, as compared to the median growth rate for the electric utilities of 6.6% in my sample testimony. Since the forecast long-term growth for the economy has not changed materially since 2001,[28] it is perplexing why a forecast growth rate of 6.8% was an appropriate estimate of investor expectations in 2001, but is not today.

Q. Do you agree with Mr. Gorman that only your two-stage growth DCF model should be used?

A. No. Since analysts do not make forecasts beyond five years it is not possible to determine whether investors implicitly expect the forecast growth rates to continue indefinitely or, if they expect growth rates to decline to a level approximately equal to the rate of growth in the economy, when that would occur. The single stage model results clearly demonstrate the expected relationship between the level of growth forecasts and dividend yields – all other things equal, the higher the growth forecast, the lower the dividend yield.

The application of the two stage model masks that relationship, producing unreasonably low DCF costs for the higher growth companies relative to the estimates for lower growth companies.

[28] Per Blue Chip *Economic Indicators*, October 2001, the long-term expected growth rate in the economy was 5.4%, compared to the 5.1% cited by Mr. Gorman at p. 10 of his testimony in this proceeding.

Market Risk Premium

Q. Mr. Gorman critiques your estimated market risk premium because you used the income return component of historic bond returns in estimating the future risk premium. Why is this critique misplaced?

A. I have already addressed this issue in part with respect to Mr. Gorman's own application of the CAPM. The income component is the "risk-free" component of the bond return, and, as such, is compatible with risk premium tests such as the CAPM.

Q. Mr. Gorman takes the position that using total returns in stocks while using income returns on bonds is a mismatch. Is he right?

A. No. It is appropriate to use historic income returns on bonds as the estimate of the *ex ante* expected risk-free rate while simultaneously using total returns on equities when the historic equity returns do not exhibit any observable trends over time. There are no observable secular trends in the equity market returns that suggest those returns were not a reasonable reflection, on average, of expectations. Thus, there is no reason that they would not be used by investors in making estimates of future expected returns in conjunction with the income corresponding income returns as the measure of the risk-free rate.

Q. Mr. Gorman takes issue with your forward looking DCF estimate of the return on the market of 12.7%, which he calls "wildly exaggerated and not reasonable". Do you agree?

A. No. The market return of 12.7% is based on the dividend yield plus the consensus of analysts' forecasts of earnings growth for the individual companies that make up the S&P 500. The resulting estimated market return of 12.7% is not out of line with the

12.3% return used by Mr. Gorman in his CAPM nor with the 13.1% average annual return that has been achieved by investors since the end of World War II; See Schedule (KCM)-E-7.

Q. Mr. Gorman develops an alternative estimate of the market risk premium using *Value Line*'s projections of the total appreciation potential for the equity market for the next three to five years which purports to show that your expected market return is overstated. Is this an appropriate approach?

A. No. The *Value Line* forecasts of capital appreciation represent a relatively short-term measure of capital appreciation, and are very much dependent on the specific level of the equity market at the time the estimate was made. Because the equity market is volatile, *Value Line*'s estimates of the market appreciation potential can vary significantly from month to month. The table below illustrates the variations in the capital appreciation potential forecast by Value Line since mid-year 2006 to the date of the *Value Line* projection used by Mr. Gorman.

Table 5

Date	Dividend Yield	Appreciation Potential	Implied Compound Growth	Implied Market Return
Nov-24-2006	1.6%	35%	7.8%	9.4%
Oct-13-2006	1.7%	45%	9.7%	11.4%
Sep-8-2006	1.8%	50%	10.7%	12.5%
Aug-11-2006	1.8%	50%	10.7%	12.5%
Jul-7-2006	1.7%	55%	11.6%	13.3%

If the three to five year capital appreciation forecasts in conjunction with the dividend yield were indeed reliable estimates of the market cost of equity, the conclusion would be that the market cost of equity had declined by almost four percentage points in less than five months during 2006! Such a conclusion would be nonsensical. The *Value Line*

forecasts of capital appreciation simply cannot be used to estimate the long-term expected cost of equity for the market.

Q. Mr. Gorman also disagrees with your upward adjustment to the achieved market risk premium to take account of the spread between 20-year and 10-year bond yields. In his critique, he points to the current low spread between 10- and 20-year bonds as evidence that the upward adjustment is uncalled for. Please respond.

A. The duration of the risk-free rate used to develop the risk premium and duration of the risk-free rate to which that risk premium is added need to be the same. Ibbotson Associates' historic risk premium series is developed by reference to 20-year bond yields. I have used the 10-year Treasury note – which is the widely used benchmark bond – to estimate the CAPM cost of equity. Historically, the yield on 10-year bonds has been 50 basis points lower than the yield on the 20-year bond. Thus, the measured historic risk premium over the 20-year bond income return is 50 basis points lower than it would have been in relation to the income return on 10-year bonds. The fact that the yield curve is reasonably flat (that is, yields all along the yield curve, from 3-month Treasury bills to 30-year Treasury bonds, are relatively similar) at the present time does not alter the historic difference between 10- and 20-year bond yields.

To put this in perspective, on average, over the period 1926-2005, the return on Treasury bills was 140 basis points lower than the income return on 20-year Treasury bonds. This difference is consistent with a normal upward sloping yield curve, reflective of the premium that investors normally require to commit their capital for twenty years rather than 90-days. The typical difference between 90-day T-bills and 20-year Treasury bond

yields leads to an actual risk premium above Treasury bills that has been 140 basis points higher than the premium above the 20-year Treasury bonds income returns.[29]

No analyst would take the higher measured risk premium above Treasury bills and add that higher premium to a long-term bond yield, irrespective of whether the prevailing yield curve is upward sloping, flat, or downward sloping. The same principle applies here. The risk premium must be estimated in relation to a risk-free rate with the same duration as the risk-free rate to which that risk premium is then added. The historic risk premium was measured above 20-year bonds. It should not be applied to a 10-year Treasury bond yield without proper recognition of the historic difference between 10- and 20-year bond returns.

Q. Why do you not just add the historic risk premium over 20-year bond income returns to a forecast 20-year bond yield?

A. There is no forecast 20-year Treasury bond yield. The U.S. government has not issued 20-year bonds since 1986, thus the published yields on 20-year bonds are somewhat artificial. The ten-year note has been the benchmark bond, against which new debt issues are priced, ever since the U.S. government stopped issuing 30-year bonds in 2001.

Beta

Q. Mr. Gorman states that your beta estimate of .90 "significantly overstates the risk of a regulated electric utility operation." Is he correct?

A. No. The conclusion that the beta for my sample of electric utilities is fully consistent with the relative risk of those proxy companies can be verified by comparing my electric utility sample with my gas distribution sample. Table 6 below compares the risk

[29] As documented in Ibbotson Associates, *Stocks, Bonds, Bills and Inflation, 2006 Yearbook,* page 119.

statistics and calculated costs of equity for each of the two samples I used to develop my recommended returns for AmerenUE's electric and gas operations.

Table 6

Sample	*Value Line* Betas (Medians)	Median Ratings		S&P Business Profile Score	DCF Cost
		S&P	Moody's		
Electric Sample	0.90	BBB	Baa2	6	10.0%
Gas Sample	0.80	A	A3	3	9.5%

Source: Schedules KCM-E3-1 and G3-1 and McShane Direct Testimony, page 4.

A comparison of the debt ratings, the business profile scores, and the estimated DCF costs shows that the selected electric utilities are of higher risk than the gas utilities. The debt ratings of the electric utilities are two notches lower, the business risk profile score is materially higher and the estimated DCF costs are higher. The difference in the betas is perfectly consistent with the differences in risk between the two samples. There is nothing that suggests the electric utility sample beta is out of line with its relative risk. I would also note that the 0.90 beta I used for my sample of electric utilities is virtually identical to the 0.89 beta of Mr. Hill's electric utility sample as well as to the average *Value Line* beta for Mr. King's electric utility sample (0.88).

Utility Risk Premium

Q. Mr. Gorman critiques your estimate of the utility risk premium derived from historic utility market returns because you used the income return component of

historic bond returns in relation to the total (income plus capital appreciation) equity returns. Why is this critique misplaced?

A. As discussed above with respect to the development of the equity market risk premium in the CAPM, the objective is to estimate the premium required above the risk-free rate. The income component of bond returns is the "risk-free" component of the total bond return. As such, it represents the best proxy of what was the expected value of the risk-free rate historically and thus is the proper value to use for the purpose of estimating the required risk premium above the risk-free rate.

Q. Mr. Gorman redoes your DCF-based equity risk premium test using 20-year Treasury bonds instead of the 10-year Treasuries you used, and comes up with a lower risk premium. Is there any problem with his analysis?

A. Yes. I previously discussed the fact that the U.S. government has not issued any 20-year Treasury bonds since 1986, and that the reported yields on 20-year bonds are somewhat artificial, and are less reliable as a measure of the true market cost of issuing new government debt than are the more frequently issued 10-year notes.

Q. Mr. Gorman takes issue with your adjustment for financial risk because he claims that it does not accurately evaluate differences in financial risk between AmerenUE and the comparable companies. Have you properly accounted for differences in financial risk?

A. Yes. I have previously explained that, in the context of estimating the cost of equity, it is the market value capital structure that determines the level of financial risk and the cost of equity capital. Mr. Gorman appears to agree that financial leverage does not affect the risk or the return on the firm's assets, but it does push up the risk of the common

stock, and that shareholders demand a correspondingly higher return because of this financial risk.[30] Thus, all other things equal (e.g., a similar level of business risk), a higher debt ratio means a higher degree of financial risk, and a higher cost of equity. The financial literature makes it clear that the cost of capital is estimated in relation to market value capital structures.

In Brealey and Myers, *Principles of Corporate Finance,* Sixth Edition, 2000, p. 544, the authors state the following in reference to the calculation of the weighted average cost of capital:

> Why did we show the book balance sheet? Only so you could draw a big X through it. Do so now.
>
> When estimating the weighted-average cost of capital, you are not interested in past investments but in current values and expectations for the future.

Since AmerenUE is proposing a book value common equity ratio for ratemaking purposes, and that book value common equity ratio is lower than the market value common equity ratio underpinning the costs of equity of the comparable companies, an adjustment to the comparable companies' cost of equity for the higher financial risk inherent in AmerenUE's ratemaking capital structure is required.

Q. What about Mr. Gorman's comments that the debt rating agencies look at other measures of financial risk than capital structure?

A. He is correct, but the debt rating agencies are not estimating the cost of equity capital and they are not looking at the financial risk from the perspective of equity investors. Rather they are concerned about default risk, and thus tend to be cautious regarding the amount of fixed obligations that the companies they rate have.

[30] Response to DR KCM-MIEC-010.

Q. Mr. Gorman also suggests that securities analysts look at book value capital structures. Is that correct?

A. They may look at them, but for purposes of valuing securities, for which they would use an estimated cost of capital, they would use a market value capital structure.

Q. Mr. Gorman recommends rejection of the comparable earnings test results, essentially because he claims the results do not measure the current cost of capital necessary to attract capital in the marketplace. Do you have any comments?

A. I agree that the comparable earnings test is not a market-driven model and does not estimate the investor's required return on equity (as measured relative to market values). It is not intended to do so. There are three criteria for setting a fair return on equity, the ability to attract capital at reasonable rates, the maintenance of financial integrity and the opportunity to earn returns commensurate with those of comparable risk companies. The market-driven tests (DCF and risk premium/CAPM) directly address the first two criteria. The comparable earnings test addresses the third. The U.S. Supreme Court in *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, 692 (1923) stated that a public utility is entitled to:

> a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . .

Implementation of this standard, as articulated in *Bluefield*, needs to recognize that the regulatory construct (original cost rate base) and the manner in which the return is determined and set are not independent. In a truly competitive environment, prices are set on the basis of market values, not book values. Under original cost regulation, where the equity

used for regulatory purposes is based on the original cost, the comparable earnings test is a meaningful guideline for a fair return.

Nevertheless, I would note that, for purposes of my testimony, the comparable earnings test was used primarily for the purpose of assessing the reasonableness of the returns that were estimated by reference to the market-driven tests, inclusive of the adjustments warranted for the differences between the book value to which the return is applied and the market value capital structures underpinning the estimation of the investor's required return.

VII. COMMENTS ON MR. KING'S TESTIMONY

Q. Please summarize Mr. King's approach to estimating the return on equity for AmerenUE.

A. Mr. King recommends a return on equity of 9.65% for AmerenUE's electric utility operations and 9.05% for the gas utility operations. His recommendation is based solely on the results of the discounted cash flow approach. While he performs the CAPM test, he gives no weight to its results. As I indicated earlier, no single test should be given sole weight in arriving at a fair and reasonable return on equity.

Q. What are your specific critiques of Mr. King's application of the DCF and CAPM tests?

A. The key concerns are as follows:

(1) In performing his two-stage DCF model (the FERC model), Mr. King uses a long-term growth rate for the economy that lies well below the consensus forecast, which produces a downward bias in his result;

(2) In his application of the CAPM, Mr. King understates the beta for his electric utility sample by relying in part on betas that are not adjusted to the market average beta of 1.0;

(3) Also in his application of the CAPM, Mr. King underestimates the expected market return by relying on forecast of market returns that is not only relatively short-term in nature but reflects a compound average measure of capital appreciation that is inappropriate for the estimation of the cost of equity capital.

Q. Please describe Mr. King's DCF approach.

A. Mr. King uses two constant growth DCF models. The first is what he refers to as the "classic" DCF model, which is simply a constant growth model that uses analysts' forecasts of long-term growth as the measure of investor growth expectations into perpetuity. The second is the FERC model that is used for gas pipelines, which uses a growth estimate comprised of a weighted average of the analysts' forecasts (2/3 weight) and forecast long-term growth in the economy (1/3 weight).

Q. What are your concerns with Mr. King's DCF approach?

A. With respect to his "classic" DCF model, I have the same concern as with Mr. Hill's approach. Mr. King is using the annual model, which is based on the assumption that dividends are paid once a year. The proper application of the model requires that the expected dividend yield incorporate the full long-term growth rate that is used in the growth component of the model. Instead, Mr. King uses the forecast 2007 dividend obtained from *Value Line.* While the proper application of the "classic" annual DCF model in any specific instance may only have a small effect on the results, it should be done. In this case, it raises

Mr. King's electric and gas DCF results from 9.9% and 9.2% to 10.1% and 9.3% respectively (See Schedule KCM-R-4).

Q. Do you agree with his application of the FERC model?

A. No. The FERC model to which Mr. King refers estimates investor growth expectations by giving two-thirds weight to the IBES forecasts of earnings growth and one-third weight to long-term growth in the economy. In contrast to the FERC approach which uses three forecasts of long-term growth in the economy, Mr. King has a single estimate of long-term GDP growth, representing the outlook of a single organization, the Congressional Budget Office (CBO). The CBO estimate of nominal GDP growth of 4.5% over the period 2010 to 2015 is materially lower than the consensus view for the same period of economists of 5.1% as published in Blue Chip *Economic Indicators*, October 10, 2006. Consequently, by using only the CBO estimate of GDP growth, Mr. King has understated the cost of equity for his sample of electric utilities.

Q. Mr. King applies the CAPM using a risk free rate of 4.58%, a market risk premium of 5.9% and betas of 0.75 for the electric utilities and 0.87 for the gas utilities, for a CAPM result of 9.03% for the electric utilities and 9.73% for the gas utilities. Are these results reasonable?

A. No. Mr. King's risk-free rate of 4.58% which reflects the 30-year Treasury bond yield as of December 1, 2006 understates both current and expected yields. At January 11, 2007, the yield on 30-year Treasury bonds was 4.8%. The January 1, 2007 Blue Chip *Financial Forecasts* anticipates that the 30-year Treasury yield will be 5.0% by the 4th quarter of 2007 and 5.1% by the second quarter of 2008.

With respect to Mr. King's market risk premium of 5.9%, it was developed from the *Value Line* projections for the total return (current dividend yield plus capital appreciation) for the market for the next three to five years, which he claims produces an expected market return of 10.48%. As previously discussed in response to Mr. Gorman, the *Value Line* estimate of capital appreciation potential reflects a relatively short-term measure which is very much dependent on the level of the equity market at the time the estimate was made.[31] The *Value Line* estimate of relatively short-term capital appreciation says nothing about investors' long term expectations of growth. However, it is precisely that estimate which is required to estimate the cost of equity for the equity market as a whole. A DCF estimate for the market as a whole using the expected dividend yield plus investors' expectations of long-term earnings growth provides a superior means of estimating the equity market risk premium.

Q. Have you done a DCF cost of equity for the market as a whole?

A. Yes, using the S&P 500 to represent the equity market. To estimate the DCF cost of equity for the S&P 500, I used the consensus forecast of earnings growth for the S&P 500 as a proxy for investor expectations of long-term growth. The average dividend yield for the S&P 500 was 1.81% at the end of December 2006.[32] The consensus forecast of five-year growth for the S&P 500 index in December was 11.7%. The resulting expected market return is 13.9%, compared to Mr. King's 10.48%. At a forecast 10-year Treasury note yield

[31] *Value Line* presents a single value that represents its estimate of total capital appreciation over the next three to five years. What Mr. King did was to translate that total into a constant annual rate of appreciation, that is, he calculated a compound, or geometric, average rate of increase. As I discussed earlier, the geometric or compound average does not capture the potential volatility in returns, and its use will understate the expected value of the market return.
[32] *Barron's*, January 1, 2007.

of 5.0%, the resulting forward-looking estimate of the market risk premium would be approximately 8.9%, compared to Mr. King's 5.9%.

Q. Given this result, what do you believe Mr. King should have used for his equity market risk premium?

A. At a minimum, he should have used the equity market risk premium of 7.1% recommended by Ibbotson Associates.

Q. Do you agree with the beta that Mr. King used for his electric utility sample?

A. No. Mr. King uses an average of betas from Thompson Financial and *Value Line*. Mr. King expresses concern that the betas of the two samples are significantly different and inconsistent with the relative risk of the two samples, which he views as similar in risk based on the similar *Value Line* Safety Ranks. However, the average *Value Line* betas for his two samples are virtually identical, at 0.88 and 0.87 for his electric and gas samples respectively. The *Value Line* betas should be preferred since *Value Line* adjusts its "raw"[33] betas toward the market mean of 1.0.[34] That adjustment is compatible with empirical studies that have demonstrated that the returns for low (high) beta stocks are higher (lower) than would be predicted by the CAPM.

[33] *Value Line*'s "raw" betas represent the correlation between the weekly percentage change in the price of a stock and the weekly percentage change the NYSE index over a 60-month period.

[34] The *Value Line* adjustment formula is .35 + .67*("raw" Beta).

Q. What would have been Mr. King's CAPM results had he used expected level of 30-year Treasury bond yields, a market risk premium of 7.1% and his *Value Line* betas of 0.88 and 0.87 for his electric and gas samples?

A. Using an expected 30-year Treasury yield of 5.0%, a market risk premium of 7.1% and betas of 0.88 and 0.87 for his electric and gas samples respectively, Mr. King's CAPM result would be 11.2% for both samples.

Q. Does this conclude your Rebuttal Testimony?

A. Yes, it does.

Market Risk Premium: Expectational Estimates Using Analyst Forecasts
Update Harris and Marston Study

		Expected Dividend Yield	Average Analysts' Growth Forecast	Required Return	30-Year Government Bond Yield	Estimated Risk Premium
Harris & Marston Study	1982	6.9	12.73	19.6	12.8	6.9
	1983	5.2	12.60	17.8	11.2	6.7
	1984	5.6	12.03	17.6	12.4	5.2
	1985	5.0	11.45	16.4	10.8	5.6
	1986	4.1	11.05	15.1	7.8	7.3
	1987	3.6	11.01	14.7	8.6	6.1
	1988	4.3	11.00	15.3	9.0	6.3
	1989	4.0	11.08	15.0	8.5	6.6
	1990	4.0	11.69	15.7	8.6	7.1
	1991	3.6	12.00	15.6	8.1	7.5
	1992	3.4	12.13	15.5	7.7	7.8
	1993	3.2	11.63	14.8	6.6	8.2
	1994	3.2	11.47	14.7	7.4	7.3
	1995	3.0	11.51	14.6	6.9	7.7
	1996	2.6	11.90	14.5	6.7	7.8
	1997	2.2	12.60	14.8	6.6	8.2
	1998	1.8	12.95	14.8	5.6	9.2
Updates	1999	1.3	16.07	17.4	5.9	11.5
	2000	1.5	18.04	19.5	5.9	13.6
	2001	1.6	15.56	17.1	5.5	11.7
	2002	2.1	13.50	15.6	5.4	10.2
	2003	1.8	12.31	14.1	5.0	9.0
	2004	1.8	11.97	13.8	5.1	8.7
	2005	2.0	11.69	13.7	4.5	9.2
	2006	2.0	11.87	13.8	4.9	9.0
	Average	**3.2**	**12.5**	**15.7**	**7.5**	**8.2**

Source: Harris, Robert S. and Marston, Felicia C., "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts ", Journal of Applied Finance, 2001, Exhibit 2 for 1982 - 1998; I/B/E/S, Standard and Poor's Research Insight and U.S. Federal Reserve for 1999 to 2006

Recalculation of Mr. Hill's Electric Utility Comparison Group
Discounted Cash Flow Estimates

	Current Dividend Yield [1/]	Zacks Growth Forecast [2/]	Expected Dividend Yield	Revised DCF Cost of Equity	DCF Costs of Equity as Reported [3/]
	(a)	(b)	(c)=(a)*(1+(b/100))	(d)=(b)+(c)	
Alliant	3.11	4.00	3.23	7.23	9.06
Ameren	4.76	6.10	5.05	11.15	9.77
American Electric Power	3.83	3.90	3.97	7.87	9.13
Central Vermont	4.12	na	na	na	8.34
Cleco	3.52	8.00	3.80	11.80	9.92
DPL Inc.	3.62	7.00	3.88	10.88	9.63
Empire District	5.56	na	na	na	10.13
Entergy	2.64	8.50	2.86	11.36	8.64
FirstEnergy	3.12	5.70	3.30	9.00	9.06
Hawaiian Electric	4.52	8.00	4.88	12.88	8.47
Northeast Utilities	3.15	8.70	3.42	12.12	9.63
Pinnacle West	4.30	6.80	4.59	11.39	9.77
PNM Resources	3.13	8.30	3.39	11.69	9.49
Progress Energy	5.36	3.60	5.55	9.15	8.98
Unisource	2.44	na	na	na	8.8
Average	**3.81**	**6.55**	**4.00**	**10.55**	**9.25**

[1/] Dividend yields are as reported in Exhibit_(SGH-1) Schedule 6, page 1 of 2 if no adjustment for growth had been made. Where Mr. Hill had adjusted the dividend yield for an increase in the dividend in the subsequent quarter, the effect of the increase was removed prior to applying the full expected growth to the current dividend yield based on data from Exhibit_SCH-1 Schedule 6, page 1 of 2 and Schedule 7, page 1 of 2.

[2/] Exhibit_(SGH-1) Schedule 5, page 2 of 4

[3/] Exhibit_(SGH-1) Schedule 7, page 1 of 2

Source: Exhibit (SGH-1) Schedule 5, page 2 of 4, Schedule 6, page 1 of 2 and Schedule 7, page 1 of 2

Recalculation of Mr. Woolridge's Electric Utility Comparison Group Discounted Cash Flow Estimates

	Current Dividend Yield [1/]	Analysts' Growth Forecasts [2/]	Expected Dividend Yield	DCF Cost of Equity
	(a)	(b)	(c)=(a)*(1+(b/100)	(d)=(b)+(c)
Alliant Energy Co.	3.2	4.5	3.3	7.8
Ameren	4.9	5.1	5.1	10.2
American Elec. Pwr.	4.1	4.1	4.2	8.3
Con. Edison	5.0	3.4	5.2	8.6
Dominion Resources	3.6	11.0	4.0	15.0
DTE Energy Co.	4.9	5.0	5.1	10.1
Duke Energy	4.1	5.5	4.3	9.8
Empire District	5.7	6.0	6.1	12.1
Energy East Copr.	4.9	4.3	5.1	9.3
Entergy	2.8	8.3	3.0	11.3
FirstEnergy	3.2	5.6	3.4	9.0
Great Plains Energy	5.5	2.8	5.7	8.4
Hawaiian Electric	4.6	4.7	4.8	9.5
IDACORP	3.3	4.8	3.4	8.2
MDU Resources	2.2	7.3	2.4	9.7
NiSource Inc.	4.2	3.4	4.3	7.7
Northeast Utilities	3.3	10.6	3.6	14.2
NSTAR	3.9	6.1	4.1	10.2
OGE Energy	3.8	5.6	4.0	9.6
Otter Tail Corp.	4.0	4.9	4.2	9.2
Pepco Holdings	4.3	4.8	4.5	9.3
Pinnacle West	4.6	6.3	4.9	11.2
PNM Resources	3.2	10.6	3.5	14.1
PPL Corp.	3.3	10.0	3.6	13.7
Progress Energy	5.5	3.8	5.7	9.5
Puget Energy, Inc.	4.5	5.2	4.7	9.9
SCANA Corp.	4.2	4.5	4.4	8.9
Sempra Energy	2.5	5.4	2.6	8.0
Southern Co.	4.6	4.8	4.8	9.6
TXU Corp.	4.1	11.9	4.6	16.6
Vectren Corp.	4.6	3.8	4.7	8.6
Wisconsin Energy	2.2	7.7	2.4	10.1
WPS Resources	4.5	4.5	4.7	9.2
Xcel Energy Inc.	4.3	5.0	4.5	9.5
Average	**4.0**	**5.9**	**4.3**	**10.2**
Median	**4.2**	**5.0**	**4.4**	**9.5**
Mid-Point	**4.1**	**5.5**	**4.3**	**9.9**

[1/] Dividend yields taken from Exhibit_JRW-7, page 2 of 5.

[2/] Analysts' growth forecasts take from Exhibit_JRW-7, page 5 of 5

Sources: Exhibit_JRW 7

Recalculation of Mr. King's Electric Utility Comparison Group "Classic" Discounted Cash Flow Estimates

	Most Recent Dividend[1/] (a)	90 Day Price Yahoo[2/] (b)	Dividend Yield (c)= (a)/(b)	Earnings Growth Forecast[2/] Value Line (d)	I/B/E/S (e)	Average (f)=Average(d,e)	DCF Cost of Equity (g)=(c)+(f)
Ameren Corp	$ 2.54	$ 53.48	4.7%	1.5%	5.6%	3.6%	8.5%
Aliant Energy	$ 1.15	$ 37.83	3.0%	4.5%	5.0%	4.8%	7.9%
American Electric Power	$ 1.56	$ 39.61	3.9%	5.0%	4.0%	4.5%	8.6%
Consolidated Edison	$ 2.30	$ 47.22	4.9%	2.0%	3.0%	2.5%	7.5%
DTE Energy	$ 2.06	$ 44.22	4.7%	3.0%	4.5%	3.8%	8.6%
Edison International	$ 1.08	$ 43.81	2.5%	8.0%	6.5%	7.3%	9.9%
Empire District Electric	$ 1.28	$ 23.29	5.5%	9.5%	6.0%	7.8%	13.7%
Energy East Corp.	$ 1.20	$ 24.17	5.0%	4.0%	4.3%	4.2%	9.3%
Entergy Corp	$ 2.16	$ 84.12	2.6%	5.0%	8.3%	6.6%	9.4%
FirstEnergy Corp	$ 1.80	$ 58.04	3.1%	12.5%	6.8%	9.6%	13.0%
FPL Group	$ 1.50	$ 48.75	3.1%	8.5%	7.8%	8.2%	11.5%
Hawaiian Electric	$ 1.24	$ 27.25	4.6%	3.0%	3.4%	3.2%	7.9%
IDACORP Inc.	$ 1.20	$ 38.96	3.1%	7.5%	4.7%	6.1%	9.4%
Northeast Utilities	$ 0.75	$ 25.01	3.0%	8.5%	11.4%	10.0%	13.3%
NSTAR	$ 1.21	$ 34.30	3.5%	7.5%	6.3%	6.9%	10.7%
Pinnacle West Capital	$ 2.10	$ 46.97	4.5%	7.0%	5.0%	6.0%	10.7%
PNM Resources	$ 0.88	$ 28.91	3.0%	6.0%	15.4%	10.7%	14.1%
PPL Corp.	$ 1.10	$ 34.02	3.2%	11.0%	10.7%	10.8%	14.4%
Progress Energy	$ 2.42	$ 45.68	5.3%	-1.5%	3.7%	1.1%	6.4%
Puget Energy Inc.	$ 1.00	$ 23.59	4.2%	5.0%	4.8%	4.9%	9.4%
SCANA Corp.	$ 1.68	$ 40.84	4.1%	3.5%	4.4%	4.0%	8.2%
Southern Co.	$ 1.55	$ 35.43	4.4%	3.5%	5.0%	4.3%	8.8%
Wisconsin Energy	$ 0.92	$ 44.97	2.0%	6.5%	7.8%	7.2%	9.3%
Xcel Energy Inc.	$ 0.89	$ 21.57	4.1%	6.0%	6.0%	6.0%	10.4%
Average	**$ 1.44**	**$ 39.07**	**3.8%**	**5.9%**	**6.3%**	**6.1%**	**10.1%**

[1/] Most recent dividend paid as of November 30, 2006

[2/] As reported on Exhibit_CWK-4 Electric

Source: CWK-4 Electric and Standard and Poor's Research Insight

Recalculation of Mr. King's Gas Utility Comparison Group
"Classic" Discounted Cash Flow Estimates

	Most Recent Dividend[1/] (a)	90 Day Price Yahoo[2/] (b)	Dividend Yield (c)= (a)/(b)	Earnings Growth Forecast[2/] Value Line (d)	I/B/E/S (e)	Average (f)=Average(d,e)	DCF Cost of Equity (g)=(c)+(f)
AGL Resources	$ 1.48	$ 37.21	4.0%	4.5%	4.2%	4.4%	8.5%
Atmos Energy	$ 1.28	$ 30.29	4.2%	7.0%	6.2%	6.6%	11.1%
Cascade Natural Gas Corp.	$ 0.96	$ 25.85	3.7%	9.0%	n/a	9.0%	13.0%
Laclede Group, Inc.	$ 1.42	$ 34.33	4.1%	5.0%	n/a	5.0%	9.3%
New Jersey Resources Corp.	$ 1.44	$ 50.69	2.8%	4.5%	5.7%	5.1%	8.1%
Nicor, Inc.	$ 1.86	$ 45.83	4.1%	4.0%	3.5%	3.8%	8.0%
NiSource Inc.	$ 0.92	$ 22.76	4.0%	3.5%	3.3%	3.4%	7.6%
Northwest Natural Gas Co.	$ 1.42	$ 40.12	3.5%	7.0%	4.9%	5.9%	9.7%
Peoples Energy Corp.	$ 2.18	$ 42.00	5.2%	12.5%	n/a	12.5%	18.3%
Piedmont Natural Gas Co.	$ 0.96	$ 42.43	2.3%	6.0%	4.0%	5.0%	7.4%
SCANA Corp.	$ 1.68	$ 40.84	4.1%	3.5%	4.4%	4.0%	8.2%
Sempra Energy	$ 1.20	$ 52.42	2.3%	5.5%	5.7%	5.6%	8.0%
South Jersey Industries, Inc.	$ 0.90	$ 31.01	2.9%	7.0%	6.3%	6.7%	9.8%
Southwest Gas Corp.	$ 0.82	$ 35.32	2.3%	9.0%	3.0%	6.0%	8.5%
Vectren Corp.	$ 1.26	$ 27.83	4.5%	1.5%	3.6%	2.5%	7.2%
WGL Holdings, Inc.	$ 1.35	$ 32.13	4.2%	1.5%	3.3%	2.4%	6.7%
Average	**$ 1.32**	**$ 36.94**	**3.6%**	**5.7%**	**4.5%**	**5.5%**	**9.3%**

[1/] Most recent dividend paid as of December 31, 2006

[2/] As reported on Exhibit_CWK-4 Gas

Source: CWK-4 Gas and Standard and Poor's Research Insight

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE for Authority to File Tariffs Increasing Rates for Electric and Natural Gas Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case Nos. ER-2007-0002/GR-2007-0003

AFFIDAVIT OF KATHLEEN C. McSHANE

STATE OF MARYLAND)
) **ss**
CITY OF BETHESDA)

Kathleen C. McShane, being first duly sworn on her oath, states:

1. My name is Kathleen C. McShane. I work in Bethesda, Maryland and I am employed by Foster Associates, Inc. as a Senior Consultant.

2. Attached hereto and made a part hereof for all purposes is my rebuttal Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 13 pages and Schedules KCM-R-1 through KCM-R-4, which has been prepared in written form for introduction into evidence in the above-referenced dockets.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Kathleen C. McShane
Executive Vice President

Subscribed and sworn to before me this 29th day of January, 2007.

Patricia J Bradley
Notary Public

My commission expires: **My Commission Expires 10/1/2010**