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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. GR-2007-0003

DIRECT TESTIMONY

OF

KATHLEEN C. McSHANE

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a AmerenUE

St. Louis, Missouri
July, 2006

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DIRECT TESTIMONY

OF

KATHLEEN C. McSHANE

CASE NO. 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, Suite 350N, Bethesda, Maryland 20814.

Q. By whom are you employed and in what capacity?

A. I am an Executive Vice President of Foster Associates, Inc., an economic consulting firm founded in 1956.

Q. Please provide your educational and employment history.

A. I hold a Masters in Business Administration with a concentration in Finance from the University of Florida (1980) and the Chartered Financial Analyst designation (1989). I have been employed by Foster Associates since 1981. I have testified in over 150 cases in federal, state, provincial and territorial jurisdictions in the U.S. and Canada since 1987. My professional experience is detailed in Appendix A attached to this testimony.

Q. What is the purpose of your direct testimony?

A. I have been asked to render an opinion on the fair rate of return on equity that would be applicable to the gas operations of Union Electric Company d/b/a AmerenUE ("AmerenUE" or "Company"). My analysis and conclusions regarding the fair return follow. The statistical support for the studies I have conducted is contained in the 12 Schedules included in this testimony.

II. SUMMARY OF CONCLUSIONS

Q. What were the key factors considered in conducting your analysis and arriving at your recommendation?

A. My analysis and recommendation took into account the following considerations:

(1) The allowed return on equity for AmerenUE's gas operations should reflect the risk profile and cost of equity of comparable gas distribution utilities so as to provide, as the Missouri Public Service Commission (Commission) has directed, "a return commensurate with returns in other enterprises with corresponding risks."[1] A sample of natural gas distribution utilities (local distribution companies or LDCs) serves as the comparable group for AmerenUE's gas operations.

(2) In arriving at a recommended return, no single test result should be given exclusive weight. Each of the various tests employed provides a different perspective on a fair return. Each test has its own strengths and weaknesses, which vary with both the business cycle and stock market conditions. In the end, regardless of the insight that may be added by any individual test, the governing principles from the *Bluefield*[2] and *Hope*[3]decisions of the United States Supreme Court, as the Commission has emphasized, "require[] a *comparative method,* based on the quantification of risk"[4] in determining a fair rate of return on equity.

[1] *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*").
[2] *Bluefield Water Works & Improv. Co. v. Public Serv. Comm'n of West Virginia,* 262 U.S. 679 (1923).
[3] *Federal Power Comm'n v. Hope Natural Gas Co.,* 320 U.S. 591 (1943).
[4] *Empire District,* at 44 (emphasis in original).

(3) The discounted cash flow ("DCF") and the risk premium tests are market-related tests for measuring the cost of attracting capital by reference to market values. By contrast, the comparable earnings test, which reflects returns on book equity, directly addresses the fairness standard as enunciated in the *Bluefield* and *Hope* decisions.[5]

(4) For the purposes of determining a fair return on equity for a utility, a critical factor that needs to be recognized is that the cost of capital is determined in the capital markets. The cost of capital estimates reflect the market value of the firm's capital, both debt and equity. While the DCF and risk premium tests estimate the return required on the market value of common equity, regulatory convention applies that return to the book value of the assets included in rate base. The determination of a fair return on book equity needs to recognize that distinction and the resulting differences in financial risk.

(5) As I explain later, in principle, the comparable earnings test is most compatible with regulation on an original cost book value rate base. For purposes of this testimony, I have used the comparable earnings test results to demonstrate the reasonableness of the recommended return in relation to the level of returns being earned by unregulated non-utility companies with risks similar to gas utilities.

(6) The results of the DCF and risk premium tests used to estimate a fair return for AmerenUE's gas operations, as well as my own recommendation, are summarized below.

[5] *See Empire District,* at 39-40.

Table 1

	Range	Average
Discounted Cash Flow	8.8-10.2%	9.5%
Capital Asset Pricing Model	11.0-11.5%	11.25%
Achieved Utility Risk Premiums	10.75-11.75%	11.25%
DCF-Based Risk Premium	9.8-10.3%	10.0%
Average of All Cost of Equity Methods		10.5%
Cost of Equity Reflecting Higher Financial Risk of AmerenUE Filed Capital Structure		11.5%

The tests indicate that the required equity return is in the range of 9.5% (DCF) to 11.5% (CAPM). Based on all four tests, the indicated cost of equity as applied to the comparable gas utilities is approximately 10.5%.

The proxy LDC sample's market value common equity ratio is 65%. The allowed return on equity will be applied to AmerenUE's book value common equity ratio of 52%. The difference in financial risk between a market value common equity ratio of 65% and AmerenUE's book value common equity ratio of 52% requires an increase in the required equity return requirement from 10.5% to a range of 11.1% to 11.9%. I recommend that the allowed return on equity for AmerenUE's gas operations be set at the mid-point of the range, that is, at 11.5%.

Attachment A contains a summary of my testimony.

III. KEY CONSIDERATIONS FOR A FAIR RETURN ON EQUITY

Q. Please explain the importance of the allowed return on equity.

A. The allowed return on equity is one of the most critical elements of the revenue requirement. The allowed return on equity reflects the cost of equity capital. The cost of equity capital is a real cost to the utility. The return on equity capital represents the compensation investors require to make available the funds necessary to build, grow and maintain the infrastructure necessary to deliver services essential to the economic well-being of a region. As the Commission has pointed out (quoting the Missouri Supreme Court), "We can never have efficient service, unless there is a reasonable guaranty of fair returns for capital invested."[6]

A just and reasonable return on the capital provided by investors not only fairly compensates the investors who have put up, and continue to commit, the funds necessary to deliver service, but benefits all stakeholders, especially ratepayers. A fair and reasonable return on the capital invested in a utility provides the basis for attraction of capital for which investors have alternative investment opportunities. Fair compensation on the capital committed to the utility provides the utility with the financial means to invest in the infrastructure for the supply of energy that is required to support long-term growth in the underlying economy, to comply with the requirements that ensure that the production of needed energy is not harmful to the environment, and to pursue technological innovations to meet the future energy needs of a vibrant economy.

An inadequate return, on the other hand, undermines the ability of a utility to compete for investment capital. Moreover, inadequate returns act as a disincentive to

[6] *Empire District,* at 34 (quoting *State ex rel. Washington Univ. v. Public Serv. Comm'n,* 272 S.W. 971, 973 (Mo. 1925)).

expansion within the service area, may potentially degrade the quality of service or deprive existing customers of the benefit of lower unit costs which might be achieved from growth. In short, if the utility is not provided the opportunity to earn a fair and reasonable return, it may be prevented from making the requisite level of investments in the existing infrastructure in order to reliably provide utility services for its customers.

Q. How do you ensure that the allowed return provides fair compensation to investors for committing their equity capital to the utility?

A. The Commission has clearly established that, to ensure that the allowed return fairly compensates investors for committing equity capital, the utility must be given the opportunity to:

1. earn a return on investment commensurate with that of comparable risk enterprises;[7]
2. maintain its financial integrity;[8] and
3. attract capital on reasonable terms.[9]

These standards that the Commission has established to govern the determination of a fair return on equity arise from bedrock principles well-recognized by United States Supreme Court precedents,[10] and which have been echoed in numerous regulatory decisions across North America.

[7] *Empire District,* at 40 (quoting *Hope Natural Gas Co.,* 320 U.S. at 603).
[8] *Empire District,* at 39 (quoting *Bluefield*, 262 U.S. at 690).
[9] *Empire District,* at 40 (quoting *Hope Natural Gas Co.,* 320 U.S. at 603).
[10] In *Bluefield*, 262 U.S. at 692, for example, the Court stated,

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be

Q. Please explain the implication of "the opportunity to earn a return on investment commensurate with that of comparable risk enterprises".

A. This criterion is at the heart of the "opportunity cost principle". It means that the fair return must be determined by estimating the return investors would receive if they committed their funds to alternative investment opportunities with comparable risks to AmerenUE's Missouri gas services. It means that any estimate of the cost of equity capital must look to comparable risk enterprises and the returns available thereon. The Commission explicitly recognized the importance of the opportunity cost principle when it held that

> it is not investor expectations of [the utility] that are important under *Hope* and *Bluefield*, except perhaps with respect to the attraction-of-capital parameter discussed below, it is rather the importance of other companies that are comparable to [the utility] in terms of risk. Only through this sort of comparative exercise can a return commensurate with returns in other enterprises with corresponding risks be determined.[11]

Q. How have you selected comparable risk enterprises for this purpose?

A. I selected a sample of 11 LDCs according to the criteria delineated in Section V.B.3. of this testimony. The cost of equity for this sample measures the opportunity cost of equity for AmerenUE's gas operations.

> adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties

In *Hope*, 320 U.S. at 603, Justice Douglas, writing for the Court, stated,

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

[11] *Empire District,* at 44-45.

Q. Do each of the utilities in the sample share identical risk characteristics with AmerenUE's gas operations?

A. No. Each utility will have risk characteristics that are unique. However, on balance, the total risks (business plus financial) are comparable.

Q. Reliance on a sample of LDCs as a proxy for AmerenUE's gas operations implies that the latter are of similar risk to the proxy sample. How have you ensured the selection of a sample of LDCs that is of comparable risk to AmerenUE's gas operations?

A. I have ensured comparability by selecting LDCs with investment grade debt ratings. The specific selection criteria are found in Section V.B.3 of this testimony. I have also reviewed the business risks faced by both the LDCs and AmerenUE's gas operations to ensure there is no critical element of the business risk profile of AmerenUE's gas operations that would lead investors to perceive AmerenUE's gas operations as facing materially higher or lower business risks than the average LDC.

Standard & Poor's ranks the business risk of regulated firms on a scale of "1" to "10", with "1" being the least risky and "10" being the most risky. The average S&P business profile ranking of the LDCs in my sample is "3". The key elements of business risk that are evaluated to arrive at the score include customer markets, competitive and supply position and regulatory environment. On balance, AmerenUE's gas operations do not face materially different levels of market, competitive, supply and regulatory risks than the typical LDC.

Q. With respect to financial risk, how does the capital structure proposed by AmerenUE for ratemaking purposes compare to the book value capital structures of the proxy LDC sample?

A. AmerenUE is proposing to use its March 31, 2006 capital structure for ratemaking purposes. The proposed common equity ratio of 52.4% is approximately equal to the average and median 2005 common equity ratio (based on permanent capital) maintained by the proxy sample (See Schedule KCM-G3).

Q. In your opinion, is the proposed capital structure reasonable for ratemaking purposes?

A. Yes. In principle, the actual capital structure should be relied upon for ratemaking purposes except in "certain unusual circumstances."[12] As the Commission has explained:

> First, the actual capital structure is the one considered by analysts and investors when assigning [the utility] a credit rating or making an investment decision. Second, the actual capital structure reflects the decisions management has actually made and the effects of those decisions.[13]

As noted above, the proposed common equity ratio is well within the range that has been maintained by the proxy sample of gas distributors.

Q. You have indicated that a fair return needs to look at the returns of comparable risk enterprises. Do the allowed returns of other utilities enter into this analysis?

A. The cost of equity capital is determined independently of what other regulators allow. As the Commission has observed, a return on equity finding should not

[12] *Empire District*, at 38.
[13] *Empire District*, at 38.

"unthinkingly mirror the national average."[14] Nevertheless, the returns allowed for other utilities can provide a perspective on the reasonableness of the return recommended. In *Empire District*, the Commission noted that the return it approved was well within the "zone of reasonableness" defined as within 100 basis points above or below the industry average. The average allowed return for LDCs since 2003 has been 10.7%.[15] It bears noting that the average yield on 10-year Treasury notes over that period was 4.3%, compared to the current yield of 5.1%, reflecting an increase of 80 basis points. In addition, utilities are facing an environment of rising interest rates as well as rising business risk, particularly as they face increasing cost pressures. As a result, any comparison of a recommended return to the industry average needs to recognize the impact of those two changes.

IV. ECONOMIC AND CAPITAL MARKET TRENDS

Q. Please summarize the recent economic and capital market trends that bear on the cost of capital environment.

A. Table 2 below provides a brief summary of the most recent actual and consensus forecasted economic indicators that are relevant to the cost of capital environment. A detailed discussion of economic and capital market trends is found in Appendix B.

[14] *Empire District,* at 46.
[15] The two year period balances the importance of including an adequate number of observations with reporting returns that are representative of recent capital market conditions.

Table 2

	2005 (Actual)	Consensus Forecasts		
		2006	2007	2008-2017
Economic Growth (Real GDP)	3.5%	3.4%	3.0%	3.0%
Inflation (CPI)	3.4%	3.1%	2.5%	2.4%
Interest Rates				
90-day Treasury Bills	3.3%	4.8%	4.8% [1/]	4.6%
10-year Treasury Notes	4.3%	5.0%	5.1% [1]	5.5%
Long-term A-Rated Utility Bonds	5.6%	6.4%[2/]	n/a	n/a
Long-term Baa-Rated Utility Bonds	5.9%	6.6%[2/]	n/a	n/a

[1/] Through Third Quarter 2007.
[2/] As of May 11, 2006.
Source: Blue Chip *Economic Indicators* and *Financial Forecasts*, various issues (see Appendix B); Schedule KCM-G1; Schedule KCM-G2.

V. ESTIMATE OF A FAIR RETURN ON EQUITY

A. CONCEPTUAL CONSIDERATIONS

Q. Please summarize your approach to estimating a fair return on equity for the gas operations of AmerenUE.

A. My estimation of a fair return on equity starts with a recognition of the objective of regulation. That objective is to simulate competition, i.e., to establish a regulatory framework that will mimic the competitive model. Under the competitive model, the required return on equity is expected to reflect the opportunity cost of capital -- a return that is commensurate with the returns available on foregone investments of similar risk. As discussed in Section III, and as recognized by the Commission, a fair return is one that

provides the utility with an opportunity to earn a return on investment commensurate with that of comparable risk enterprises;[16] and is "sufficient to ensure confidence in the financial integrity of the company in order to maintain its credit and attract necessary capital."[17]

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 criteria for a fair return give rise to two separate standards, the capital attraction standard and the comparable returns, or comparable earnings, 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. The base to which the return is applied determines the dollar earnings stream to the utility, which, in turn, generates the return to the shareholder (dividends plus capital appreciation). When the allowed return on original cost book value is set, a market-derived cost of attracting capital must be converted to a fair and reasonable return on book equity. The conversion of a market-derived cost of capital to a fair return on book value ensures that the stream of dollar earnings on book value equates to the investors' dollar return requirements on market value.[18] Failure to make this conversion will result in an allowed level of earnings that will discourage utilities from making investments in critical infrastructure.

[16] *Empire District,* at 43-44.
[17] *Empire District,* at 45.
[18] See Appendix C for an example.

Q. What tests have you applied to estimate a fair return on equity for AmerenUE's gas operations?

A. I have applied both a constant growth and a two-stage growth discounted cash flow (DCF) model, three risk premium tests, including the capital asset pricing model (CAPM), and the comparable earnings test. In arriving at my recommendation, I have relied on the results of the market-based tests, that is, the discounted cash flow and risk premium tests. The comparable earnings test was used as a test of the reasonableness of the DCF and risk premium results.

Reliance on multiple tests recognizes that no one test produces a definitive estimate of the fair return.[19] Each test is a forward-looking estimate of investors' equity return requirements. However, the premises of each of the tests differ; each test has its own strengths and weaknesses. In principle, the concept of a fair and reasonable return does not reduce to a simple mathematical construct. It would be unreasonable to view it as such.

The cost of equity is not a directly observable number. No one can know with certainty what is in each equity investor's mind. The cost of equity must be inferred from the available data using models that attempt to simply capture the way investors collectively price common equity. Since investors commit capital for many different reasons, there is no way to be certain what factors account for their decisions. Discounted cash flow and risk premium models represent conceptually different ways that investors often approach estimating the return they require on the market value of an equity investment. Both the discounted cash flow and risk premium approaches are intuitively appealing, and both types

[19] As stated in Bonbright, "No single or group test or technique is conclusive." (James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, *Principles of Public Utility Rates*, 2nd Ed., Arlington, Va.: Public Utilities Reports, Inc., March 1988).

of tests are relatively simple in principle to apply. Ultimately, however, any discounted cash flow or risk premium test is a simplified, stylized model of complex behavior with different assumptions and inputs. These differences can result in a range of estimates of the return that investors require to provide equity capital.

B. DISCOUNTED CASH FLOW MODEL

B.1. Conceptual Underpinnings

Q. Please discuss the conceptual basis for the DCF model.

A. The DCF approach proceeds from the proposition that the price of a common stock is the present value of the future expected cash flows to the investor, discounted at a rate that reflects the riskiness of those cash flows. If the price of the security is known (can be observed), and if the expected stream of cash flows can be estimated, it is possible to approximate the investor's required return (or capitalization rate) as the rate that equates the price of the stock to the discounted value of future cash flows.

B.2. DCF Models

Q. What DCF models did you use?

A. There are multiple versions of the DCF model available to estimate the investor's required return. An analyst can employ a constant growth model or a multiple period model to estimate the cost of equity. The constant growth model rests on the assumption that investors expect cash flows to grow at a constant rate throughout the life of the stock. Similarly, a multiple period model rests on the assumption that growth rates will change over the life of the stock. In determining the DCF cost of equity for the LDCs that are a proxy for AmerenUE's gas operations, I utilized both a constant growth and a two-stage growth model.

B.3. Proxy Companies

Q. To what companies did you apply the DCF test?

A. I applied the DCF test to a sample of LDCs. The sample includes every LDC:

1. classified by *Value Line* as a gas distribution utility;
2. with no less than 80% of total assets devoted to gas distribution operations;
3. whose Standard & Poor's debt rating is BBB- or higher; and
4. that has both I/B/E/S and *Value Line* forecasts.

The resulting 11 LDCs are listed on Schedule KCM-G3-1.

Q. Did you apply the discounted cash flow test specifically to Ameren Corporation?

A. No, I did not apply the model specifically (or solely) to AmerenUE's parent, Ameren Corporation, for four reasons. First, Ameren Corporation is primarily an electric utility, whose business risks are different from those of a gas distributor. Second, any DCF estimate which relies only on data for a single company is subject to measurement error. Third, the application of the test to the "subject" utility entails considerable circularity. As the Commission has noted, "The company-specific DCF method seeks to measure investor expectations using company-specific data; it is merely the expected yield . . . plus the sustainable growth rate."[20] Fourth, the application of the DCF test solely to Ameren Corporation is incompatible with the comparable returns criterion for estimating a fair and reasonable return. It is the "performance of other companies that are comparable to [the utility] in terms of risk" that must be the focus of the return on equity analysis.[21]

[20] *Empire District,* at 44.
[21] *Empire District,* at 44-45.

Q. What is "measurement error"?

A. The application of the DCF approach requires inferring investor growth expectations. The resulting DCF cost is very sensitive to the inferred growth expectations. Measurement error results when the forecast of growth used in the DCF model does not equate to the investors' expectation of growth that is embedded in the dividend yield component. By relying on a sample of companies, the amount of "measurement error" in the data can be reduced. The larger the sample, the more confidence the analyst has that the sample results are representative of the cost of equity. As noted in a widely utilized finance textbook,

> Remember, [a company's] cost of equity is not its personal property. In well-functioning capital markets investors capitalize the dividends of all securities in [the company's] risk class at exactly the same rate. But any estimate of [the cost of equity] for a single common stock is noisy and subject to error. Good practice does not put too much weight on single-company cost-of-equity estimates. It collects samples of similar companies, estimates [the cost of equity] for each, and takes an average. The average gives a more reliable benchmark for decision making.[22]

Q. What factual support do you have for the existence of potential measurement error?

A. In principle, the cost of equity for firms of similar risk in the same industry should be quite similar. The fact that individual company DCF costs differ widely (see Schedules KCM-G4 and KCM-G5) is a strong indication that a single company DCF cost does not lead to a reliable estimate of the cost of equity. Certainly the Commission's experience in the *Empire District* case illustrates this point. There, "three expert analysts,

[22] Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance,* Sixth Edition, Boston, MA: Irwin McGraw Hill, 2000, p. 69 (emphasis added).

using demonstrably the same analytical strategy founded upon the company-specific DCF method," produced "widely varying" results.[23]

B.4. Application of the DCF Test

B.4.1. Constant Growth Model

Q. Please summarize the premises of the constant growth model.

A. The assumption that investors expect a stock to grow at a constant rate over the long-term is most applicable to stocks in mature industries. Growth rates in these industries will vary from year to year and over the business cycle, but will tend to deviate around a long-term expected value.

The constant growth model is expressed as follows:

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

where,

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

Q. How does the model set forth above reflect a simplification of reality?

A. First, it is based on the notion that investors expect all cash flows to be derived through dividends. Second, the underlying premise is that dividends, earnings, and price all grow at the same rate. Third, the annual growth DCF model does not take into account the effect of the quarterly compounding of dividends.

Q. Are these assumptions likely to represent reality?

A. No. It is likely that, at any given point in time, investors expect growth in dividends, earnings and price to be different from each other, and to deviate as well from

[23] *Empire District*, at 44.

their long-run value. Further, the more accurate quarterly compounding DCF model would result in a slightly higher estimate of the cost of equity.

Q. How does one apply the constant growth model given the potential disparity between forecast earnings, dividend and price growth?

A. The model can be applied by recognizing that all investor returns must ultimately come from earnings. Hence, focusing on investor expectations of earnings growth will encompass all of the sources of investor returns (i.e., dividends and retained earnings).

B.4.2. Two-Stage Growth Model

Q. Please explain your application of the two-stage growth model.

A. My application of the two-stage growth model is based on the premise that investors expect the growth rate for the LDCs to be equal to company-specific growth rates for the near-term (Stage 1 Growth), but, in the longer-term (from Year 6 onward) to migrate to the expected long-run rate of growth in the economy (GDP Growth).

Q. Why would you expect utilities to grow at the overall rate of growth in the economy?

A. Industries go through various stages in their life cycle. Utilities are considered to be the quintessential mature industry. Mature industries are those whose growth parallels that of the overall economy.

Q. Is reliance on expected GDP growth as an estimate of the longer-term growth rate an accepted approach?

A. Yes. Use of forecast GDP growth as the long-term growth component is a widely utilized approach. For example, the Merrill Lynch discounted cash flow model for valuation utilizes GDP growth as a proxy for long-term growth expectations. The Federal

Energy Regulatory Commission relies on GDP growth to estimate expected long-term growth in its standard DCF models for gas and oil pipelines.

Q. How is the DCF cost estimated using a two-stage DCF model?

A. The DCF cost of equity is estimated as the internal rate of return that causes the price of the stock to equal the present value of all future cash flows to the investor. The cash flow per share in Year 1 is equal to:

Last Paid Annualized Dividend x (1 + Stage 1 Growth)

For Years 2 through 5, cash flow is defined as:
Cash Flow $_{t-1}$ x (1 + Stage 1 Growth)

Cash flows from Year 6 onward are estimated as:
Cash Flow $_{t-1}$ x (1 + GDP Growth)

B.5. Investor Growth Expectations for the DCF Models

Q. Please discuss how you have estimated investor growth expectations.

A. In applying the constant growth model, I relied on both the consensus forecasts of earnings growth compiled by I/B/E/S and *Value Line*.[24] The I/B/E/S growth rates represent the consensus of analysts' forecasts; the *Value Line* forecasts represent the views of a single analyst. In the application of the two-stage growth model, I relied upon the I/B/E/S consensus earnings forecasts as the estimate of investor growth expectations during Stage 1, and the consensus forecast for long-term growth in the economy for Stage 2.

Q. Why have you utilized only forecasted growth rates and not historic growth rates?

A. I have utilized forecasted growth rates for the following reasons. First, various studies have concluded that analysts' forecasts are a better predictor of growth than

naïve forecasts equivalent to historic growth; moreover, analysts' forecasts have been shown to be more closely related to investors' expectations.[25]

Second, 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.

B.6. Application of the Constant Growth DCF Model

Q. Please summarize your application of the constant growth DCF model.

A. I applied the constant growth DCF model to the sample of 11 LDCs using the following inputs to calculate the dividend yield:

1. the most recent annualized dividend paid prior to May 18, 2006 as D_o; and

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[24] The use of *Value Line* forecasts is intended to address the sometimes expressed concern that the sell-side analysts who make forecasts have an incentive to be optimistic in their views. *Value Line* is an independent research firm which no such incentive.

[25] Empirical studies that conclude that investment analysts' growth forecasts serve as a better surrogate for investors' expectations than historic growth rates include Lawrence D. Brown and Michael S. Rozeff, "The Superiority of Analyst Forecasts as Measures of Expectations: Evidence from Earnings", *The Journal of Finance*, Vol. XXXIII, No. 1, March 1978; Dov Fried and Dan Givoly, "Financial Analysts' Forecasts of Earnings, A Better Surrogate for Market Expectations", *Journal of Accounting and Economics,* Vol. 4, 1982; R. Charles Moyer, Robert E. Chatfield, Gary D. Kelley, "The Accuracy of Long-Term Earnings Forecasts in the Electric Utility Industry", *International Journal of Forecasting,* Vol. I, 1985; Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return", *Financial Management*, Spring 1986; James H. Vander Weide and William T. Carleton, "Investor Growth Expectations: Analysts vs. History", *The Journal of Portfolio Management,* Spring 1988; and David Gordon, Myron Gordon and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management,* Spring 1989.

The Vander Weide and Carleton study cited

> …found overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically oriented growth measures in predicting the firm's stock price [and that these results] also are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions.

The Gordon, Gordon and Gould study concluded,

> …the superior performance by KFRG [forecasts of [earnings] growth by securities analysts] should come as no surprise. All four estimates [securities analysts' forecasts plus past growth in earnings and dividends and historic retention growth rates] rely upon past data, but in the case of KFRG a larger body of past data is used, filtered through a group of security analysts who adjust for abnormalities that are not considered relevant for future growth."

2. the average of the daily closing stock prices for the month April 19, 2006 to May 18, 2006 as P_o.

Q. Why did you rely on an average price, rather than a "spot" price?

A. The use of an average price ensures that the estimated cost of equity is not attributable to any capital market anomalies that may arise due to transitory investor behavior.

Q. What are the results of the constant growth model?

A. Based on the I/B/E/S forecasts, the median and mean results are 8.8% and 9.0% respectively, or approximately 8.9% (see Schedule KCM-G4). Based on the *Value Line* earnings forecasts, the results are in the range of 9.8% (mean) to 10.2% (median) (see Schedule KCM-G5).

B.7. Two-Stage Growth Model

Q. Please summarize the results of your application of the two-stage growth model.

A. The two-stage growth model, as previously noted, relies on the I/B/E/S consensus of analysts' earnings forecasts for the first five years (Stage 1), and forecast nominal growth in the economy thereafter (Stage 2). The expected long-run rate of growth in the economy (GDP) is based on the consensus of economists' forecasts found in Blue Chip *Economic Indicators* (March 10, 2006). The consensus long-run (2008-2017) expected nominal rate of growth in GDP is 5.2%.

Q. What are the estimated DCF costs of equity using the two-stage growth model?

A. As detailed in Schedule KCM-G6, the two-stage DCF model estimates of the cost of equity for the LDC sample are as follows:

Mean	9.5%
Median	9.4%

B.8. DCF Cost of Equity and a Fair Return on Book Equity

Q. What do the constant growth and two-stage growth models together indicate is the cost of equity for the proxy sample of LDCs?

A. The results of the two DCF models indicate a required return in the range of 8.8-10.2%, with a mid-point of approximately 9.5%.

Q. Do you have any concerns regarding the reliability of the DCF estimates as a measure of the investors' required return?

A. Yes. 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. For example, the DCF estimates using the I/B/E/S estimates range from 7.8% for Nicor to 10.8% for Peoples Energy, a difference of 3.0 percentage points (Schedule KCM-G4). While Nicor has the lowest DCF estimate, its beta is the highest of the LDCs in the sample.

Comparing the different DCF estimates, using WGL Holdings as an example, the indicated returns for that single company range from 6.7% based on the *Value Line* growth rates (Schedule KCM-G5) to 9.7% based on the two-stage model (Schedule KCM-G6), a difference of 3.0 percentage points. In addition, some of the estimates are unambiguously not representative of investors' return requirements. The DCF estimate

based on the *Value Line* forecast EPS growth for Peoples Energy (6.5%) (Schedule KCM-G5), for example, barely equals its current cost of long-term debt.

Q. In light of the discussion above, what do you recommend to the Commission?

A. The DCF model results are only one indicator of the investors' required return, and that they do not necessarily produce an accurate portrayal of long-term investor return requirements at any given point in time. In that context, it is of paramount importance to give at least equal weight to the results of the risk premium tests. Indeed, that is the course the Commission followed in the *Empire District* case, where it adopted the "tripartite comparative analysis" of Prof. Vander Weide.[26]

Q. What does the DCF cost of equity represent?

A. It represents the return investors expect to earn on the current market value of their utility common equity investments. It does not, however, measure the return that investors expect the electric utilities to earn on the book value of their common equity. Based on *Value Line*'s projections, the anticipated return on average common equity for the sample of 11 LDCs over the period 2009-2011 is expected to be approximately 12.2-12.9%, considerably higher than the estimated 9.5% DCF cost (Schedule KCM-G3-1).

C. EQUITY RISK PREMIUM TESTS

C.1. Conceptual Underpinnings

Q. What is the underlying premise of risk premium tests?

A. The premise of all risk premium tests is the basic concept of finance that there is a direct relationship between the level of risk assumed and the return required. Since an

[26] *Empire District*, at 46. *See also Empire District*, at 14 (describing the three methods used by Prof. Vander Weide, including two risk premium methods).

investor in common equity is exposed to greater risk than an investor in bonds, the former requires a premium above bond yields as compensation for the greater risk. The risk premium test is a measure of the market-related cost of attracting capital, i.e., a return on the market value of the common stock, not the book value.

Q. What risk premium tests did you apply?

A. I used the capital asset pricing model ("CAPM"), plus two direct estimates of utility risk premiums. The first of the two direct estimates was made by reference to historic achieved equity returns and risk premiums for both natural gas distribution and electric utilities; the second direct approach estimates forward-looking DCF-based risk premiums for a proxy sample of LDCs.

C.2. Capital Asset Pricing Model

C.2.1. Conceptual Underpinnings of CAPM

Q. Please discuss the assumptions that underpin the CAPM.

A. The CAPM is a formal risk premium model, which specifies that the required return on an equity security is a linear function of the required return on a risk-free investment. In its simplest form, the CAPM posits the following relationship between the required return on the risk-free investment and the required return on an individual equity security (or portfolio of equity securities):

$$R_E = R_F + b_e (R_M - R_F)$$

where,

R_E = Required return on individual equity security
R_F = Risk-free rate
R_M = Required return on the market as a whole
b_e = Beta on individual equity security.

The CAPM relies on the premise that an investor requires compensation for non-diversifiable risks only. Non-diversifiable risks are those risks that are related to overall

market factors (e.g., interest rate changes, economic growth). Company-specific risks, according to the CAPM, can be diversified away by investing in a portfolio of securities, and therefore the shareholder requires no compensation to bear those risks.

The non-diversifiable risk is captured in the beta, which, in principle, is a forward-looking (expectational) measure of the volatility of a particular stock or group of stocks, relative to the market. Specifically, the beta is equal to:

$$\frac{\text{Covariance } (R_E, R_M)}{\text{Variance } (R_M)}$$

The variance of the market return is intended to capture the uncertainty related to economic events as they impact the market as a whole. The covariance between the return on a particular stock and that of the market reflects how responsive the required return on an individual security is to changes in events, which also change the required return on the market.

In simplistic terms, the CAPM requires determining the risk premium required for the market as a whole ("market risk premium"), then adjusting it to account for the risk of the particular security or portfolio of securities using the beta. The result (market risk premium multiplied by beta) is an estimate of the risk premium specific to the particular security or portfolio of securities.

C.2.2. Risk-Free Rate

Q. What is the proxy for the risk-free rate?

A. The simple CAPM model is a single period model which, if the model were applied rigorously, would entail using a short-term government interest rate as the risk-free rate. However, it is widely recognized that short-term rates are largely the effect of monetary policy and, as such, are administered, rather than market-driven, rates. Hence, most analysts

rely on a long-term government yield, which is risk-free in that there is no default risk associated with U.S. Treasury securities. Moreover, reliance on a long-term yield is consistent with the longer-term nature of utility investments.

I have utilized the forecasted yield on the 10-year Treasury bond as a proxy for the risk-free rate. In principle, a longer-term Treasury should be used, so as to more closely match the duration of the risk-free rate and common equities. However, in 2001 the U.S. Treasury stopped issuing new 30-year bonds. As a result, the yield on existing 30-year Treasuries became a less reliable proxy for the risk-free rate. Although the Treasury has recommenced issuing 30-year bonds with a February 2006 auction, the 10-year Treasury bond remains the benchmark, and is likely to remain so. As a result, my CAPM analysis relies on the benchmark 10-year Treasury yield as the risk-free rate proxy.

Q. What is the appropriate 10-year yield to be used as the risk-free rate in the CAPM analysis?

A. The current yield on 10-year Treasury notes (as of mid-May 2006) is 5.1%, and the yield on those notes is expected to remain at approximately 5.1-5.2% through 3rd Quarter 2007.[27] Over the long-run, the consensus forecasted yield for 10-year Treasuries is 5.5%.

In equilibrium, the nominal risk-free rate should reflect the real cost of capital plus the expected rate of inflation over the term of the issue. The long-term (2007-2016) forecast of inflation based on the GDP deflator is approximately 2.2% (Blue Chip *Economic Indicators*, March 10, 2006). Similar to the nominal 10-year Treasury bond, the yield on the long-term real return (inflation-indexed) government bonds – which is a proxy for the real cost of capital – is also at relatively low levels (2.5%), but has averaged approximately 3.1%

since these bonds were first issued in 1997,[28] close to the long-term expected real rate of growth in the economy.

In the long run, the real cost of capital – which reflects the productivity of capital – should be approximately equal to the real rate of growth in the economy, which is forecast to average 3.0% from 2008-2017 (Blue Chip *Economic Indicators*, March 10, 2006). Based on these data, the real cost of long-term capital is approximately 3.0%. Combining the long-term expected inflation rate (2.1%) with a long-term real cost of capital of 3.0% indicates a fundamental value for 10-year Treasuries of approximately 5.2%.

Based on the current yields, the fundamental analysis and the longer-term forecasts of 10-year Treasury note yields, a reasonable estimate of the risk-free rate for purposes of applying the CAPM is approximately 5.0-5.5%.

C.2.3. Market Risk Premium

Q. Please discuss your estimate of the required market risk premium.

A. While the market risk premium concept is deceptively simple, its quantification is, in principle, quite complex, because the level of the risk premium expected or required by investors is not static; it changes with economic and capital market conditions (particularly with inflation expectations), as well as with investors' willingness to bear risk.

The required market risk premium can be developed (1) from an analysis of achieved market risk premiums and (2) from estimates of prospective market risk premiums. With respect to the latter, the discounted cash flow model can be used to estimate the cost of equity, where the expected return is comprised of the dividend yield plus investor expectations of longer-term growth based on prevailing capital market conditions. The

[27] Blue Chip, *Financial Forecasts*, May 1, 2006.
[28] The average includes yields through April 30, 2006; see Schedule KCM-G2.

estimated market risk premiums are obtained by subtracting the corresponding government bond yield from the estimated cost of equity.

Experienced Market Risk Premiums

The estimation of the expected market risk premium from achieved (or experienced) market risk premiums is premised on the notion that investors' expectations are linked to their past experience. Basing calculations of achieved risk premiums on the longest periods available reflects the notion that it is necessary to include as broad a range of event types as possible to avoid overweighting periods that represent unusual circumstances. On the other hand, since the objective of the analysis is to assess investor expectations in the current economic and capital market environment, weight should be given to periods whose equity characteristics, on balance, are more closely aligned with what today's investors are likely to anticipate over the longer term.

The estimation of the required market risk premium begins with the analysis of achieved risk premiums in the U.S. market. When historic risk premiums are used as a basis for estimating the expected risk premium, arithmetic averages, rather than geometric averages, need to be used.

The arithmetic average is the sum of the holding period returns divided by the number of returns in the sample. The geometric average, also referred to as the constant rate of return, 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 illustrative example appears below.

Table 3

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
Sum	**32%**	**Product**	**1.3206**
Arithmetic Average	**8%**	**Geometric Average $(1.3206)^{1/4}-1$**	**7.2%**

The appropriateness of arithmetic averages, as opposed to geometric averages, for this purpose is succinctly explained by 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.
>
> Expressed simply, the arithmetic average recognizes the uncertainty in the

stock market; the geometric average removes the uncertainty by smoothing over annual differences. Risk premiums were calculated for two historic periods: 1926-2005 and 1947-2005. The year 1926 represents the first year for which the seminal Ibbotson Associates risk premium data are available. The data for the post-World War II period (1947-2005) were also relied upon, because the end of World War II marked significant changes in the economic structure, which remain relevant today.

The key structural changes that have occurred since the end of World War II are:

1. The globalization of the economy, which has been facilitated by the reduction in trade barriers of which GATT (1947) was a key driver;

2. The exertion of the independence of the Federal Reserve commencing in 1951, and its focus on promoting domestic economic stability, which has been instrumental in tempering economic cyclicality;

3. Demographic changes, specifically suburbanization and the rise of the middle class, which have impacted the patterns of consumption;

4. Transition from a predominately manufacturing to a service-oriented economy; and

5. Technological change, particularly in the areas of telecommunications and computerization, which have facilitated both market globalization and rising productivity.

The experienced risk premiums for the two periods are as follows:

1926-2005	**1947-2005**
7.1%	7.0%

Source: Schedule KCM-G7.

Q. The preceding historic average risk premiums reflect differentials between equity market returns and income returns on a 20-year government security. How would you adjust the risk premiums for the fact that you are using a 10-year Treasury note as the risk-free rate?

A. From October 1993 to April 2006, the longest period for which data for both series are available, the average spread between 10- and 20-year Treasury bonds has been

just over 50 basis points.[29] The addition of 50 basis points to the achieved historic market risk premiums relative to 20-year Treasuries approximates the historic differential between equity market and 10-year Treasury note income returns, leading to a long-term average risk premium over 10-year Treasuries of approximately 7.5%.

Forward-Looking Market Risk Premium

Q. Please explain your estimate of the forward-looking market risk premium.

A. The experienced market risk premium may converge with investor expectations over the longer term, but the application of a current interest rate to a longer-term average may be unrepresentative of investor expectations in a specific capital market environment.

It is widely accepted that the required market risk premium is not static, but varies with the outlook for inflation, interest rates and profits. Hence, a direct measure of the prospective market risk premium may provide a more accurate measure of the current level of the expected differential between stock and bond returns than experienced risk premiums.

The value of independent estimates of the forward-looking risk premium is:

- the equivalence of past returns to what were investors' *ex ante* expectations may be pure coincidence;

[29] The 20-year constant maturity yield reported by the Department of the Treasury since October 1993 is based on outstanding Treasury bonds with approximately 20 years remaining to maturity. The Treasury discontinued issuing a 20-year bond in 1986.

- the determination of a fair return on equity reflective of the expected interest rate environment requires a direct assessment of current stock market expectations.

The forward-looking market premium may be determined by an application of the DCF model to the S&P 500. To estimate the DCF cost for the S&P 500, the consensus forecast of earnings growth for the S&P 500 was used as a proxy for investor expectations of long-term growth. The average April 19-May 18, 2006 dividend yield for the S&P 500 was 1.9%. The consensus forecast of five-year growth for the S&P 500 index was 10.6%.[30] The resulting expected market return is 12.7%. At a forecasted 10-year Treasury note yield of 5.0-5.5%, the forward-looking estimate of the market risk premium would be approximately 7.2-7.7%.

Expected Market Risk Premium

Q. What is your estimate of the overall expected market risk premium?

A. Giving weight to both the historic data and the near-term equity market return expectations, the indicated market risk premium (in relation to the 5.0-5.5% yield on 10-year Treasury notes) is approximately 7.5%.

C. 2.4. Beta

Q. What is the appropriate beta to be used for the sample of LDCs?

A. In estimating the appropriate beta, there were two main considerations:

1. Empirical studies have shown that the CAPM understates the return requirement for companies with betas less than the market mean of 1.0.[31] Reliance on *Value*

[30] Yahoo Finance, May 22, 2006.
[31] Evidence of this is found in the following studies:

Line betas, which are adjusted for betas' tendency to trend toward the market mean of 1.0, assists in mitigating the model's tendency toward understatement of required returns for low beta (e.g., utility) stocks.

2. The beta is a forward-looking concept. Typically, betas are calculated from historic data.[32] The applicability of a calculated historic beta to a future period must be analyzed in the context of events that gave rise to the calculation.

Q. What is a reasonable beta for the sample of LDCs that you used?

A. The most recent *Value Line* betas for the comparable LDCs are approximately 0.80; see Schedule KCM-G3-1.

C. 2.5. CAPM Risk Premium and Return on Equity

Q. Please provide your CAPM risk premium for your sample of LDCs based on your estimated values for the market risk premium and the proxy LCD sample beta.

A. The CAPM risk premium is 6.0%, as shown below:

CAPM Risk Premium = Beta x Market Risk Premium
6.0% = 0.80 x 7.5%

Fisher Black, Michael C. Jensen, and Myron S. Scholes, "The Capital Asset Pricing Model: Some Empirical Tests," *Studies in the Theory of Capital Markets*, edited by Michael Jensen. (New York: Praeger, 1972), pp. 79-121.

Marshall E. Blume and Irwin Friend, "A New Look at the Capital Asset Pricing Model," *Journal of Finance*, Vol. XXVIII (March 1973), pp. 19-33.

Eugene F. Fama, and James D. MacBeth, "Risk, Return and Equilibrium: Empirical Tests." Unpublished Working Paper No. 7237, University of Chicago, Graduate School of Business, August 1972.

Nancy Jacob, "The Measurement of Systematic Risk for Securities and Portfolios: Some Empirical Results," *Journal of Financial and Quantitative Analysis*, Vol. VI (March 1971), pp. 815-834.

[32] Calculated betas are typically simple regressions between the daily, weekly or monthly price changes for individual stocks and the corresponding price changes of the market index for a period of five years.

At a risk-free rate of 5.0-5.5%, the CAPM indicates a cost of attracting equity capital of 11.0-11.5%.

C. 3. Risk Premium Test Based on Utility Achieved Risk Premiums

Q. Please summarize the basis for estimating the required risk premium by reference to historic utility data.

A. Reliance on achieved risk premiums for the gas distribution industry as an indicator of what investors expect for the future is based on the same proposition as that used in the development of the market risk premium: over the longer term, investors' expectations and experience converge. The more stable an industry, the more likely it is that this convergence will occur.

Q. What have been the historic risk premiums for utilities?

A. The risk premiums achieved by the natural gas distribution utility industry over the 1947-2005 period, as estimated from the S&P/Moody's Gas Distribution Index was 6.0%. Adding 50 basis points to adjust for the historic yield spread between 10- and 20-year Treasuries results in an risk premium of approximately 6.5% relative to the benchmark 10-year Treasury bond.

Given the historic similarity in risk between the natural gas and electric utility industry, I also considered the achieved equity risk premiums of the electric utilities. The achieved equity risk premiums for the S&P/Moody's Electric Utility Index[33] were calculated over the period 1947-2005. The historic arithmetic annual average electric utility risk premium relative to the 20-year U.S. Treasury bond income return was 5.2% (Schedule KCM-G7-1). As with the gas distribution utility index, 50 basis points was added to the

[33] See Schedule KCM-G7.

achieved risk premiums to account for the historic spread between 10- and 20-year Treasury yields. The resulting risk premium is 5.7%.

Based on both natural gas distribution and electric utility historic risk premiums, the indicated expected risk premium is in the range of 5.5% to 6.5%. The corresponding equity return is 10.75-11.75%.

C. 4. DCF-Based Risk Premium Test for LDCs

Q. Please summarize your DCF-based risk premium test.

A. A forward-looking risk premium for a utility can be estimated as a time series of differences between the DCF estimates of the cost of equity for a representative sample of utilities and the corresponding long government bond yield, where the DCF cost is the sum of the expected dividend yield (that is, adjusted for expected growth) and investors' expectations of long-term growth. The I/B/E/S investment analysts' consensus forecasts of five-year (normalized) earnings growth can be used as a proxy for investors' expectations of long-term growth.

For each LDC used in this study,[34] monthly DCF costs were estimated as the sum of the month-end expected dividend yield and the corresponding I/B/E/S five-year earnings growth expectation. The monthly risk premium was calculated as the difference between the DCF cost of equity and the month-end 10-year Treasury bond yield. The analysis was limited to the period 1993 through first quarter 2006. The Federal Energy Regulatory Commission issued Order 636 in 1992, which unbundled the services of interstate natural gas pipelines and changed the business risk profile of LDCs.

[34] My DCF-based risk premium test utilizes the same sample of LDCs relied upon in the application of the DCF test.

The average LDC risk premium over the 1993-2006 (1st Qtr.) period was 4.8%. The corresponding average 10-year Treasury bond yield was 5.5%, somewhat higher than current bond yields, but reasonably representative of the forecast interest rate environment. Given the relatively similar interest rate environments, the average DCF-based risk premium of approximately 4.8% is a relevant estimate of the forward-looking risk premium.

Q. What risk premium and cost of attracting equity capital does the DCF-based risk premium test indicate?

A. The DCF-based risk premium test results indicate a risk premium of approximately 4.8%, and a cost of attracting equity capital of 9.8% to 10.3%.

D. CONCLUSIONS FROM THE DCF AND RISK PREMIUM TESTS

D.1. Summary of Market-Derived Costs of Equity

Q. Please summarize the results of your DCF and risk premium tests.

A. The table below summarizes the results of the tests, as well as my recommendation.

Table 4

	Range	Average
Discounted Cash Flow	8.8-10.2%	9.5%
Capital Asset Pricing Model	11.0-11.5%	11.25%
Achieved Utility Risk Premiums	10.75-11.75%	11.25%
DCF-Based Risk Premium	9.8-10.3%	10.0%
Average of All Cost of Equity Methods		10.5%
Cost of Equity Reflecting Higher Financial Risk of AmerenUE Filed Capital Structure		11.5%

The results of the various tests indicate a required equity return in the range of 9.5% (DCF) to 11.25% (achieved utility risk premiums). Based on all four tests, the indicated cost of equity as applied to the comparable LDCs is approximately 10.5%.

D.2. Adjustment for Market Value Capital Structures

Q. Is the indicated 10.5% return derived from the DCF and risk premium tests equivalent to a fair return on equity for AmerenUE's gas operations?

A. No. The DCF and risk premium cost of equity estimates are derived from market values of equity capital, and represent investors' expected returns on the market value. Consequently, for the purposes of determining a fair return on equity for a utility, the critical factor that needs to be recognized is that the cost of capital is determined in the capital markets. The cost of capital reflects the market value of the firms' capital, both debt and equity, as was recognized by the Commission in *Empire District*. The market value capital structures may be quite different from the book value capital structures. When the market value common equity ratio is higher (lower) than the book value common equity ratio, the market is attributing less (more) financial risk to the firm than is "on the books" as measured by the book value capital structure. Higher financial risk leads to a higher cost of common equity, all other things being equal.

To put this concept in common sense terms, assume that I purchased my home 10 years ago for $100,000. My home is currently worth $250,000. If I were applying for a loan, the bank would consider my net worth (equity) to be $150,000, not the "book value" of my home, which reflects the original purchase price less the mortgage loan amount. It is the market value of my home that determines my financial risk to the bank, not the original purchase price. The same principle applies when the cost of common equity is estimated.

The book value of the common equity shares is not the relevant measure of financial risk to investors; it is their market value, that is, the value at which the shares could be sold.

Regulatory convention applies the allowed equity return to a book value capital structure. Application of the market-derived cost of equity for a sample with an average 65% market value common equity ratio (see Schedule KCM-G9) to AmerenUE's 52% book value common equity ratio would fail to recognize the higher financial risk in the latter. The cost of equity for AmerenUE's 52% common book equity is higher than the cost of equity for the comparable utilities' 65% common equity. To recognize this fact, the estimated cost of equity for the comparable utilities needs to be increased when applied to AmerenUE's 52% book value common equity ratio.

The relevant financial principles and the quantification of the incremental required equity return are as follows. The rationale for the differences in the required return on equity for companies of similar business risk but different financial risk begins with the recognition that the overall cost of capital for a firm is primarily a function of business risk. In the absence of both the deductibility of interest expense for income tax purposes and costs associated with excessive debt (e.g., bankruptcy), the overall cost of capital to a firm does not change materially when a firm changes its capital structure. Costs associated with bankruptcy and the loss of financing flexibility will increase the overall cost of capital at high degrees of leverage, but the conclusion that the cost of capital is essentially flat applies across a broad range of capital structures.

The use of debt creates a class of investors whose claims on the resources of the firm take precedence over those of the equity holder. However, the sum of the available cash flows does not change when debt is added to the capital structure. The available cash

flows are now split between debt and equity holders. Since there are fixed debt costs that must be paid before the equity shareholder receives any return, the variability of the equity return increases as debt rises. The higher the debt ratio, the higher the potential volatility of the equity return. Hence, as the debt ratio rises, the cost of equity rises. The higher cost rates of both the debt and equity offset the higher proportion of debt in the capital structure, so that the overall cost of capital does not change.

The deductibility of interest expense for corporate income tax purposes may alter the conclusion that the cost of capital is constant across all capital structures. The deductibility of interest expense for income tax purposes means that there is a cash flow advantage to equity holders from the assumption of debt. When interest expense is deductible for corporate income tax purposes, in the absence of offsetting factors, the after-tax cost of capital would tend to decline as more debt is used. However, there are offsetting factors which severely limit a company's ability to reduce its overall cost of capital by raising the debt ratio. First, there is a loss of financial flexibility and the increasing potential for bankruptcy as the debt ratio rises. The loss of financing flexibility tends to increase the cost of capital as leverage is increased. Particularly, as the percentage of debt in the capital structure increases, the credit rating of the company may decline and its cost of debt will increase.

Second, although interest expense is tax deductible at the corporate level, the corresponding interest income is taxable to individual investors at a higher rate than equity. Thus, personal income taxes on interest offset some of the advantage of using debt in the capital structure.

It is impossible to state with precision whether, within a broad range of capital structures, raising the debt ratio will leave the overall cost of capital unchanged or result in some decline. However, what is indisputable is that the cost of equity does increase when the debt ratio rises.

I have used two approaches to quantify the range of the impact of a change in financial risk on the cost of equity. The first approach is based on the widely accepted view that the overall cost of capital does not change materially over a relatively broad range of capital structures. The second approach is based on the theoretical model which assumes that the overall cost of capital declines as the debt ratio rises due to the income tax shield on interest expense. The second approach does not account for any of the factors that offset the corporate income tax advantage of debt, including the costs of bankruptcy/loss of financing flexibility, the impact of personal income taxes on the attractiveness of issuing debt, or the flow-through of the benefits of interest expense deductibility to ratepayers. Thus, the results of applying the second approach will over-estimate the impact of leverage on the overall cost of capital and understate the impact of increasing financial leverage on the cost of equity.

Schedule KCM-G10 provides the formulas and inputs for estimating the change in the cost of equity under each of the two approaches.

Q. How do you apply the two approaches to the proxy sample of LDCs?

A. To recognize the difference in financial risk between the market value capital structures of the LDC sample and AmerenUE's book value capital structure, the DCF and risk premium cost of equity estimates must be increased. That calculation was made in the following steps:

(1) Estimate the LDC sample's weighted average cost of capital using market value capital structures.

The market value capital structures for each LDC were estimated by (a) calculating the market value of the equity using the same prices as used in the DCF models and the number of shares of equity outstanding; and (b) adding that value to the book value of debt, which for simplicity, was assumed to be trading at par (that is, the embedded cost of debt is the same as the current cost).

The average market value common equity ratio for the sample was estimated at approximately 65% (see Schedule KCM-G9).

(2) Estimate the increase in common equity return required to account for the difference between the 65% market value common equity ratio of the LDC sample and the AmerenUE's book value common equity ratio of 52% (see Schedule KCM-G10).

In summary, the difference in financial risk between a market value common equity ratio of 65% and AmerenUE's book value common equity ratio of 52% requires an increase in the required equity return from 10.25-10.5% to a range of 11.1% to 11.9% (Schedule KCM-G10).

E. COMPARABLE EARNINGS TEST

E.1. Conceptual Underpinnings

Q. Please discuss the conceptual underpinnings of the comparable earnings test.

A. The comparable earnings test provides a measure of the fair return based on the concept of opportunity cost. Specifically, the test is derived from the premise that capital should not be committed to a venture unless it can earn a return commensurate with that

available prospectively in alternative ventures of comparable risk. Since regulation is intended to be a surrogate for competition, the opportunity cost principle entails permitting utilities the opportunity to earn a return commensurate with the levels achievable by competitive firms of similar risk.

The concept that regulation is a surrogate for competition implies that the regulatory application of a fair return to an original cost rate base should result in a value to investors commensurate with that of similar risk competitive ventures. The fact that a return is applied to an original cost rate base does not mean that the original cost of the assets is the appropriate measure of their fair market value. The comparable earnings standard, as well as the principle of fairness, suggests that, if competitive industrial firms of similar risk are able to maintain the value of their assets considerably above book value, the return allowed to utilities should likewise not foreclose them from maintaining the value of their assets as reflected in current stock prices.

Q. Why have you applied the comparable earnings test to competitive firms, and not utilities?

A. Application of the test to utilities would be circular. The achieved returns of utilities are influenced by allowed returns. In contrast, the earnings of competitive firms represent returns available to alternative investments independent of the regulatory process.

E.2. Principal Application Issues

Q. What are the principal issues arising in the application of the comparable earnings test?

A. The principal issues in the application of the comparable earnings test are:

- The selection of a sample of industrials of reasonably comparable risk to an LDC;
- The selection of an appropriate time period over which returns are to be measured in order to estimate prospective returns; and
- The assessment of the total investment risk of the sample of LDCs relative to that of the selected industrials.

Q. Please discuss the selection process.

A. The selection process starts with the recognition that industrials are generally exposed to higher business risk, but lower financial risk, than LDCs. The selection of industrials focuses on total investment risk, i.e., the combined business and financial risks. The comparable earnings test is based on the premise that industrials' higher business risks can be offset by a more conservative capital structure, thus permitting selection of industrial samples of reasonably comparable total investment risk to LDCs.

The U.S. industrials were selected as follows: The initial universe consisted of all companies actively traded in the U.S. from S&P's Research Insight database in Global Industry Classification Standard (GICS) sectors 20-30. The sectors represented by the GICS codes in this range are: Industrials, Consumer Discretionary and Consumer Staples.[35] The resulting universe contained 2,779 companies. All non-U.S. companies were then removed, leaving 2,482 companies. From this group of 2,482 companies, those with 2004 common equity less than $50 million were removed (1,186 companies remaining), as well as all companies with missing or negative common equity during 1993-2004 (748 companies remaining). To remove thinly traded companies, all companies that traded fewer than

125,000 shares in 2005 were eliminated (715 firms remaining). Next, all companies that paid no dividends in any year 2001-2005 were removed (341 firms remaining). To ensure that low risk companies were selected, all companies with *Value Line* betas of 1.0 or higher or a Safety Rank of 4[36] or higher were removed (185 firms remaining). Next, those companies whose 1994-2004 returns were greater than ± 1 standard deviation from the average were removed to eliminate companies whose earnings have been chronically depressed or which have been extraordinarily profitable (154 firms remaining). Finally, those companies whose debt is rated non-investment grade, i.e., BB+ or below by Standard & Poor's, were eliminated. The final sample of low risk U.S. industrials is comprised of 139 companies (Schedule KCM-G11).

E.3. Period for Measurement of Returns

Q. Over what period did you measure the industrials' returns?

A. The measurement of returns for competitive industrials starts with historical returns. However, like every test used to estimate a fair return, this test is intended to be prospective in nature. Therefore, the returns earned in the past should be analyzed in the context of the longer-term outlook for the economy to determine the reasonableness of relying on past returns as a proxy for the future. Since returns on equity tend to be cyclical, the returns should be measured over an entire business cycle, in order to give fair representation to years of expansion and decline. The forward-looking nature of the estimate of the fair return requires selection of a cycle that is reasonably representative of prospective

[35] Included in these sectors are major industries such as: Food Retail, Food Distributors, Tobacco, Packaged Foods, Soft Drinks, Distillers, Household Appliances, Aerospace and Defense, Electrical Components & Equipment, Industrial Machinery, Publishing & Printing, Department Stores, and General Merchandise.

[36] *Value Line's* Safety Rank is a measurement of potential risk associated with individual common stocks. The Safety Rank is computed by averaging two other *Value Line* indexes – the Price Stability Index and the Financial Strength Rating. Safety Ranks range from "1" (highest) to "5" (lowest).

economic conditions. The business cycle (measured from point to point) covering the period 1994-2005 meets those criteria, essentially because it reflects a nominal rate of growth (5.3%; see Schedule KCM-G1) that is quite close to the consensus forecast for the longer-term.[37]

The achieved returns of the 139 companies for 1994-2005 are as follows:

Table 5

Mean	14.7%
Median	14.1%
Average of Annual Medians	14.3%

Source: Schedule KCM-G12-3.

The results indicate that low risk industrials in the consumer-oriented industries may be expected to earn average returns of approximately 14.0-14.5%. Forecast returns confirm that conclusion. As indicated on Schedule KCM-G12-3, the *Value Line* forecast median return on average common equity for the sample for the period 2009-2011 is 14.6%.

E.4. Relative Risk Assessment

Q. What are the industrial sample's quantitative risk measures relative to those of the electric utilities?

A. The industrial sample has the following risk measures, compared to the sample of LDCs:

[37] Blue Chip *Economic Indicators,* March 10, 2006.

Table 6

	Industrials		LDCs	
	Median	Mean	Median	Mean
S&P Debt Ratings	A-	A-	A	A
Value Line Risk Measures:				
Safety	3	2	2	2
Earnings Predictability	70	69	70	74
Financial Strength	B++	B++	B++	B++
Beta	0.80	0.80	0.80	0.81

Source: Schedules KCM-G3-1 and KCM-G11-3.

A comparison of risk statistics for the LDCs and industrials indicates that, on balance, the two samples are of reasonably similar total investment risk. As suggested earlier, the median (book value) common equity ratio of the industrials is, in fact, higher than that of the LDC sample, 79% versus 53% (Schedules KCM-G11-3 and KCM-G3-3). The similar risk measures for the industrials and the LDCs demonstrate that the industrials' higher business risks tend to be offset by their lower financial risks, resulting in a similar level of total investment risk to the LDCs.

E.5. Relevance of Comparable Earnings Test

Q. What is the relevance of the comparable earnings test?

A. Since the objective of regulation is to simulate competition, it is critical that the determination of a fair return explicitly consider the returns achievable by competitive firms on a risk-adjusted basis. This avoids the circularity that a focus on other regulated companies alone entails and ensures that the objective of regulation is achieved.

At the very least, the results of the comparable earnings test should be relied upon as an indicator of whether the market-based test results are reasonable. The DCF test

and risk premium tests, as adjusted for AmerenUE's book value capital structure, indicate a fair return in the range of 11.1-11.9%. The comparable earnings test indicates that low risk competitive firms of similar investment risk to the sample of LDCs are able to earn returns on book value of 14.0-14.5%. An allowed return on equity for AmerenUE's Missouri gas operations in the range of 11.1-11.9%, as indicated by the DCF and risk premium test, would be relatively modest when compared to the earnings level of unregulated non-utility companies with risks similar to gas utilities.

F. CONCLUSIONS

Q. Please summarize your conclusions.

A. As indicated earlier in my testimony, my recommendation is based on the results of the market-derived tests, the discounted cash flow and risk premium tests. The DCF and risk premium test results indicate that a reasonable return on equity for AmerenUE's Missouri gas operations falls within a range of approximately 11.1-11.9%. The comparable earnings test underscores the reasonableness, indeed, the conservative nature, of the range. I recommend that the allowed return on equity be set at the mid-point of the range of the DCF and risk premium test results, that is, at 11.5%.

Q. Does this conclude your testimony?

A. Yes, it does.

APPENDIX A
QUALIFICATIONS OF KATHLEEN C. McSHANE

Kathleen McShane is an Executive Vice President and senior consultant with Foster Associates, Inc., where she has been employed since 1981. She holds an M.B.A. degree in Finance from the University of Florida, and M.A. and B.A. degrees from the University of Rhode Island. She has been a CFA charterholder since 1989.

Ms. McShane worked for the University of Florida and its Public Utility Research Center, functioning as a research and teaching assistant, before joining Foster Associates. She taught both undergraduate and graduate classes in financial management and assisted in the preparation of a financial management textbook.

At Foster Associates, Ms. McShane has worked in the areas of financial analysis, energy economics and cost allocation. Ms. McShane has presented testimony in more than 150 proceedings on rate of return and capital structure before federal, state, provincial and territorial regulatory boards, on behalf of U.S. and Canadian telephone companies, gas pipelines and distributors, and electric utilities. These testimonies include the assessment of the impact of business risk factors (e.g., competition, rate design, contractual arrangements) on capital structure and equity return requirements. She has also testified on various ratemaking issues, including deferral accounts, rate stabilization mechanisms, excess earnings accounts, cash working capital, and rate base issues. Ms. McShane has provided consulting services for numerous U.S. and Canadian companies on financial and regulatory issues, including financing, dividend policy, corporate structure, cost of capital, automatic adjustments for return on equity, form of regulation (including performance-based regulation), unbundling, corporate separations, stand-alone cost of debt, regulatory climate, income tax allowance for partnerships, change in fiscal year end, treatment of inter-corporate financial transactions, and the impact of weather normalization on risk.

Ms. McShane was principal author of a study on the applicability of alternative incentive regulation proposals to Canadian gas pipelines. She was instrumental in the design and preparation of a study of the profitability of 25 major U.S. gas pipelines, in which she developed estimates of rate base, capital structure, profit margins, unit costs of providing services, and various measures of return on investment. Other studies performed by Ms. McShane include a comparison of municipal and privately owned gas utilities, an analysis of the appropriate capitalization and financing for a new gas pipeline, risk/return analyses of proposed water and gas distribution companies and an independent power project, pros and cons of performance-based regulation, and a study on pricing of a competitive product for the U.S. Postal Service. She has also conducted seminars on cost of capital for regulated utilities, with focus on the Canadian regulatory arena.

Publications, Papers and Presentations

- "Utility Cost of Capital Canada vs. U.S.", presented at the CAMPUT Conference, May 2003.
- "The Effects of Unbundling on a Utility's Risk Profile and Rate of Return", (co-authored with Owen Edmondson, Vice President of ATCO Electric), presented at the Unbundling Rates Conference, New Orleans, Louisiana sponsored by Infocast, January 2000.
- Atlanta Gas Light's Unbundling Proposal: More Unbundling Required?" presented at the 24th Annual Rate Symposium, Kansas City, Missouri, sponsored by several commissions and universities, April 1998.
- "Incentive Regulation: An Alternative to Assessing LDC Performance", (co-authored with Dr. William G. Foster), presented at the Natural Gas Conference, Chicago, Illinois sponsored by the Center for Regulatory Studies, May 1993.
- "Alternative Regulatory Incentive Mechanisms", (co-authored with Stephen F. Sherwin), prepared for the National Energy Board, Incentive Regulation Workshop, October 1992.

Expert Testimony/Opinions

On

Rate Of Return & Capital Structure

Alberta Natural Gas	1994
AltaGas Utilities	2000
Ameren (Central Illinois Public Service)	2000, 2002, 2005
Ameren (Central Illinois Light Company)	2005
Ameren (Illinois Power)	2004, 2005
Ameren (Union Electric)	2000 (2 cases), 2002 (2 cases), 2003
ATCO Electric	1989, 1991, 1993, 1995, 1998, 1999, 2000, 2003
ATCO Gas	2000, 2003
ATCO Pipelines	2000, 2003
Bell Canada	1987, 1993
Benchmark Utility Cost of Equity (British Columbia)	1999
Canadian Western Natural Gas	1989, 1998, 1999
Centra Gas B.C.	1992, 1995, 1996, 2002
Centra Gas Ontario	1990, 1991, 1993, 1994, 1996
Direct Energy Regulated Services	2005
Dow Pool A Joint Venture	1992
Edmonton Water/EPCOR Water Services	1994, 2000, 2006
Enbridge Gas Distribution	1988, 1989, 1991-1997, 2001, 2002
Enbridge Gas New Brunswick	2000
FortisBC	1995, 1999, 2001, 2004
Gas Company of Hawaii	2000
Gaz Metropolitain	1988
Gazifère	1993, 1994, 1995, 1996, 1997, 1998
Generic Cost of Capital, Alberta (ATCO and AltaGas Utilities)	2003
Heritage Gas	2002
Hydro One	1999, 2000

Insurance Bureau of Canada (Newfoundland)	2004
Laclede Gas Company	1998, 1999, 2001, 2002, 2005
Mackenzie Valley Pipeline	2005
Maritimes NRG (Nova Scotia) and (New Brunswick)	1999
Multi-Pipeline Cost of Capital Hearing (National Energy Board)	1994
Natural Resource Gas	1994, 1997
New Brunswick Power Distribution	2005
Newfoundland & Labrador Hydro	2001, 2003
Newfoundland Power	1998, 2002
Newfoundland Telephone	1992
Northwestel, Inc.	2000, 2006
Northwestern Utilities	1987, 1990
Northwest Territories Power Corp.	1990, 1992, 1993, 1995, 2001
Nova Scotia Power Inc.	2001, 2002, 2005
Ozark Gas Transmission	2000
Pacific Northern Gas	1990, 1991, 1994, 1997, 1999, 2001, 2005
Platte Pipeline Co.	2002
St. Lawrence Gas	1997, 2002
Southern Union Gas	1990, 1991, 1993
Stentor	1997
Tecumseh Gas Storage	1989, 1990
Telus Québec	2001
Terasen Gas	1992, 1994, 2005
TransCanada PipeLines	1988, 1989, 1991 (2 cases), 1992, 1993
TransGas and SaskEnergy LDC	1995
Trans Québec & Maritimes Pipeline	1987
Union Gas	1988, 1989, 1990, 1992, 1994, 1996, 1998, 2001
Westcoast Energy	1989, 1990, 1992 (2 cases), 1993, 2005
Yukon Electric Co. Ltd./Yukon Energy	1991, 1993

Expert Testimony/Opinions

on

Other Issues

Client	**Issue**	**Date**
Hydro Québec	Cash Working Capital	2005
Nova Scotia Power	Cash Working Capital	2005
Ontario Electricity Distributors	Stand-Alone Income Taxes	2005
Caisse Centrale de Réassurance	Collateral Damages	2004
Enbridge Gas New Brunswick	AFUDC	2004
Heritage Gas	Deferral Accounts	2004
ATCO Electric	Carrying Costs on Deferral Account	2001
Newfoundland & Labrador Hydro	Rate Base, Cash Working Capital	2001
Gazifère Inc.	Cash Working Capital	2000
Maritime Electric	Rate Subsidies	2000
Enbridge Gas Distribution	Principles of Cost Allocation	1998
Enbridge Gas Distribution	Unbundling/Regulatory Compact	1998
Maritime Electric	Form of Regulation	1995
Northwest Territories Power	Rate Stabilization Fund	1995
Canadian Western Natural Gas	Cash Working Capital/ Compounding Effect	1989
Gaz Metro/ Province of Québec	Cost Allocation/ Incremental vs. Rolled-In Tolling	1984

1. THE ECONOMY

The ten years from 1991 to 2000 produced the longest economic expansion in U.S. history. Over this period real gross domestic product ("GDP") growth averaged 3.2%, fueled by strong consumer spending and corporate investment. Throughout most of the period, soaring equity markets and housing prices pushed consumer net worth sharply higher, providing a key stimulus for consumer confidence and consumer spending. Productivity gains and healthy growth in after-tax corporate profits (close to 7.0% per year on a compound average basis) resulted from substantial investment spending, particularly in technology-related areas (Schedule KCM-G1).

The U.S. economy proved to be resilient, maintaining a healthy rate of growth even in the face of a global capital market crisis in mid-1998. The combined effects of the Asian financial crisis, defaults in the Russian bond market and the near-collapse of a major hedge fund, which precipitated the global capital market crisis, did not quash the expansion. Even with significant drag on the export sector, largely due to economic weakness in Asia, the U.S. economy continued to expand at a vigorous pace until mid-2000.

In mid-1999, concerned that the economy might be over-heating, the Federal Reserve ("Fed") began raising the Fed Funds rate in the hopes of steering the economy into a soft landing. By mid-2000, the Fed had raised the Fed Funds rate six times by a total of 175 basis points.

Between mid-2000 and summer 2001, the economy slowed considerably, due to increases in both interest rates and energy prices. Higher interest rates and energy prices squeezed corporate profit margins and reduced business spending. Signs of a slowing economy carried over into the equity markets, which were widely viewed as overvalued. As

equity markets weakened and consumers' net worth shrank, consumer confidence dropped, and with it consumer spending. As the economy threatened to sink into recession, the Fed began to relax its stance, lowering interest rates seven times between January and August 2001, for a total of 300 basis points.

The September 11, 2001 terrorist attacks on the U.S. materially worsened the outlook for the economy, damaging the already shaky consumer confidence and producing a sharp downturn in consumer spending. Despite further efforts by the Fed, the economy sank into recession. Overall, the economy registered only 0.5% growth for the full year 2001. While the economy registered growth in real GDP of over 2% in 2002, the initial rebound was anything but robust (Schedule KCM-G1).

While economic activity in the first quarter of 2003 remained subdued, the combined effects of stimulative fiscal, monetary and exchange rate policy finally produced the desired result in the second half of the year. Third quarter annualized growth topped 8% and continued to be strong through the end of the year. The major contributors to the increase were consumer spending, exports, business investment spending, inventory re-building, and investment in new housing. Real growth averaged 3.0% for the full year 2003 (Schedule KCM-G1).

Growth remained strong in 2004, despite oil prices that reached $55/barrel and a deceleration in corporate profits due primarily to hurricanes and high energy prices. Both consumer spending and business investment contributed to the expansion. Growth averaged 4.2% for all of 2004, the highest level since 1999.

In 2005, growth declined, the result of high levels of energy prices, relatively lackluster growth in employment gains (which impacts on consumer spending), and further

tightening of monetary policy. Despite the ongoing effects of two major hurricanes, real growth remained relatively solid at 3.5% for the full year 2005. The sustainability of robust economic growth remains uncertain, however, given the relatively weak U.S. dollar, rising interest rates, and high energy prices. While growth in 2006 is expected to remain close to 2005 levels (at 3.4%), it is expected to moderate in 2007 to 3.0% (Blue Chip *Economic Indicators*, May 10, 2006).

For the long-term (2008-2017), real growth is forecast at 3.0% (Blue Chip *Economic Indicators*, March 10, 2006), compared to the 3.2% rate experienced over the past point-to-point business cycle (1994-2005).

2. INFLATION

Inflation remained in check throughout the last cyclical expansion, averaging only 2.6%, as measured by the Consumer Price Index ("CPI"), from 1991 to 1999 (Schedule KCM-G1). Concerns that a tight labor market would trigger a wage-price spiral were not realized. High levels of business investment in new technology resulted in increased efficiency, a reduction in costs, and an increase in work force productivity. Large gains in productivity kept inflation in check as gains in output covered higher employment costs.

Spurred by rising energy prices, the CPI climbed to 3.3% in 2000. However, with weakening economic activity, declining energy prices and higher unemployment rates, inflation moderated. CPI inflation averaged 1.6% in 2002 and 2.3% in 2003. Much of the 2003 increase was due to an increase in energy prices in the run-up to the war in Iraq. The 2003 core CPI (excluding food and energy prices) was lower at 1.5%.

Inflation picked up again in 2004, with the CPI rising by 2.7%, again largely reflecting increases in fuel and energy prices.

The upward trend continued in 2005, as energy prices continued to rise. The CPI increased 3.4% over the year, slightly above the rate experienced in 2000. Inflation is expected to remain above 3.0% in 2006, before moderating to 2.5% in 2007, reflecting an anticipated decline in energy prices (Blue Chip *Economic Indicators*, May 10, 2006).

Over the longer term (2008-2017), inflation, as measured by the CPI, is expected to average 2.4%, and as measured by the GDP deflator, 2.1% (Blue Chip *Economic Indicators,* March 10, 2006). The expected longer-term inflation rates are similar to the 2.5% and 2.0% rates (CPI and GDP deflator, respectively) experienced over the point-to-point business cycle measured from 1994-2005.

3. INTEREST RATES

(a) Short-term Interest Rates

The trends in Treasury bill (T-bill) rates over the past decade have been, in large part, a reflection of monetary policy initiatives, combined with investor reaction to global economic and capital market events.

From 1995 until the global market crisis of August 1998, 90-day T-bill yields fluctuated in the relatively narrow range of 4.8-5.8%. By October 1998, as a result of Fed actions to relieve the August 1998 global capital market crisis and increasing inflows of capital to the 'safe haven' of U.S. government securities, T-bill rates had fallen to just over 4%.

Over the subsequent two years, the underlying strength of the U.S. economy led the Fed to increase the Fed Funds rate six times. T-bill rates followed, rising over 200 basis points by November 2000. As the economy began to weaken and the Fed began to aggressively cut rates, T-bill yields reversed course, falling from over 6% to a low of 0.8% in

mid-2003. Despite improvement in many areas of the economy in the latter half of the year, job growth continued to be lackluster, and inflation pressures muted, with no upward pressure being exerted on rates. At the end of 2003, the yield on 90-day T-bills was 0.9%.

During 2004, as the economy continued to expand at a pace in excess of 3.0% (4.0% in the third quarter), and inflation began to edge higher, the Federal Reserve began to gradually tighten monetary policy. Between June 30 and December 14, 2004 the Fed raised the Fed Funds rate five times, in 25 basis point increments. At the end of the year the Fed Funds rate stood at 2.25%, with further increases anticipated. With the increases in the Fed Funds rate, the yields on 90-day Treasury bills rose from their 2003 year end level of 0.9% to 2.2% at the end of 2004, for an annual average yield in 2004 of 1.4%.

Through May 20, 2006, the Fed has raised the Fed Funds rate eleven more times to 5.0%. The most recent increase, approved May 10, 2006, reflected the upside risks to inflation from elevated energy prices and possible increases in resource utilization. The Open Market Committee also indicated the possibility of "further policy firming" to address inflation risks. The effective Fed Funds rate is expected to average 4.9% on average in 2006 and through the first three quarters of 2007 (Blue Chip *Financial Forecasts,* May 1, 2006). An effective rate of 4.9% is at the higher end of the 3.0-5.0% range that is referred to as the "neutral" Fed Funds rate, which is consistent with ongoing efforts to contain inflationary pressures.

As of May 1, 2006, Blue Chip *Financial Forecasts* anticipates the 90-day Treasury bill yield to average 4.8% during 2006, an increase of 150 basis points from the average of 3.3% in 2005. The yield for the first three quarters of 2007 is also expected to average 4.8%.

Over the long-term (2008-2017), Treasury bill yields are projected at 4.6% (Blue Chip *Economic Indicators,* March 10, 2006).

(b) Long-Term Government Bond Yields

Over the period 1995-1997, 10-and 30-year Treasury bonds averaged 6.5% and 6.7%, respectively, following a similar pattern to that of T-bills. Supported by the demand for safe U.S. government securities, 10-year and 30-year rates declined to 4.6% and 5.0%, respectively, by September/October 1998. The decline was short-lived, however, and 10- and 30-year rates peaked at 6.7% and 6.5%, respectively, in January 2000. The negative spread resulted from the U.S. Treasury Department's announced "buy-back" of long-term bonds.

In January 2000, faced with significant Federal government budget surpluses, the U.S. Treasury Department announced a plan to pay down the national debt. The announced 'buy-back' was aimed at phasing out long-term bonds with the highest interest rates and at maintaining liquidity in more recent issues. The announcement had an immediate impact on the long end of the government bond yield curve, as investors raced to acquire a diminishing supply of longer-term government securities. By May 2000, the spread between 10-year and 30-year Treasuries was negative.

On October 31, 2000, the U.S. Treasury announced that it would no longer issue 30-year bonds. The announcement, intended to direct downward pressure on long-term rates and push investors into short-term securities, again created an anomaly in the yield curve. The announcement that 30-year bonds would no longer be issued confirmed that the 30-year

bond had become less reliable as a proxy for the risk-free rate.[1] However, in May 2005, in response to sharply rising federal budget deficits, the government expressed an interest in reviving the 30-year bond program. In August, the Treasury announced that it would revive the 30-year bond, with the first auction in first quarter 2006. The auction took place in the second week of February 2006 at a yield of 4.5%.

Nevertheless, it is likely that the 10-year Treasury will remain the benchmark as demand for the new bonds is uncertain. The Treasury's move has been described by market analysts as providing more choice among investments rather than as a replacement for 10-year Treasuries.

With respect to yields on the benchmark 10-year Treasury note, the combination of the economic slump, monetary policy stimulus and expected reduction in the supply of longer-term securities pushed yields to their lowest levels in decades. From their January 2000 peak of 6.7%, 10-year yields declined over 350 basis points to a cyclical trough of 3.1% in mid 2003. During the latter half of 2003, 10-year yields gradually rose, to yield 4.3% at the end of the year. During 2004, 10-year Treasury note yields were essentially flat, averaging 4.3% for the year (Schedule KCM-G2).

During 2005, despite increases in the Fed Funds rate, generally positive economic growth and higher inflation, 10-year Treasury yields did not rise correspondingly. The unusual pattern in long-term interest rates in the face of rising short-term rates was described by Fed Chairman Greenspan as a "conundrum". To some it was viewed as a signal of a healthy economy; to others it signaled a speculative credit "bubble". The Fed, while

[1] *The Wall Street Journal* had already abandoned the 30-year Treasury as its benchmark, replacing it with the 10-year Treasury note.

acknowledging the issue, maintained that, overall, the economy was on "firm footing" and inflation remained contained. Therefore, the Fed expected long-term rates to increase as monetary accommodation was removed.

Throughout 2005, 10-year Treasury yields averaged 4.3%, ending the year at 4.4%. During the first four and a half months of 2006, 10-year Treasury yields have risen by 70 basis points, reaching 5.1% by mid-May. Ten-year Treasury yields are expected to average 5.1% throughout the remainder of 2006 and through the first three quarters of 2007. Over the long-term (2008-2017), 10-year Treasury yields are expected to average 5.5% (Blue Chip *Economic Indicators*, March 10, 2006).

(c) Utility Bond Yields

In the six months preceding the August 1998 global capital market crisis, Baa-rated utility bond yields averaged 7.3%, compared to the 10-year Treasury yield of 5.6%, with a resulting spread of 1.7%. As investors fled to the safety of government bond markets, spreads began to widen, the spread peaked between Baa-rated utility bonds and 10-year Treasuries at just over 400 basis points in October 2002. Spreads remained high throughout 2002 and 2003, averaging 340 basis points and 280 basis points respectively. In 2004, spreads tightened, consistent with the expansionary phase of the economy. The average yield on Baa-rated utility bonds during 2004 was 6.4% (Schedule KCM-G2); the average spread was 212 basis points.

Long-term Baa-rated utility bond yields declined to a low of 5.6% during August 2005; since that time they have climbed close to 100 basis points, to yield 6.6% at mid-May 2006. The current spread between Baa-rated utility bonds and 10-year Treasuries, at 150 basis points, is relatively low, consistent with both an economy that has continued to expand

at a strong pace and robust demand for fixed income investments. However, with the expected tempering of economic growth, the spreads are likely to increase.

4. EQUITY MARKETS

From the beginning of 1995 to its 2000 peak, the S&P 500 price index increased 230%; the NASDAQ rose by 580%. At the market peak, valuations had been pushed to historically high levels. During this period, it appeared that the only risk investors perceived was the risk of not being in the market.

As the economy began to deteriorate in mid-2000, investors quickly abandoned the tech sector, turning to the more defensive sectors of the economy. From its 2000 peak to its trough in September 2001, the S&P 500 declined by 37%; the corresponding decline in the NASDAQ was 72%. Despite fears of further terrorist attacks and the Enron Corp. debacle, investors began to exhibit renewed confidence. By January 2002 they had pushed the S&P 500 up over 20% from its September 2001 trough and the NASDAQ up 45%. However, subsequent reports of further accounting scandals, blows to the credibility of investment analyst research, weak corporate profits, and the continuing uncertainty surrounding the global political climate ensured that the rebound was short-lived. By March 2003, the S&P 500 and NASDAQ had again retreated, falling 32% and 38%, respectively, below their January 2002 peaks.

As the economy improved in the latter half of 2003, the equity market moved ahead strongly, fueled by investors' renewed optimism. After three years of declines, the S&P 500 rose over 25% in 2003. Nevertheless, at the end of 2003, the S&P 500 remained 27% below its 2000 peak. The NASDAQ rose over 50% in 2003 following three years of declines, although it too remained well below (60%) its 2000 peak.

During most of 2004, the stock market's overall performance was mediocre, as corporate profits began to slide. High energy prices propelled stocks in the energy sector, but other sectors (e.g., health care) did not fare as well. However, December's performance was strong enough to push the total return for the S&P 500 for the full year to 10.9%, compared to the compound average annual return of 12.0% experienced from 1947-2003.

The S&P 500's strong performance at the end of 2004 did not carry over into 2005. Hampered by persistently high energy prices, continual weakness in the U.S. dollar, a softening real estate market, unceasing global terrorism threats and national disasters, the S&P 500 remained essentially flat during the year. The S&P 500 index ended the year only 3% higher than the 2004 close. While corporate profits have remained strong, investors remain concerned about interest rates and inflation. Significant downside risks for the equity market persist; in particular the risk that the Federal Reserve's tightening of monetary policy in the face of inflationary pressures may trigger a material slow-down in economic activity.

APPENDIX C
RELATIONSHIP BETWEEN MARKET-DERIVED
COST OF EQUITY TO FAIR RETURN ON BOOK VALUE

The DCF model, as expressed to solve for the cost of equity, k, is:

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

Where,

D_1 = expected dividend per share
P_o = current stock price
g = expected growth

Assume that the expected earnings and dividends per share for the next year are $1.25 and $0.80 respectively and the current price per share is $15.00. Growth in earnings and dividends are forecast to be 4.5%. The cost of equity, expressed as a percentage of market value, is:

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

$$= \frac{\$\ 0.80}{\$15.00} + 4.5\%$$

$$= 9.8\%$$

Since there is expected growth of 4.5% in earnings and dividends, the DCF test indicates that the investor expects an annual return, in dollars, of $1.25 next year ($0.80 in dividends and $0.45 in retained earnings), $1.306 of return the following year ($1.25 x 1.045), $1.365 the next ($1.306 x 1.045), etc. The present value of all future expected returns is the price of the stock, that is, $15.00.

If, however, the "k" of 9.8% is applied to the $10 book value, the investor will only earn $0.98 next year (9.8% x $10 book value), not $1.25. Thus, there would be a shortfall in the dollar return of $0.27 from what the investor expects. This contradicts the basic premise upon which the DCF model is justified, that is, that investor expectations are the basis for determining the minimum required cost of capital.

Since utilities are regulated on the basis of original cost, the allowed return is applied to the original cost of the equity. In order for the investor to be able to earn the next year's $1.25 return that he expects, and is specified in the DCF model, the 9.8% cost of equity understates the return on book value that will yield earnings of $1.25. In this illustration, the return on book value necessary to provide the investor with $1.25 in earnings per share is 12.5%.

The 12.5% is calculated using the DCF model derived on page 3 of this Appendix, where,

$$\text{Return on Equity} = \frac{\text{Market Book Ratio x k}}{\text{1 + Earnings Retention Rate (1 – Market Book Ratio)}}$$

The 12.5% return on the $10 book value, in turn, translates to the $1.25 in earnings expected by the investor.

APPENDIX C
RELATIONSHIP BETWEEN MARKET-DERIVED COST OF EQUITY TO FAIR RETURN ON BOOK VALUE

DERIVATION OF IMPLICIT RELATIONSHIP
AMONG MARKET COST OF CAPITAL, RETURN ON BOOK EQUITY
AND MARKET/BOOK RATIO

Assume the following:

k	=the equity capitalization rate, i.e., the "bare-bones" cost of equity
D	=dividend per share
E	=earnings per share
M	=current market price
B	=current book value per share
b	= retention rate
r	=return on book equity
RE	=per share retained earnings
g	=sustainable growth as measured by b(r)

DCF cost of capital:

$$(1)\ k = \frac{D}{M} + g$$

Price of stock:

$$(2)\ M = \frac{D}{k - g}$$

From the definition of return on book equity:

$$(3)\ r = \frac{E}{B} = \frac{D}{B} + \frac{RE}{B}$$

If, from the assumptions,

$$(4)\ g = br,$$

$$(5)\ \text{by definition, } g = \frac{RE}{B} \times \frac{E}{B} = \frac{RE}{E}$$

Substitute Equation (5) into Equation (3):

$$(6)\ r = \frac{D}{B} + g$$

Solve Equation (6) for B:

$$(7)\ B = \frac{D}{r - g}$$

Divide Equation (2) by Equation (7) to obtain an expression of the market/book ratio:

$$(8)\ M/B = \frac{\frac{D}{k - g}}{\frac{D}{r - g}} = \frac{r - g}{k - g}$$

From the formulation of g = b(r) in Equation (4):

$$(9)\ M/B = \frac{r - [\, b\,(r)\,]}{k - b} = \frac{(1 - b)\, r}{k - b\, r}$$

Solve Equation (9) for r:

$$(10)\ r = \frac{M/B \times k}{1 + b\left(\frac{M}{B} - 1\right)}$$

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 Natural Gas Service Provided to Customers in the Company's Missouri Service Area.	)))))	Case No. 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 the City of 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 Direct Testimony on behalf of Union Electric Company d/b/a AmerenUE consisting of 47 pages, Attachment A, Appendices A, B, and C, and Schedules KCM-G1-1 through KCM-G12-3, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

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

Subscribed and sworn to before me this 27th day of June, 2006.

Notary Public

My commission expires:

SANDRA N POOLE
Notary Public-Maryland
Montgomery County
My Commission Expires
October 18, 2009

EXECUTIVE SUMMARY

Kathleen C. McShane

Senior Consultant and Executive Vice President of
Foster Associates, Inc.

* * * * * * * * * *

I have been asked to render an opinion on the fair rate of return on equity that would be applicable to the gas operations of Union Electric Company d/b/a AmerenUE. My analysis and recommendation took into account the following considerations:

(1) The allowed return on equity for AmerenUE's gas operations should reflect the risk profile and cost of equity of comparable gas distribution utilities so as to provide "a return commensurate with returns in other enterprises with corresponding risks." A sample of natural gas distribution utilities (LDCs) serves as the comparable group for AmerenUE's gas operations.

(2) In arriving at a recommended return, no single test result should be given exclusive weight. Each of the various tests employed provides a different perspective on a fair return. Each test has its own strengths and weaknesses, which vary with both the business cycle and stock market conditions. In the end, regardless of the insight that may be added by any individual test, the governing principles from the *Bluefield* and *Hope* decisions of the United States Supreme Court, as the Commission has emphasized, "require[] a *comparative method*, based on the quantification of risk" in determining a fair rate of return on equity.

(3) The discounted cash flow ("DCF") and the risk premium tests are market-related tests for measuring the cost of attracting capital by reference to market values. By

contrast, the comparable earnings test, which reflects returns on book equity, directly addresses the fairness standard as enunciated in the *Bluefield* and *Hope* decisions.

(4) For the purposes of determining a fair return on equity for a utility, a critical factor that needs to be recognized is that the cost of capital is determined in the capital markets. The cost of capital estimates reflect the market value of the firm's capital, both debt and equity. While the DCF and risk premium tests estimate the return required on the market value of common equity, regulatory convention applies that return to the book value of the assets included in rate base. The determination of a fair return on book equity needs to recognize that distinction and the resulting differences in financial risk.

(5) In principle, the comparable earnings test is most compatible with regulation on an original cost book value rate base. For purposes of this testimony, I have used the comparable earnings test results to demonstrate the reasonableness of the recommended return in relation to the level of returns being earned by unregulated non-utility companies with risks similar to gas utilities.

(6) The results of the DCF and risk premium tests used to estimate a fair return for AmerenUE's gas operations, as well as my recommendation, are summarized below.

Table 1

	Range	Average
Discounted Cash Flow	8.8-10.2%	9.5%
Capital Asset Pricing Model	11.0-11.5%	11.25%
Achieved Utility Risk Premiums	10.75-11.75%	11.25%
DCF-Based Risk Premium	9.8-10.3%	10.0%
Average of All Cost of Equity Methods		10.5%
Cost of Equity Reflecting Higher Financial Risk of AmerenUE Filed Capital Structure		11.5%

The tests indicate that the required equity return is in the range of 9.5% (DCF) to 11.5% (CAPM). Based on all four tests, the indicated cost of equity as applied to the comparable gas utilities is approximately 10.5%.

The proxy LDC sample's market value common equity ratio is 65%. The allowed return on equity will be applied to AmerenUE's book value common equity ratio of 52%. The difference in financial risk between a market value common equity ratio of 65% and AmerenUE's book value common equity ratio of 52% requires an increase in the equity return requirement from 10.5% to a range of 11.1% to 11.9%. I recommend that the allowed return on equity for AmerenUE's Missouri gas operations be set at the mid-point of the range, that is, at 11.5%.

SELECTED INDICATORS OF ECONOMIC ACTIVITY
(1989 = 100)

Year		Gross Domestic Product a/ Constant Dollars (1)	Gross Domestic Product a/ Current Dollars (2)	Industrial Production (3)	GDP Implicit Price Deflator Index a/ (4)	GDP Implicit Price Deflator Index b/ (5)	Consumer Price Index (6)	Consumer Price Inflation b/ (7)	After-Tax Corporate Profits Index (8)	After-Tax Corporate Profits as % of GDP (9)
1989		100.0	100.0	100.0	100.0		100.0		100.0	4.3
1990		102.2	105.7	100.9	103.9	3.9	105.4	5.4	111.1	4.6
1991		101.7	109.1	99.4	107.5	3.5	109.8	4.2	119.6	4.7
1992		104.9	115.1	102.2	110.0	2.3	113.2	3.0	131.4	4.9
1993		107.7	121.0	105.6	112.5	2.3	116.5	3.0	145.6	5.2
1994		112.3	128.5	111.3	114.9	2.1	119.5	2.6	161.3	5.4
1995		115.1	134.8	116.6	117.3	2.0	122.9	2.8	191.7	6.2
1996		119.3	142.3	121.5	119.5	1.9	126.5	2.9	210.9	6.4
1997		124.7	151.5	130.4	121.5	1.7	129.5	2.3	232.3	6.6
1998		129.9	160.0	138.1	122.8	1.1	131.5	1.6	197.7	5.4
1999		135.7	169.0	144.3	124.6	1.4	134.4	2.3	217.6	5.6
2000		140.6	179.0	150.6	127.3	2.2	138.9	3.3	213.8	5.2
2001		141.7	184.7	145.2	130.4	2.4	142.8	2.8	211.9	5.0
2002		143.9	190.9	145.4	132.6	1.7	145.1	1.6	242.2	5.5
2003		147.8	200.0	146.3	135.3	2.0	148.4	2.3	296.6	6.4
2004		154.1	214.0	152.3	138.9	2.6	152.3	2.7	331.6	6.7
2005		159.4	227.5	157.0	142.7	2.8	157.5	3.4	433.0	8.3
2003	1Q	145.2	195.4	146.1	134.6	2.1	147.6	2.9	277.3	6.2
	2Q	146.5	197.7	144.9	134.9	2.0	148.1	2.1	282.5	6.2
	3Q	149.1	202.2	146.2	135.6	2.1	148.8	2.2	300.3	6.4
	4Q	150.4	204.9	148.0	136.2	2.0	148.9	1.9	326.4	6.9
2004	1Q	152.0	208.9	150.0	137.4	2.1	150.2	1.8	324.9	6.7
	2Q	153.3	212.7	151.9	138.7	2.8	152.4	2.9	332.4	6.8
	3Q	154.8	215.5	152.9	139.2	2.7	152.9	2.8	319.4	6.4
	4Q	156.1	218.7	154.4	140.1	2.9	153.8	3.3	349.6	6.9
2005	1Q	157.6	222.4	155.9	141.2	2.7	154.8	3.0	427.3	8.3
	2Q	158.8	225.7	156.5	142.1	2.4	156.9	2.9	437.4	8.4
	3Q	160.5	229.8	157.1	143.3	2.9	158.8	3.8	434.3	8.2
	4Q	160.9	232.2	158.6	144.3	3.0	159.6	3.7	na	na

a/ Data are based on Chain Weighted Indexes.

b/ Inflation rate measured against prior year period.

Source: U.S. Department of Commerce, U.S. Bureau of Labor and U.S. Federal Reserve

TREND IN INTEREST RATES AND OUTSTANDING BOND YIELDS
(Percent Per Annum)

Year		Prime Rate	3-Month Bills a/	10-Year Bonds	Long-term Bonds b/	Inflation Indexed 10-Year	Inflation Indexed Long-term Bonds c/	Moody's Utility Bonds Aa	Moody's Utility Bonds A	Moody's Utility Bonds Baa	Moody's Corporate Bonds Aaa
1991		8.46	5.38	7.86	8.14			9.09	9.36	9.55	8.77
1992		6.25	3.43	7.01	7.67			8.55	8.64	8.86	8.14
1993		6.00	3.02	5.87	6.59			7.44	7.59	7.91	7.22
1994		7.23	4.34	7.08	7.39			8.21	8.30	8.63	7.96
1995		8.81	5.44	6.58	6.85			7.77	7.89	8.29	7.59
1996		8.27	5.04	6.44	6.73			7.57	7.75	8.16	7.37
1997		5.44	5.11	6.32	6.58	3.55	3.60	7.54	7.60	7.96	7.26
1998		8.31	4.79	5.26	5.54	3.73	3.73	6.91	7.04	7.27	6.53
1999		8.02	4.71	5.68	5.88	4.00	3.99	7.51	7.62	7.88	7.04
2000		9.27	5.85	5.97	5.91	4.01	4.03	8.06	8.24	8.36	7.62
2001		6.77	3.50	4.99	5.51	3.32	3.32	7.54	7.73	8.02	7.08
2002		4.67	1.63	4.56	5.41	2.81	3.10	7.17	7.35	7.99	6.48
2003		4.10	1.03	4.02	5.03	2.04	2.52	6.35	6.54	6.80	5.60
2004		4.38	1.44	4.27	5.08	1.82	2.19	6.04	6.15	6.39	5.63
2005		6.23	3.29	4.27	4.52	1.80	1.92	5.42	5.62	5.90	5.20
2004	Jan	4.00	0.92	4.16	5.07	1.85	2.21	6.05	6.11	6.40	5.53
	Feb	4.00	0.96	3.99	4.95	1.61	2.01	6.04	6.08	6.22	5.43
	Mar	4.00	0.95	3.86	4.87	1.52	1.93	5.98	6.01	6.15	5.37
	Apr	4.00	0.98	4.53	5.36	2.11	2.51	6.45	6.46	6.58	5.87
	May	4.00	1.08	4.66	5.29	2.00	2.35	6.59	6.53	6.71	5.97
	Jun	4.00	1.33	4.62	5.41	2.10	2.37	6.17	6.36	6.77	5.91
	Jul	4.25	1.45	4.50	5.31	2.01	2.41	6.16	6.36	6.71	5.90
	Aug	4.50	1.59	4.13	4.97	1.78	2.16	5.83	6.02	6.32	5.51
	Sep	4.75	1.71	4.14	4.97	1.77	2.14	5.78	5.96	6.24	5.47
	Oct	4.75	1.91	4.05	4.87	1.63	2.12	5.65	5.89	6.10	5.41
	Nov	5.00	2.23	4.36	5.07	1.75	2.14	5.92	6.07	6.27	5.62
	Dec	5.25	2.22	4.24	4.86	1.68	1.96	5.84	5.99	6.17	5.55
2005	Jan	5.25	2.51	4.14	4.62	1.65	1.91	5.57	5.65	5.80	5.21
	Feb	5.50	2.76	4.36	4.71	1.70	1.93	5.69	5.76	5.91	5.28
	Mar	5.75	2.73	4.50	4.76	1.79	1.89	5.79	5.75	6.04	5.40
	Apr	5.75	2.90	4.21	4.53	1.61	1.80	5.43	5.54	5.86	5.21
	May	6.00	2.99	4.00	4.36	1.63	1.76	5.25	5.41	5.75	5.02
	Jun	6.00	3.13	3.94	4.19	1.67	1.76	4.99	5.35	5.65	4.91
	Jul	6.25	3.42	4.28	4.42	1.92	2.00	5.24	5.53	5.82	5.08
	Aug	6.50	3.52	4.02	4.23	1.65	1.82	5.04	5.30	5.61	4.91
	Sep	6.75	3.55	4.34	4.53	1.78	1.91	5.40	5.65	5.95	5.22
	Oct	6.75	3.98	4.57	4.73	2.00	2.09	5.60	5.91	6.20	5.44
	Nov	7.00	3.95	4.52	4.66	2.12	2.13	5.57	5.85	6.18	5.42
	Dec	7.25	4.08	4.39	4.51	2.06	1.98	5.46	5.69	6.03	5.26
2006	Jan	7.5	4.47	4.53	4.69	2.00	1.98	5.59	5.84	6.15	5.39
	Feb	7.5	4.62	4.55	4.51	2.02	1.93	5.49	5.77	6.04	5.31
	Mar	7.75	4.61	4.86	4.89	2.35	2.3	5.87	6.14	6.41	5.67
	Apr	7.75	4.65	5.07	5.17	2.39	2.42	6.12	6.37	6.61	5.95

a/ Rates on new issues.

b/ 20-year constant maturities for 1974-1978; 30-year maturities, 1978-January 2002. Theoretical 30-year yield, February 2002 to January 2006. 30-year constant maturities fro

c/ Yield on inflation-indexed bonds with a term to maturity over 10-years. 1997-September 2001, Global Financial Data Inc; October 2001-December 2002, Wall Street Journal; January 2003-pres., Federal Reserve.

Note: Monthly data reflect rate in effect at end of month.

Source: U.S. Federal Reserve, U.S. Treasury and Moody's Credit Perspectives.

INDIVIDUAL COMPANY RISK DATA FOR SELECTED LOW RISK
LOCAL NATURAL GAS DISTRIBUTION UTILITIES

		Value Line							S & P		Moody's	Average
	Book Value Permanent Capital Common Equity Ratio 2005	Forecast Common Equity Ratio 2009-2011	Forecast Return On Average Common Equity 2009-2011	Dividend Payout Forecast 2009-2011	Safety	Earnings Predictability	Financial Strength	Beta	Business Profile	Debt Rating	Debt Rating	Market/ Book Ratio 1993-2005
AGL RESOURCES INC	48.1%	52.0%	12.0%	60.3%	2	70	B++	0.90	4	A-	Baa1	1.77
ATMOS ENERGY CORP	42.3%	45.0%	10.6%	54.0%	2	60	B+	0.70	4	BBB	Baa3	1.81
CASCADE NATURAL GAS CORP	40.6%	49.0%	8.5%	63.2%	3	70	B+	0.80	2	BBB+	Baa1	1.73
LACLEDE GROUP INC	51.8%	51.0%	12.9%	53.6%	2	65	B+	0.80	3	A	A3	1.64
NEW JERSEY RESOURCES	58.0%	63.5%	13.6%	51.5%	2	100	B++	0.80	2	A+	Aa3	2.14
NICOR INC	62.5%	66.0%	13.3%	72.1%	3	75	A	1.15	3	AA	Aa3	2.17
NORTHWEST NATURAL GAS CO	53.0%	53.0%	11.4%	59.6%	1	70	A	0.70	1	AA-	A2	1.50
PEOPLES ENERGY CORP	47.2%	49.1%	13.3%	83.0%	1	80	A	0.85	5	A-	A1	1.69
PIEDMONT NATURAL GAS CO	58.6%	60.0%	13.5%	66.9%	2	80	B++	0.75	2	A	A3	1.95
SOUTH JERSEY INDUSTRIES INC	55.1%	60.0%	13.6%	50.0%	2	85	B++	0.65	3	BBB+	Baa1	1.63
WGL HOLDINGS INC	59.3%	59.0%	11.5%	60.4%	1	60	A	0.80	3	AA-	A2	1.72
MEAN	**52.4%**	**55.2%**	**12.2%**	**61.3%**	**2**	**74**	**B++**	**0.81**	**3**	**A**	**A3**	**1.80**
MEDIAN	**53.0%**	**53.0%**	**12.9%**	**60.3%**	**2**	**70**	**B++**	**0.80**	**3**	**A**	**A3**	**1.73**

Source: Standard and Poors Research Insight, *Value Line* (March 2006), www.Moodys.com and Standard and Poors *Utility and Power Ranking* (May 19, 2006).

HISTORIC VALUE LINE BETAS FOR
SELECTED LOCAL NATURAL GAS DISTRIBUTION UTILITIES

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
AGL RESOURCES INC	0.75	0.75	0.65	0.65	0.60	0.60	0.75	0.75	0.80	0.90
ATMOS ENERGY CORP	0.65	0.55	0.55	0.55	0.55	0.55	0.60	0.65	0.70	0.70
CASCADE NATURAL GAS CORP	0.55	0.60	0.55	0.55	0.55	0.55	0.70	0.70	0.75	0.80
LACLEDE GROUP INC	0.55	0.55	0.50	0.50	0.50	0.50	0.60	0.70	0.70	0.80
NEW JERSEY RESOURCES	0.65	0.60	0.55	0.55	0.55	0.55	0.65	0.70	0.75	0.75
NICOR INC	0.70	0.75	0.65	0.60	0.60	0.60	0.85	1.00	1.05	1.10
NORTHWEST NATURAL GAS	0.45	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.65	0.70
PEOPLES ENERGY	0.80	0.90	0.80	0.75	0.70	0.70	0.75	0.75	0.80	0.85
PIEDMONT NATURAL GAS	0.65	0.60	0.55	0.55	0.60	0.60	0.70	0.70	0.75	0.75
SOUTH JERSEY INDUSTRIES INC	0.50	0.55	0.50	0.50	0.45	0.45	0.50	0.65	0.55	0.65
WGL HOLDINGS INC	0.70	0.75	0.60	0.60	0.60	0.60	0.65	0.70	0.75	0.80
MEAN	**0.63**	**0.65**	**0.59**	**0.58**	**0.57**	**0.57**	**0.67**	**0.72**	**0.75**	**0.80**
MEDIAN	**0.65**	**0.60**	**0.55**	**0.55**	**0.60**	**0.60**	**0.65**	**0.70**	**0.75**	**0.80**

Source: Value Line, 4th Quarter issues.

DCF COSTS OF EQUITY FOR SELECTED
LOCAL NATURAL GAS DISTRIBUTION COMPANIES
(BASED ON ANALYSTS' EARNINGS GROWTH FORECASTS)

Company	Annualized Last Paid Dividend (1)	Average Daily Closing Prices 4/19 - 5/18/2006 (2)	Expected Dividend Yield [1/] (3)	I/B/E/S Long-Term EPS Forecasts (April 2006) (4)	DCF Cost of Equity [2/] (5)
AGL RESOURCES INC	1.48	35.49	4.4	4.4	8.8
ATMOS ENERGY CORP	1.26	26.81	5.0	5.4	10.4
CASCADE NATURAL GAS CORP	0.96	20.36	4.9	4.0	8.9
LACLEDE GROUP INC	1.42	33.63	4.4	4.3	8.7
NEW JERSEY RESOURCES	1.44	44.56	3.4	5.3	8.7
NICOR INC	1.86	40.43	4.7	3.1	7.8
NORTHWEST NATURAL GAS CO	1.38	34.81	4.2	5.4	9.6
PEOPLES ENERGY CORP	2.18	36.30	6.3	4.5	10.8
PIEDMONT NATURAL GAS CO	0.96	24.44	4.1	4.2	8.3
SOUTH JERSEY INDUSTRIES INC	0.90	26.65	3.6	5.3	8.9
WGL HOLDINGS INC	1.35	29.11	4.8	3.8	8.6
Mean	**1.38**	**32.05**	**4.5**	**4.5**	**9.0**
Median	**1.38**	**33.63**	**4.4**	**4.4**	**8.8**

1/ Expected Dividend Yield = (Col (1) / Col (2)) * (1 + Col (4))
2/ Expected Dividend Yield (Col (3)) + I/B/E/S Growth Forecast (Col (4))

Source: Standard & Poor's Research Insight, Yahoo.com and I/B/E/S (April 2006)

DCF COSTS OF EQUITY FOR SELECTED
LOCAL NATURAL GAS DISTRIBUTION COMPANIES
(BASED ON VALUE LINE LONG TERM EPS GROWTH RATES)

Company	Annualized Last Paid Dividend (1)	Average Daily Closing Prices 4/19 - 5/18/2006 (2)	Expected Dividend Yield [1/] (3)	Value Line EPS Growth (March 2006) (4)	DCF Cost of Equity [2/] (5)
AGL RESOURCES INC	1.48	35.49	4.3	4.0	8.3
ATMOS ENERGY CORP	1.26	26.81	5.0	7.0	12.0
CASCADE NATURAL GAS CORP	0.96	20.36	5.1	8.5	13.6
LACLEDE GROUP INC	1.42	33.63	4.5	7.0	11.5
NEW JERSEY RESOURCES	1.44	44.56	3.4	4.5	7.9
NICOR INC	1.86	40.43	4.8	4.0	8.8
NORTHWEST NATURAL GAS CO	1.38	34.81	4.2	7.0	11.2
PEOPLES ENERGY CORP	2.18	36.30	6.0	0.5	6.5
PIEDMONT NATURAL GAS CO	0.96	24.44	4.2	6.0	10.2
SOUTH JERSEY INDUSTRIES INC	0.90	26.65	3.6	7.0	10.6
WGL HOLDINGS INC	1.35	29.11	4.7	2.0	6.7
Mean	**1.38**	**32.05**	**4.5**	**5.2**	**9.8**
Median	**1.38**	**33.63**	**4.5**	**6.0**	**10.2**

1/ Expected Dividend Yield = (Col (1) / Col (2)) * (1 + Col (4))
2/ Expected Dividend Yield (Col (3)) + Value Line EPS Growth Forecast (Col (4))

Source: Standard and Poors Research Insight, Yahoo.com and *Value Line* (March 2006)

DCF COSTS OF EQUITY FOR SELECTED
LOCAL NATURAL GAS DISTRIBUTION COMPANIES
(TWO-STAGE MODEL)

Company	Annualized Last Paid Dividend (1)	Average Daily Closing Prices 4/19 - 5/18/2006 (2)	I/B/E/S Long-Term EPS Forecasts (April 2006) (4)	Stage 2 GDP Growth [1/] (4)	DCF Cost of Equity [2/] (5)
AGL RESOURCES INC	1.48	35.49	4.4	5.2	9.4
ATMOS ENERGY CORP	1.26	26.81	5.4	5.2	10.1
CASCADE NATURAL GAS CORP	0.96	20.36	4.0	5.2	9.8
LACLEDE GROUP INC	1.42	33.63	4.3	5.2	9.4
NEW JERSEY RESOURCES	1.44	44.56	5.3	5.2	8.4
NICOR INC	1.86	40.43	3.1	5.2	9.5
NORTHWEST NATURAL GAS CO	1.38	34.81	5.4	5.2	9.3
PEOPLES ENERGY CORP	2.18	36.30	4.5	5.2	11.3
PIEDMONT NATURAL GAS CO	0.96	24.44	4.2	5.2	9.0
SOUTH JERSEY INDUSTRIES INC	0.90	26.65	5.3	5.2	8.6
WGL HOLDINGS INC	1.35	29.11	3.8	5.2	9.7
Mean	**1.38**	**32.05**	**4.5**	**5.2**	**9.5**
Median	**1.38**	**33.63**	**4.4**	**5.2**	**9.4**

1/ Consensus forecast nominal rate of GDP growth, 2007-16
2/ Internal Rate of Return: I/B/E/S EPS forecast growth rate applies for first 5 years; GDP growth thereafter.

Source: Standard & Poor's Research Insight; Yahoo.com; Blue Chip *Economic Indicators* (March 2006); I/B/E/S (April 2006)

HISTORIC MARKET EQUITY RISK PREMIUMS
(Percentages)

	Annual Average Returns		Risk Premium in Relation to:
	S & P 500 Common Stock Index	U.S. Treasury Bonds [1/]	S & P 500 Common Stock Index
1926-2005	12.3	5.2	7.1
1947-2005	13.1	6.1	7.0

	Annual Average Returns		Risk Premium in Relation to:
	S&P / Moody's Gas Distribution Stock Index	U.S. Treasury Bonds [1/]	S&P / Moody's Gas Distribution Stock Index
1947-2005	12.1	6.1	6.0

	Annual Average Returns		Risk Premium in Relation to:
	S&P/Moody's Electric Index	U.S. Treasury Bonds [1/]	S&P/Moody's Electric Index
1947-2005	11.3	6.1	5.2

1/ Average of annual income returns for 20-year bond.

Note: The S&P/Moody's Gas Distribution Index reflects S&P's Natural Gas Distributors Index from 1947 to 1984, when S&P eliminated its gas distribution index. The 1984-2001 data are for Moody's Gas index. The index was terminated in July 2002. The 2002-2005 returns were estimated using simple averages of the prices and dividends for the utilities that were included in Moody's Gas Index as of the end of 2001. These LDCs include AGL Resources, Keyspan Corp., Laclede Group, Northwest Natural, Peoples Energy and WGL Holdings.

The S&P/Moody's Electric Index reflects S&P's Electric Index from 1947 to 2001. The 2002 to 2005 data were estimated using simple average of the prices and dividends for the utilities included in Moody's Electric Index as of the end of 2001. These utilities include American Electric Power, Centerpoint Energy, CH Energy, Cinergy, Consolidated Edison, Constellation, Dominion Resources, DPL, DTE Energy, Duke Energy, Energy East, Exelon, FirstEnergy, IDACORP, Nisource, OGE Energy, Pepco Holdings, PPL, Progress Energy, Public Service Enterprise Grp., Southern Co., Teco and Xcel Energy.

Sources: Standard & Poor's *Analysts' Handbook*, Ibbotson Associates, *Stocks, Bonds, Bills and Inflation Yearbook 2006*, Mergent *Corporate News Reports* and Standard & Poor's Research Insight.

EQUITY RISK PREMIUM STUDY FOR
SELECTED U.S. LOCAL NATURAL GAS DISTRIBUTION COMPANIES

(Quarterly Averages of Monthly Data)

	Expected Dividend Yield [1/]	I/B/E/S EPS Growth Forecast	DCF Cost	10-Year Treasury Yield	Risk Premium
1993 q1	5.5	6.4	11.8	6.3	5.6
q2	5.3	6.3	11.7	6.0	5.7
q3	5.1	6.4	11.4	5.6	5.8
q4	5.4	6.1	11.5	5.6	5.9
1994 q1	5.6	5.8	11.3	6.1	5.3
q2	6.0	5.7	11.7	7.1	4.7
q3	6.3	5.5	11.8	7.3	4.4
q4	6.6	5.0	11.6	7.8	3.7
1995 q1	6.3	4.8	11.1	7.5	3.6
q2	6.1	4.8	10.9	6.6	4.3
q3	6.0	4.7	10.8	6.3	4.4
q4	5.7	4.8	10.5	5.9	4.6
1996 q1	5.6	4.8	10.3	5.9	4.4
q2	5.5	4.9	10.4	6.7	3.7
q3	5.4	5.0	10.4	6.8	3.6
q4	5.1	5.1	10.2	6.3	3.9
1997 q1	5.4	5.1	10.5	6.6	3.9
q2	5.4	5.0	10.4	6.6	3.7
q3	5.1	5.0	10.1	6.2	3.9
q4	4.7	5.2	10.0	5.8	4.1
1998 q1	4.7	5.2	9.9	5.6	4.3
q2	4.8	5.2	10.0	5.6	4.4
q3	5.1	5.3	10.4	5.1	5.3
q4	4.7	5.0	9.7	4.7	5.0
1999 q1	5.3	5.0	10.3	5.0	5.3
q2	5.2	5.0	10.2	5.6	4.7
q3	5.0	5.0	10.0	5.9	4.1
q4	5.2	5.1	10.3	6.2	4.1
2000 q1	5.9	5.2	11.1	6.4	4.7
q2	5.8	5.2	11.0	6.2	4.8
q3	5.5	5.4	10.9	5.9	5.0
q4	5.0	5.4	10.4	5.5	4.9
2001 q1	5.1	5.4	10.5	5.0	5.5
q2	4.9	5.5	10.4	5.4	5.0
q3	5.0	5.6	10.6	4.8	5.7
q4	5.0	5.4	10.3	4.7	5.6
2002 q1	5.0	5.4	10.3	5.1	5.2
q2	4.7	5.3	10.0	5.0	5.0
q3	5.3	5.4	10.7	4.1	6.6
q4	5.1	5.3	10.4	4.0	6.4
2003 q1	5.3	5.2	10.4	3.8	6.6
q2	4.8	5.0	9.8	3.6	6.2
q3	4.7	4.9	9.6	4.3	5.3
q4	4.6	4.7	9.3	4.3	5.0
2004 q1	4.4	4.7	9.1	4.0	5.1
q2	4.6	4.6	9.2	4.6	4.6
q3	4.5	4.3	8.8	4.3	4.6
q4	4.2	4.2	8.4	4.2	4.2
2005 q1	4.2	4.5	8.7	4.3	4.4
q2	4.2	4.7	8.8	4.1	4.8
q3	4.0	4.6	8.6	4.2	4.4
q4	4.4	4.6	9.0	4.5	4.6
2006 q1	4.4	4.6	9.0	4.6	4.4
Mean	**5.1**	**5.1**	**10.3**	**5.5**	**4.8**

1/ Dividend Yield is adjusted for half of I/B/E/S/ growth

Source: Standard & Poor's Research Insight, I/B/E/S and U.S. Federal Reserve

ESTIMATE OF MARKET VALUE CAPITAL STRUCTURES FOR LDCs

Company	Stock Price (Average Daily Closing 4/19-5/18/2006) (1)	Book Value Per Share (March 2006 Qtr) (2)	Market/Book Ratio (3) = (1)/(2)	Book Value Permanent Capital Common Equity Ratio 2005 (4)	Market Value Common Equity Ratio (Debt at Par) (5)=[(4)*(3)]/[(4)*(3)+(1-(4))]	Market Value Debt Ratio 1.0-Col.(7)
AGL Resources Inc	35.49	20.35	1.74	48.1%	61.8%	38.2%
Atmos Energy	26.81	21.05	1.27	42.3%	48.3%	51.7%
Cascade	20.36	11.40	1.79	40.6%	54.9%	45.1%
Laclede	33.63	19.33	1.74	51.8%	65.1%	34.9%
New Jersey Resources	44.56	22.03	2.02	58.0%	73.6%	26.4%
Nicor	40.43	18.89	2.14	62.5%	78.1%	21.9%
Northwest Natural Gas	34.81	22.44	1.55	53.0%	63.6%	36.4%
Peoples Energy Corp	36.30	21.86	1.66	47.2%	59.7%	40.3%
Piedmont	24.44	12.26	1.99	58.6%	73.8%	26.2%
South Jersey Industries	26.65	14.41	1.85	55.1%	69.4%	30.6%
WGL Holdings	29.11	19.70	1.48	59.3%	68.3%	31.7%
Mean				**52.4%**	**65.2%**	**34.8%**

Sources: Schedule 5 for stock prices, *Value Line*(March 2006) for 2005 book values per share

QUANTIFICATION OF IMPACT ON EQUITY RETURN REQUIREMENT FOR DIFFERENCE BETWEEN MARKET VALUE AND BOOK VALUE CAPITAL STRUCTURES (AVERAGE OF DCF TEST AND EQUITY RISK PREMIUM TEST RESULTS)

Formula for After-Tax Weighted Average Cost of Capital:

$WACC_{AT}$ = (Debt Cost)(1-tax rate)(Debt Ratio) + (Equity Cost)(Equity Ratio)

APPROACH 1:

The after-tax weighted average cost of capital ($WACC_{AT}$) is invariant to changes in the capital structure. The cost of equity rises as leverage (debt ratio) rises, but the $WACC_{AT}$ stays the same.

$WACC_{AT(LL)}$ = $WACC_{AT(ML)}$

Where LL = less levered (lower debt ratio)

ML = more levered (higher debt ratio)

ASSUMPTIONS:

Debt Cost	=	Current Cost of Long Term Debt for BBB rated utility
	=	6.60%[1]
Equity Cost	=	Cost of Equity[2]
	=	10.38%
Tax Rate	=	38.5%[3]

STEPS:

1. Estimate $WACC_{AT}$ for the less levered sample (average market value common equity ratio of 65%)

$WACC_{AT}$ = (6.60%)(1-.385)(35%) + (10.38%)(65%)

= 8.12%

2. Estimate Cost of Equity for AmerenUE at 52% book value common equity ratio with $WACC_{AT}$ unchanged at 8.12%

$WACC_{AT}$ = (Debt Cost)(1-tax rate)(Debt Ratio) + (Equity Cost)(Equity Ratio)

8.12% = (6.60%)(1-.385)(48%)+(X)(52%)

Cost of Equity at 52.0% Equity Ratio = 11.92%

3. Difference between Equity Return at 65% and 52% common equity ratios:

11.92% - 10.38% = 1.55% (155 basis points)

[1] Current yield on BBB-rated utility debt.

[2] Based on the average of DCF and Equity Risk Premium tests.

[3] Federal tax rate of 35% plus average state rate of 5%.

APPROACH 2:

After-Tax Cost of Capital Declines as Debt Ratio Rises; Cost of Equity Rises

$$WACC_{AT(ML)} = WACC_{AT(LL)} \times \frac{(1-tD_{ML})}{(1-tD_{LL})}$$

Where LL,ML as before
t = tax rate
D = debt ratio

ASSUMPTIONS:

Debt Cost	=	Current Cost of Long Term Debt for BBB rated utility
	=	6.60%
Equity Cost	=	Cost of Equity
	=	10.38%
Tax Rate	=	38.50%

STEPS:

1. Estimate $WACC_{AT}$ for less levered sample (average market value common equity ratio of 65%)

$$WACC_{AT} = (6.60\%)(1-.385)(35\%) + (10.38\%)(65\%)$$
$$= 8.12\%$$

2. Estimate $WACC_{AT}$ for more levered firm (book value common equity ratio of 52%)

$$WACC_{AT(ML)} = WACC_{AT(LL)} \times (1-t \times \text{Debt Ratio}_{ML})/(1-t \times \text{Debt Ratio}_{LL})$$

$$WACC_{AT(ML)} = 8.12\% \times \frac{(1-.385 \times 48\%)}{(1-.385 \times 38\%)}$$

$$WACC_{AT(ML)} = 7.67\%$$

3. Estimate Cost of Equity at new $WACC_{AT}$ for more levered firm:

$$WACC_{AT(ML)} = (\text{Debt Cost})(1-\text{tax rate})(\text{Debt Ratio}_{ML}) + (\text{Equity Cost})(\text{Equity Ratio}_{ML})$$
$$7.67\% = (6.60\%)(1-.385)(48\%) + (X)(52\%)$$

Cost of Equity at 52% equity ratio = 11.05%

4. Difference between Equity Return at 65% and 52% common equity ratios:

11.05% - 11.0% = .68% (68 basis points)

ESTIMATE OF IMPACT OF CHANGE IN CAPITAL STRUCTURE ON COST OF EQUITY
68-155 BASIS POINTS

RISK MEASURES FOR 139 LOW RISK US INDUSTRIALS

Company Name	S&P Debt Rating	Value Line Safety	Value Line Earnings Predictability	Value Line Financial Strength	Value Line Beta	Equity Ratio Permanent Capital 2005 [1]
3M CO	AA	1	75	A++	0.90	88.1%
ABM INDUSTRIES INC		2	85	B++	0.80	100.0%
ACETO CORP		3	55	B+	0.85	100.0%
ALAMO GROUP INC		2	50	B++	0.55	84.1%
ALBERTO-CULVER CO	BBB+	1	100	A+	0.65	92.5%
ALBERTSON'S INC	BBB-	3	70	A	0.85	47.6%
ALEXANDER & BALDWIN INC	A-	3	65	B+	0.95	77.4%
ALICO INC		3	25	B++	0.65	75.0%
AMERICAN WOODMARK CORP	BBB+	3	70	B++	0.95	*88.0%*
AMPCO-PITTSBURGH CORP		3	20	B+	0.60	100.0%
ANDERSONS INC		3	55	B+	0.50	48.6%
APOGEE ENTERPRISES INC		3	30	B++	0.95	*83.5%*
APPLEBEES INTL INC		3	100	B++	0.80	69.6%
APPLIED INDUSTRIAL TECH INC	A+	3	55	B+	0.90	83.6%
ARCHER-DANIELS-MIDLAND CO		3	65	B+	0.75	70.5%
ARCTIC CAT INC		3	90	B++	0.85	*100.0%*
AVERY DENNISON CORP		2	90	A	0.95	67.6%
BADGER METER INC	A	3	55	B++	0.65	82.7%
BALDOR ELECTRIC CO		2	60	B++	0.95	81.0%
BANTA CORP	A-	2	95	B++	0.80	87.8%
BARNES GROUP INC		3	65	B+	0.85	62.0%
BLACK & DECKER CORP		3	65	B+	0.95	59.7%
BLAIR CORP		3	45	B	0.85	100.0%
BLYTH INC		2	85	B++	0.80	58.9%
BOB EVANS FARMS	BBB	2	60	B++	0.85	*75.6%*
BRADY CORP		3	50	B++	0.95	76.8%
BURLINGTON NORTHERN SANTA F		3	75	B++	0.90	58.7%
CASEYS GENERAL STORES INC		3	70	B	0.85	*79.2%*
CBRL GROUP INC	A	3	70	B++	0.85	80.4%
CHURCH & DWIGHT INC	BBB+	2	95	A	0.55	52.3%
CLARCOR INC		2	95	B++	0.95	96.8%
COCA-COLA ENTERPRISES INC		3	35	B	0.70	38.1%
CURTISS-WRIGHT CORP		2	100	B++	0.70	63.7%
CVS CORP		3	80	A+	0.85	82.8%
DARDEN RESTAURANTS INC	A-	3	90	A	0.85	*78.4%*
DEB SHOPS INC	BBB	3	55	B+	0.80	100.0%
DELTA & PINE LAND CO	A+	2	35	A	0.70	95.7%
DONALDSON CO INC	A	2	100	B++	0.95	83.5%
DONNELLEY (R R) & SONS CO	AA-	2	65	B++	0.95	61.2%
ENNIS INC	BBB+	3	85	B++	0.70	74.3%
EW SCRIPPS -CL A	A	2	85	B+	0.85	73.5%
EXPEDITORS INTL WASH INC		3	95	A	0.95	100.0%
FAMILY DOLLAR STORES	BBB+	3	85	A	0.90	100.0%
FARMER BROS CO	BBB+	3	25	B++	0.50	100.0%
1. Data in italics are for 2004		3	30	B+	0.95	50.9%
FLEXSTEEL INDS		3	40	B+	0.40	89.1%
FRANKLIN ELECTRIC CO INC		3	90	B++	0.80	95.6%
FRISCH'S RESTAURANTS INC	A-	3	90	B+	0.60	*73.8%*
GANNETT CO		1	90	A++	0.90	58.2%
GENERAL DYNAMICS CORP		1	90	A++	0.80	74.5%

RISK MEASURES FOR 139 LOW RISK US INDUSTRIALS

Company Name	S&P Debt Rating	Value Line Safety	Value Line Earnings Predictability	Value Line Financial Strength	Beta	Equity Ratio Permanent Capital 2005 [1]
GENUINE PARTS CO	A	1	100	A++	0.90	84.3%
GORMAN-RUPP CO		3	65	B++	0.95	100.0%
HARLAND (JOHN H.) CO		3	65	B++	0.75	56.1%
HARTE HANKS INC		1	100	A	0.90	90.1%
HEICO CORP		3	70	B+	0.85	88.9%
HNI CORP		2	85	A	0.80	85.1%
HORMEL FOODS CORP		1	95	A	0.70	81.8%
IDEX CORP		3	65	B+	0.95	84.0%
INGLES MARKETS INC -CL A	A	2	60	B+	0.60	33.4%
INTERPOOL INC	A	3	60	-	0.80	20.0%
INTL SPEEDWAY CORP -CL A		3	75	B+	0.80	73.8%
KELLWOOD CO		3	55	B++	0.90	55.2%
KIMBALL INTERNATIONAL -CL B		3	40	B++	0.80	99.9%
KIMBERLY-CLARK CORP		1	100	A++	0.70	68.2%
KNIGHT-RIDDER INC		2	50	B+	0.85	35.7%
K-SWISS INC -CL A		3	65	B++	0.75	100.0%
LANCASTER COLONY CORP		1	90	A+	0.80	100.0%
LANCE INC	A-	3	80	B+	0.75	95.2%
LAWSON PRODUCTS	A+	2	60	A	0.75	100.0%
LEE ENTERPRISES INC		2	95	B++	0.80	35.4%
LIFETIME BRANDS INC		3	40	B	0.75	96.1%
LINCOLN ELECTRIC HLDGS INC	A	2	70	A	0.85	80.5%
LINDSAY MANUFACTURING CO	BBB	3	55	B++	0.60	100.0%
LOCKHEED MARTIN CORP		1	60	A+	0.70	62.2%
LONGS DRUG STORES CORP	BBB-	3	70	B++	0.70	91.6%
M/I HOMES INC	BBB+	3	90	B+	0.95	53.7%
MARCUS CORP		3	75	B	0.85	*74.3%*
MARSH SUPERMARKETS -CL B	BBB+	3	35	C++	0.55	*43.7%*
MATTHEWS INTL CORP -CL A		3	100	B+	0.75	73.8%
MCCLATCHY CO -CL A	AA-	1	70	A	0.75	91.0%
MCCORMICK & COMPANY INC	BBB+	2	100	B++	0.50	63.3%
MCGRATH RENTCORP		3	80	B++	0.65	55.3%
MCGRAW-HILL COMPANIES		1	100	A+	0.80	100.0%
MEDIA GENERAL -CL A		3	50	B+	0.90	65.4%
MEREDITH CORP		1	70	A	0.85	83.9%
MET-PRO CORP		2	80	B++	0.60	96.1%
MINE SAFETY APPLIANCES CO		3	70	B++	0.80	88.5%
NATIONAL PRESTO INDS INC		2	35	B+	0.65	100.0%
NEW YORK TIMES CO -CL A	BBB	1	80	A	0.85	62.8%
NEWELL RUBBERMAID INC	BBB+	3	75	B+	0.90	40.3%
NIKE INC -CL B		2	90	A+	0.85	*89.1%*
NORTHROP GRUMMAN CORP		2	60	B++	0.70	79.9%
OSHKOSH TRUCK CORP		3	80	B++	0.90	99.7%
1. Data in italics are for 2004	BBB-	3	80	B	0.75	55.0%
PILGRIMS PRIDE CORP		3	25	B+	0.65	70.2%
QUIXOTE CORP	BBB+	3	30	B	0.70	55.5%
RAVEN INDUSTRIES INC	A	3	65	B++	0.85	100.0%
RAYTHEON CO		3	40	B++	0.80	73.0%
REGIS CORP/MN		3	90	B+	0.90	57.9%

RISK MEASURES FOR 139 LOW RISK US INDUSTRIALS

		Value Line				
Company Name	S&P Debt Rating	Safety	Earnings Predictability	Financial Strength	Beta	Equity Ratio Permanent Capital 2005 [1]
ROBBINS & MYERS INC	BBB-	3	35	B	0.90	64.3%
ROLLINS INC		3	80	B++	0.85	99.7%
RUBY TUESDAY INC		3	85	B++	0.90	*69.5%*
RUDDICK CORP		3	95	B+	0.80	79.7%
RUSS BERRIE & CO INC	BBB	3	15	B+	0.85	*70.2%*
SANDERSON FARMS INC		3	20	B++	0.70	98.2%
SCHAWK INC -CL A		2	55	B++	0.55	57.7%
SEABOARD CORP		3	5	B++	0.70	82.9%
SERVICEMASTER CO	A	3	70	B+	0.80	62.3%
SKYLINE CORP	BBB+	3	55	B++	0.95	*100.0%*
SMITH (A O) CORP	A+	3	55	B+	0.75	79.1%
SMUCKER (JM) CO	BBB+	2	80	B++	0.70	*79.7%*
STANDEX INTERNATIONAL CORP		3	75	B++	0.90	76.7%
STANLEY WORKS		3	65	B++	0.95	61.7%
STRIDE RITE CORP	A	3	85	B++	0.75	81.6%
STURM RUGER & CO INC	A+	3	60	B++	0.75	*100.0%*
SUPERVALU INC	A+	3	90	B++	0.95	65.1%
SYSCO CORP	AA-	1	95	A++	0.80	74.3%
TENNANT CO		2	45	B++	0.90	99.2%
TOOTSIE ROLL INDUSTRIES INC		1	100	A+	0.70	98.8%
TORO CO		2	50	B++	0.95	69.0%
TREDEGAR CORP	BBB	3	60	B+	0.95	81.1%
TRIBUNE CO		1	55	A+	0.90	68.3%
TWIN DISC INC		3	5	B+	0.60	81.7%
TYSON FOODS INC -CL A		3	45	B+	0.65	61.9%
UNIFIRST CORP		3	75	B+	0.75	70.1%
UNION PACIFIC CORP		2	35	A	0.85	67.0%
UNITED PARCEL SERVICE INC		1	90	A+	0.75	84.2%
UNIVERSAL FOREST PRODS INC		3	95	B+	0.95	67.4%
VALMONT INDUSTRIES	BBB+	3	65	B	0.75	60.0%
VF CORP		2	90	A	0.95	80.7%
WALGREEN CO	BBB-	1	100	A++	0.80	99.6%
WAL-MART STORES		1	100	A++	0.80	63.8%
WASHINGTON POST -CL B		1	50	A+	0.70	86.4%
WASTE MANAGEMENT INC		3	75	B++	0.90	42.8%
WATSCO INC		3	80	B+	0.90	91.8%
WATTS WATER TECHNOLOGIES IN		3	95	B+	0.90	63.8%
WENDY'S INTERNATIONAL INC		2	95	A	0.75	77.0%
WEYCO GROUP INC	A	3	75	B++	0.65	100.0%
WILEY (JOHN) & SONS -CL A		3	90	B+	0.80	*66.9%*
MEAN	**A-**	**2**	**69**	**B++**	**0.80**	**76.9%**
MEDIAN	**A-**	**3**	**70**	**B++**	**0.80**	**79.2%**

1. Data in italics are for 2004

Source: Standard and Poors Research Insight, *Value Line*

RETURNS ON AVERAGE COMMON STOCK EQUITY FOR
139 LOW RISK US INDUSTRIALS

Company Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average 1994-2005	*Value Line* Forecast Return on Average Common Equity 2009-2011
3M CO	20.0	14.3	23.2	34.7	20.5	28.8	29.0	22.7	32.7	34.6	32.7	31.6	27.1	11.8%
ABM INDUSTRIES INC	12.5	13.3	13.9	14.8	15.4	15.2	14.8	9.6	12.5	21.8	6.9	12.6	13.6	14.0%
ACETO CORP	12.7	13.1	11.5	10.0	12.1	9.5	9.9	6.4	6.9	12.0	14.1	9.6	10.7	
ALAMO GROUP INC	20.0	16.5	9.3	13.4	3.9	5.7	9.7	9.1	5.1	5.9	8.8	7.0	9.5	
ALBERTO-CULVER CO	14.1	15.1	15.8	18.5	16.1	15.6	17.1	16.1	17.2	16.9	11.9	14.8	15.8	14.7%
ALBERTSON'S INC	27.1	25.5	23.5	22.2	21.7	10.0	13.4	8.6	10.4	10.5	8.2	8.0	15.8	10.8%
ALEXANDER & BALDWIN INC	12.2	8.7	9.8	11.6	4.4	9.2	11.5	15.8	8.1	10.6	11.8	13.1	10.6	12.9%
ALICO INC	12.0	12.5	5.8	13.5	7.6	4.5	14.5	14.9	6.7	10.6	13.1	4.2	10.0	
AMERICAN WOODMARK CORP	18.4	11.4	25.7	24.7	25.5	16.9	18.8	25.3	21.4	18.0	17.4	*11.5*	19.6	12.3%
AMPCO-PITTSBURGH CORP	8.3	8.4	10.7	13.3	11.5	10.3	10.3	-0.6	3.4	-1.5	-1.9	11.1	6.9	10.9%
ANDERSONS INC	25.4	15.5	9.2	5.6	12.6	10.0	11.5	9.8	10.7	10.6	15.3	17.8	12.8	
APOGEE ENTERPRISES INC	10.9	13.5	16.9	-36.2	21.0	9.1	10.5	16.4	17.1	-3.2	9.6	*11.0*	8.0	15.7%
APPLEBEES INTL INC	19.2	18.3	16.9	16.8	17.3	19.7	23.6	21.6	23.1	22.0	23.2	22.4	20.4	17.8%
APPLIED INDUSTRIAL TECH INC	8.9	10.7	13.2	13.7	12.0	6.8	10.5	9.2	4.8	6.5	9.7	15.1	10.1	15.7%
ARCHER-DANIELS-MIDLAND CO	9.8	14.6	11.6	6.2	6.4	4.4	4.9	6.2	7.8	6.5	6.7	12.9	8.2	12.9%
ARCTIC CAT INC	25.2	11.0	14.3	14.8	13.1	4.5	16.2	16.3	17.7	16.3	15.2	na	15.0	
AVERY DENNISON CORP	15.1	18.6	21.3	24.5	26.7	26.2	34.6	27.7	25.9	22.6	19.5	14.8	23.1	22.0%
BADGER METER INC	11.6	12.1	14.9	16.7	18.5	21.4	16.1	7.8	16.0	14.7	16.2	19.3	15.4	
BALDOR ELECTRIC CO	15.3	16.3	17.1	18.2	17.6	16.5	17.6	8.6	8.9	9.2	12.9	14.8	14.4	18.0%
BANTA CORP	15.1	14.9	12.6	10.4	12.8	4.2	16.2	12.8	10.2	9.6	12.9	16.8	12.4	14.4%
BARNES GROUP INC	20.4	23.3	22.8	23.9	18.7	15.5	18.7	9.6	13.3	12.5	10.1	16.5	17.1	14.1%
BLACK & DECKER CORP	12.1	21.2	15.2	13.3	-63.8	43.7	37.8	15.0	34.0	40.5	37.9	35.3	20.2	19.1%
BLAIR CORP	19.8	12.5	7.1	6.3	10.2	6.8	9.2	3.9	7.7	5.5	5.4	15.4	9.1	7.7%
BLYTH INC	32.0	23.2	24.2	25.1	26.2	26.3	20.1	15.3	17.8	15.3	17.4	4.9	20.6	13.2%
BOB EVANS FARMS	14.4	7.3	8.7	10.4	12.4	11.8	11.5	13.8	13.9	12.1	5.8	*6.5*	10.7	10.8%
BRADY CORP	13.7	17.8	15.7	16.1	12.8	16.1	17.2	9.2	9.0	6.4	13.7	18.2	13.8	
BURLINGTON NORTHERN SANTA F	23.2	5.1	16.1	13.8	15.8	14.3	12.5	9.6	9.6	9.5	8.9	16.3	12.9	15.3%
CASEYS GENERAL STORES INC	13.5	13.9	12.3	13.5	14.2	12.9	10.8	8.9	10.2	8.6	8.1	*11.5*	11.5	12.4%
CBRL GROUP INC	14.3	14.3	12.0	14.1	14.2	8.8	7.3	5.9	11.3	13.5	13.4	14.5	12.0	16.3%
CHURCH & DWIGHT INC	3.8	6.6	13.3	14.2	16.2	21.5	14.5	18.2	21.2	20.6	17.8	19.6	15.6	14.3%
CLARCOR INC	18.6	17.7	18.0	17.0	17.9	17.8	17.8	16.2	15.8	15.9	16.0	16.8	17.1	13.9%
COCA-COLA ENTERPRISES INC	5.3	5.9	7.5	10.6	6.8	2.1	8.2	-0.8	16.1	17.6	12.2	9.3	8.4	9.8%
CURTISS-WRIGHT CORP	12.9	11.0	9.1	14.4	13.4	16.0	15.0	19.6	11.9	11.7	12.3	12.4	13.3	12.2%
CVS CORP	12.6	-32.5	4.9	2.7	15.1	19.9	19.7	9.3	14.5	15.0	14.1	16.0	9.3	0.6%
DARDEN RESTAURANTS INC	4.1	6.2	-7.9	9.7	14.2	18.4	19.7	22.0	20.0	19.2	23.7	*20.5*	14.1	17.4%
DEB SHOPS INC	-2.8	-5.1	-5.1	8.7	18.1	23.6	19.6	15.9	15.1	7.0	9.6	15.7	10.0	
DELTA & PINE LAND CO	24.6	25.9	27.0	9.7	2.3	8.8	66.0	18.5	15.4	13.1	2.3	22.5	19.7	
DONALDSON CO INC	17.6	18.8	19.3	21.4	22.8	24.1	25.9	25.2	24.8	23.0	21.3	20.6	22.1	17.2%
DONNELLEY (R R) & SONS CO	14.1	14.4	-8.3	8.1	20.4	25.3	22.5	2.4	15.8	18.6	7.4	3.6	12.0	13.5%
ENNIS INC	31.2	25.2	16.9	12.5	17.1	17.6	14.7	16.0	15.8	17.3	12.0	14.2	17.5	
EW SCRIPPS -CL A	12.6	11.7	14.7	15.8	12.4	13.2	13.4	10.5	13.1	16.2	15.5	11.4	13.4	14.6%
EXPEDITORS INTL WASH INC	14.0	15.9	18.9	24.8	24.4	23.7	25.8	25.0	24.0	20.9	21.5	25.4	22.0	23.4%
FAMILY DOLLAR STORES	17.9	14.9	14.2	15.8	19.2	22.1	23.1	21.6	20.5	20.1	19.5	15.7	18.7	16.8%
FARMER BROS CO	5.3	9.5	10.4	7.0	12.8	10.3	12.5	11.1	8.5	6.4	4.0	-2.0	8.0	
1. Data in italics are for 2004	22.3	22.0	23.8	20.6	19.1	17.0	16.4	13.3	12.2	9.1	-0.6	-1.2	14.5	14.6%
FLEXSTEEL INDS	9.3	7.2	6.1	8.1	9.9	13.0	14.3	5.4	6.6	9.1	10.4	5.9	8.8	
FRANKLIN ELECTRIC CO INC	32.3	21.3	23.8	26.5	26.9	28.5	20.9	22.7	23.3	19.9	17.8	18.3	23.5	20.8%
FRISCH'S RESTAURANTS INC	3.7	3.6	1.8	7.9	8.4	11.2	13.9	13.5	14.9	14.1	17.0	15.8	10.5	
GANNETT CO	25.0	24.1	37.2	22.2	26.8	22.3	35.3	15.3	18.3	15.8	15.9	15.8	22.8	13.8%
GENERAL DYNAMICS CORP	19.1	22.3	16.5	17.4	17.6	32.7	25.8	22.6	18.9	18.1	18.7	19.1	20.7	15.6%

RETURNS ON AVERAGE COMMON STOCK EQUITY FOR
139 LOW RISK US INDUSTRIALS

Company Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average 1994-2005	Value Line Forecast Return on Average Common Equity 2009-2011
GENUINE PARTS CO	19.4	19.5	19.5	19.1	18.2	17.9	17.4	12.9	16.4	15.9	16.3	16.7	17.4	14.6%
GORMAN-RUPP CO	15.7	14.7	14.2	14.1	14.5	14.9	14.3	14.0	8.1	8.6	7.8	8.8	12.5	
HARLAND (JOHN H.) CO	26.5	21.6	-6.8	9.2	-11.6	25.8	16.9	20.9	24.1	22.9	20.8	25.4	16.3	18.8%
HARTE HANKS INC	24.9	24.9	19.4	82.2	12.0	12.6	14.5	14.4	16.7	16.1	17.3	20.2	22.9	19.6%
HEICO CORP	5.6	9.4	27.6	13.9	16.5	15.8	17.0	8.8	7.7	5.7	8.8	8.8	12.1	
HNI CORP	29.1	20.0	29.1	27.4	25.2	18.1	19.8	12.8	14.7	14.5	16.5	21.8	20.7	19.2%
HORMEL FOODS CORP	19.2	17.3	10.5	13.8	17.2	19.8	19.9	19.5	17.9	15.7	17.5	17.0	17.1	16.8%
IDEX CORP	33.6	33.9	29.0	27.0	24.6	17.7	18.0	8.4	11.9	11.3	13.2	14.3	20.3	13.9%
INGLES MARKETS INC -CL A	10.8	10.6	12.2	10.3	1.9	8.5	9.2	7.6	6.4	7.0	11.4	9.9	8.8	
INTERPOOL INC	16.6	14.3	11.4	12.1	14.1	7.5	13.3	11.7	1.3	11.4	2.2	14.6	10.9	
INTL SPEEDWAY CORP -CL A	23.6	23.9	20.5	18.8	13.9	8.9	5.4	8.8	12.8	15.6	19.4	16.6	15.7	12.2%
KELLWOOD CO	3.6	8.8	11.2	11.7	0.5	9.2	13.9	8.5	8.3	11.8	10.3	-5.8	7.7	9.8%
KIMBALL INTERNATIONAL -CL B	10.6	11.5	11.8	14.2	12.6	13.1	10.4	3.6	7.7	1.3	5.0	3.8	8.8	10.7%
KIMBERLY-CLARK CORP	21.2	1.1	34.5	20.5	27.3	36.6	33.2	28.2	29.8	27.3	26.9	25.9	26.0	33.8%
KNIGHT-RIDDER INC	13.9	14.3	23.9	30.8	22.8	18.9	18.3	11.4	18.6	20.1	22.2	35.8	20.9	15.6%
K-SWISS INC -CL A	19.7	2.2	0.9	5.4	15.8	35.1	18.1	19.1	21.7	31.4	35.1	30.0	19.5	18.2%
LANCASTER COLONY CORP	27.9	27.4	25.3	25.7	24.7	23.0	23.9	20.6	19.1	21.5	14.1	15.9	22.4	16.2%
LANCE INC	11.2	-3.2	12.9	16.2	14.8	13.5	12.4	13.5	11.1	10.1	13.0	9.2	11.2	18.0%
LAWSON PRODUCTS	15.1	16.6	15.9	15.9	13.8	16.3	18.2	5.5	7.7	9.6	12.1	14.6	13.4	19.6%
LEE ENTERPRISES INC	21.9	21.1	14.3	19.9	19.5	20.2	22.3	58.3	11.5	10.1	10.3	8.5	19.8	10.9%
LIFETIME BRANDS INC	17.1	11.8	14.0	12.5	14.6	4.4	4.2	3.8	2.9	10.2	9.5	12.1	9.8	
LINCOLN ELECTRIC HLDGS INC	28.4	23.5	20.6	20.6	20.2	15.7	17.4	17.7	14.4	12.0	15.3	19.9	18.8	16.6%
LINDSAY MANUFACTURING CO	18.2	17.1	22.7	24.5	26.4	14.7	16.5	10.0	12.4	13.2	8.6	4.4	15.7	11.4%
LOCKHEED MARTIN CORP	26.4	11.8	22.8	-10.5	17.7	11.8	-6.3	-14.8	8.1	16.7	18.4	24.5	10.6	19.8%
LONGS DRUG STORES CORP	9.5	8.8	10.9	10.1	10.4	10.3	6.5	6.7	4.4	4.2	5.1	9.9	8.1	9.7%
M/I HOMES INC	13.8	10.4	13.3	15.3	19.6	22.7	20.7	20.7	21.5	22.0	20.6	18.7	18.3	
MARCUS CORP	11.8	18.2	11.7	9.8	7.5	7.1	6.6	6.5	5.7	6.4	22.4	3.9	9.8	10.2%
MARSH SUPERMARKETS -CL B	7.7	7.8	-0.2	8.2	9.6	9.5	8.8	9.6	2.7	2.3	3.3	na	6.3	
MATTHEWS INTL CORP -CL A	21.2	19.5	21.4	19.0	21.6	22.9	23.1	23.4	23.5	20.5	19.8	18.5	21.2	14.6%
MCCLATCHY CO -CL A	11.3	7.4	9.2	12.9	8.9	9.8	9.7	5.9	12.8	13.2	11.8	10.7	10.3	10.3%
MCCORMICK & COMPANY INC	12.8	19.3	10.3	23.3	26.6	26.8	37.1	35.7	34.1	31.6	26.1	25.4	25.8	21.1%
MCGRATH RENTCORP	16.3	16.3	17.8	25.7	23.4	23.7	26.7	22.2	9.3	16.0	19.3	22.3	19.9	
MCGRAW-HILL COMPANIES	23.4	23.3	41.4	20.8	22.9	26.3	27.3	20.9	28.7	29.1	27.3	27.7	26.6	23.8%
MEDIA GENERAL -CL A	41.9	15.0	17.3	12.3	15.8	97.6	4.3	1.6	4.8	6.2	7.0	7.9	19.3	7.5%
MEREDITH CORP	10.0	16.0	21.5	32.4	23.6	25.3	19.2	17.2	19.1	18.1	20.3	20.7	20.3	21.6%
MET-PRO CORP	12.5	14.6	16.2	16.9	15.9	15.7	17.0	12.7	11.1	10.9	7.8	11.2	13.5	
MINE SAFETY APPLIANCES CO	5.9	7.4	9.4	9.2	7.6	6.8	10.0	13.4	13.1	22.1	20.9	21.7	12.3	
NATIONAL PRESTO INDS INC	9.0	7.7	6.0	6.8	7.8	8.2	6.1	2.6	3.7	6.4	6.2	7.3	6.5	10.0%
NEW YORK TIMES CO -CL A	13.6	8.6	5.2	15.6	17.6	20.8	29.1	36.6	24.8	22.7	21.0	18.2	19.5	17.4%
NEWELL RUBBERMAID INC	18.6	18.3	18.4	18.1	21.8	4.1	16.4	10.8	13.9	-2.3	-6.1	14.8	12.2	22.8%
NIKE INC -CL B	21.6	25.2	28.5	12.5	13.7	17.9	17.8	18.2	18.9	21.6	23.2	21.5	20.0	16.1%
NORTHROP GRUMMAN CORP	2.7	18.3	13.0	17.1	7.1	15.8	16.9	7.2	4.3	5.7	6.7	8.4	10.3	12.2%
OSHKOSH TRUCK CORP	11.2	7.2	-2.4	8.3	12.9	21.2	21.8	15.7	15.8	16.3	19.5	22.0	14.1	14.6%
1. Data in italics are for 2004	19.3	22.6	22.0	0.7	14.3	-1.2	6.2	1.3	9.0	10.5	11.4	12.2	10.7	10.8%
PILGRIMS PRIDE CORP	21.1	-5.1	-3.1	25.2	24.2	24.9	16.4	11.6	3.7	13.3	18.7	24.7	14.6	10.4%
QUIXOTE CORP	24.3	10.5	-18.6	-8.6	0.0	18.4	20.0	23.1	12.4	14.1	-24.4	-1.0	5.9	
RAVEN INDUSTRIES INC	14.1	13.1	14.5	13.6	10.0	11.6	12.5	17.7	20.3	22.2	27.0	32.2	17.4	
RAYTHEON CO	14.5	19.3	17.1	7.0	8.1	4.2	1.3	-6.8	-1.3	4.0	3.8	8.2	6.6	12.4%
REGIS CORP/MN	8.2	21.5	20.7	5.1	18.0	14.3	19.3	17.2	18.4	17.2	16.7	9.0	15.5	15.2%

RETURNS ON AVERAGE COMMON STOCK EQUITY FOR
139 LOW RISK US INDUSTRIALS

Company Name	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average 1994-2005	*Value Line* Forecast Return on Average Common Equity 2009-2011
ROBBINS & MYERS INC	11.6	18.6	25.2	26.7	22.7	7.8	11.2	10.8	6.3	5.2	3.3	-0.1	12.5	10.9%
ROLLINS INC	28.0	19.3	11.3	0.9	5.8	9.4	12.7	20.6	30.8	31.2	38.0	30.6	19.9	21.1%
RUBY TUESDAY INC	26.6	-1.3	11.9	13.3	16.8	16.2	23.0	18.8	23.6	23.6	18.9	18.2	17.5	17.6%
RUDDICK CORP	11.2	12.9	12.9	13.1	11.8	11.9	11.1	-0.2	11.5	12.6	12.4	11.8	11.1	13.3%
RUSS BERRIE & CO INC	2.4	7.5	13.4	29.2	12.3	11.0	14.7	11.7	12.4	8.6	-6.2	na	10.6	
SANDERSON FARMS INC	15.5	9.8	-2.1	0.5	12.4	8.1	-4.3	21.0	19.2	30.6	38.4	22.6	14.3	
SCHAWK INC -CL A	23.6	7.3	-41.9	21.0	38.7	17.9	15.1	10.4	16.0	17.3	19.1	16.8	13.4	
SEABOARD CORP	10.8	5.7	0.8	8.0	12.3	0.1	20.0	10.0	2.7	5.8	27.7	31.9	11.3	
SERVICEMASTER CO	46.9	32.6	31.8	24.7	25.7	16.1	15.6	13.3	13.6	-22.1	36.6	19.4	21.2	19.9%
SKYLINE CORP	8.8	10.8	11.6	11.1	13.6	7.8	5.8	6.3	3.1	3.1	2.8	2.9	7.3	
SMITH (A O) CORP	19.7	17.9	16.4	37.3	11.1	10.2	6.8	3.2	10.7	9.6	6.1	na	13.5	13.3%
SMUCKER (JM) CO	14.7	11.0	10.9	12.2	12.1	8.3	11.3	11.7	13.7	9.5	8.9	*8.5*	11.1	10.5%
STANDEX INTERNATIONAL CORP	22.6	30.5	23.0	19.5	14.0	20.3	16.9	14.8	11.6	8.3	6.5	13.9	16.8	15.0%
STANLEY WORKS	17.6	8.0	12.8	-6.0	21.6	21.4	26.4	20.2	20.4	11.7	35.3	20.2	17.5	16.9%
STRIDE RITE CORP	6.7	-3.0	0.9	7.9	8.6	10.7	10.1	7.4	9.4	9.8	10.0	9.6	7.3	14.6%
STURM RUGER & CO INC	29.0	20.1	24.5	18.5	15.2	21.0	15.9	8.0	5.6	9.1	3.4	0.8	14.3	
SUPERVALU INC	3.5	13.9	13.9	18.5	15.3	15.5	4.0	10.8	13.2	13.3	16.3	8.0	12.2	11.7%
SYSCO CORP	18.2	19.0	19.2	21.0	23.6	26.0	28.5	30.5	31.8	35.9	38.1	36.1	27.3	48.5%
TENNANT CO	17.5	18.7	17.3	18.4	19.1	14.9	19.3	3.0	5.4	8.9	7.9	12.5	13.6	13.1%
TOOTSIE ROLL INDUSTRIES INC	16.8	15.7	16.1	18.3	18.1	17.2	17.0	13.6	12.8	12.2	11.6	13.0	15.2	9.7%
TORO CO	14.2	20.7	18.2	16.1	1.6	12.9	15.2	15.3	17.0	20.3	24.7	29.0	17.1	39.3%
TREDEGAR CORP	22.7	14.0	23.5	24.1	23.6	15.4	25.6	2.0	-0.5	-5.8	6.3	3.4	12.9	8.5%
TRIBUNE CO	19.4	20.3	25.9	23.8	20.1	52.9	4.5	1.5	10.4	13.6	8.3	7.9	17.4	10.2%
TWIN DISC INC	6.9	8.1	8.8	10.4	12.0	-1.4	5.2	9.0	3.5	-4.4	9.4	10.8	6.5	
TYSON FOODS INC -CL A	-0.2	15.9	5.8	11.7	1.4	11.2	7.0	3.2	10.9	8.8	9.8	7.9	7.8	8.7%
UNIFIRST CORP	13.4	13.0	13.7	14.1	14.3	9.6	7.5	8.3	9.0	9.1	9.6	11.1	11.1	10.3%
UNION PACIFIC CORP	10.9	16.5	12.4	5.3	-8.1	10.5	10.1	10.6	13.3	11.4	4.8	7.8	8.8	9.4%
UNITED PARCEL SERVICE INC	22.0	21.3	20.7	15.2	26.3	9.0	26.4	24.3	28.7	21.2	21.3	23.3	21.6	18.9%
UNIVERSAL FOREST PRODS INC	16.1	18.1	19.4	15.7	17.2	15.5	13.5	13.2	13.8	14.1	14.7	17.1	15.7	13.6%
VALMONT INDUSTRIES	13.4	17.3	12.7	19.6	14.4	15.2	16.8	12.8	14.6	10.2	9.6	12.5	14.1	16.4%
VF CORP	16.5	8.8	15.8	18.0	19.4	17.0	12.1	6.1	19.3	21.9	21.2	19.4	16.3	16.4%
WALGREEN CO	19.1	19.1	19.4	19.7	20.6	19.7	20.1	18.8	17.8	17.5	17.6	18.2	19.0	19.4%
WAL-MART STORES	22.8	19.9	19.2	19.8	22.4	23.8	22.0	20.1	21.6	21.8	22.1	21.9	21.4	20.7%
WASHINGTON POST -CL B	15.3	16.5	17.6	22.4	30.0	15.2	9.5	14.4	12.2	12.3	14.8	12.4	16.1	13.1%
WASTE MANAGEMENT INC	17.2	11.8	4.2	14.4	-21.9	-9.0	-2.1	9.9	15.4	13.2	16.1	19.6	7.4	22.5%
WATSCO INC	12.7	14.2	14.8	10.6	10.1	10.2	6.3	7.8	8.8	10.1	12.6	16.4	11.2	13.2%
WATTS WATER TECHNOLOGIES IN	11.8	11.9	-13.9	15.8	15.1	9.4	7.7	11.0	12.0	9.1	10.1	10.8	9.2	11.9%
WENDY'S INTERNATIONAL INC	15.2	14.7	16.6	11.6	11.0	15.6	15.5	18.0	17.7	14.7	3.0	11.9	13.8	12.5%
WEYCO GROUP INC	10.1	11.0	13.1	14.4	14.9	16.6	15.3	13.1	16.7	18.7	18.6	15.1	14.8	
WILEY (JOHN) & SONS -CL A	20.2	22.8	16.5	25.3	24.6	31.3	30.0	23.1	28.1	23.4	20.7	*17.5*	23.6	17.5%
MEAN	**16.3**	**14.3**	**14.0**	**15.4**	**14.7**	**16.0**	**16.0**	**13.3**	**14.0**	**13.7**	**14.2**	**15.0**	**14.7**	**15.3%**
MEDIAN	**15.2**	**14.6**	**14.3**	**14.4**	**15.1**	**15.5**	**15.6**	**12.8**	**13.2**	**13.2**	**13.2**	**14.8**	**14.1**	**14.6%**
AVERAGE OF ANNUAL MEDIANS													**14.3**	

1. Data in italics are for 2004

Source: Standard and Poors Research