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Missouri Public Service Commission

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

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| In the Matter of Laclede Gas Company's Tariff to Revise Natural Gas Rate Schedules. | ) ) ) | GR-2002-356 |

AFFIDAVIT

Kathleen C. McShane, of lawful age, being first duly sworn, deposes and states:

1. My name is Kathleen C. McShane. My business address is 4550 Montgomery Avenue, Suite 350-N, Bethesda, Maryland 20814; and I am Senior Vice President of Foster Associates, Inc.

2. Attached hereto and made part hereof for all purposes is my direct testimony, consisting of pages 1 to 52, inclusive; and Schedules 1 to 15, inclusive; and Appendices A to B, inclusive.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded and the information contained in the attached schedules are true and correct to the best of my knowledge and belief.

Kathleen C. McShane

Subscribed and sworn to before me this 23rd day of January, 2002.

Patricia J Bradley

My Commission Expires
10/14/02

# LACLEDE GAS COMPANY

Prepared Testimony

of

KATHLEEN C. McSHANE

FOSTER ASSOCIATES, INC.
Bethesda, MD. 20814

January 2002

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# I. INTRODUCTION AND CONCLUSIONS

Q. Please state your name and business address.

A. My name is Kathleen C. McShane and my business address is 4550 Montgomery Avenue, Suite 350N, Bethesda, Maryland 20814.

Q. What is your occupation?

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

Q. What are your educational background and experience?

A. I hold a Masters in Business Administration with a concentration in Finance from the University of Florida (1980) and am a Chartered Financial Analyst (1989). I have testified in over 100 cases in Federal, State, Provincial and Territorial jurisdictions in the U.S. and Canada since 1987. My professional experience is detailed in Appendix A to this Exhibit.

Q. What is the purpose of your testimony?

A. I have been asked to render an opinion on the fair rate of return on equity for Laclede Gas Company ("Laclede" or "Company") applied to an original cost rate base.

My analysis and conclusions regarding the fair return follow; the statistical support for the studies I have conducted is contained in the attached Schedules.

- My analysis of the fair return in this case shows that a fair return for Laclede is in the range of 11.5-13.5%.

- The analysis is based on the results of multiple tests applied to samples of comparable companies. Such an approach is required because no single test can be expected to provide the "correct" answer.

- My DCF test, applied to a sample of eight comparable local gas distribution utilities (LDCs) results in an estimated cost of equity (on market value) of 11.25% to 11.5%.

- My risk premium return on equity tests indicate a return (on market value) of 10.75% to 11.0%.

- Both the DCF and CAPM results are market rates, that is, derived from market values and applicable to the market value of investments. However, regulatory convention applies that return to the book value. As a consequence, the further the market value of a company's equity is above its book value, the greater the extent to which a current DCF or CAPM cost of equity will understate the fair return on book equity. Under current market conditions, the application of an unadjusted market return arising from the DCF and CAPM tests to the book value of equity is wrong. Unless the market-derived cost of equity estimates are adjusted to recognize the significant deviation between current market value and book value, the application of those tests will, by definition, significantly understate the return (in dollar terms) on original cost book value that investors require. When the market value-derived expected returns on equity are translated into fair returns on book value, the resulting required returns on equity for Laclede are:

| | |
|---|---|
| DCF | 11.75% - 14.0% |
| Equity Risk Premium | 11.25% - 13.25% |

My comparable earnings test applied to unregulated companies indicates a fair return in the range of 14.75-15.0%. The comparable earnings test estimates the opportunity cost of equity; that is, the returns available from alternative investments of comparable risk. It is the only test that directly measures the fair return in the same manner in which the allowed return is applied: to book value. It is also the only test that explicitly recognizes that utilities do not operate in a utility-only capital market. Utilities have to compete with other types of companies for capital. Therefore, their equity returns also need to be comparable, on a risk-adjusted basis, to those of unregulated companies.

## II. PRINCIPLES GOVERNING A FAIR RETURN ON EQUITY

Q. Please summarize the key principles that governed your estimation of a fair return on equity for Laclede Gas.

A. My estimate 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 which will mimic the competitive model. Under the competitive model, a firm should be able to anticipate a return on equity which reflects the opportunity cost of capital, i.e., a return which is commensurate with the returns available on foregone investments of similar risk.

The objective of regulation, in conjunction with a utility's obligation to serve, has given rise to multiple criteria for a fair and reasonable return. Three criteria in particular have been promulgated by both judicial[1] and regulatory precedents. The three criteria provide the opportunity for a utility:

1. to attract capital on reasonable terms

2. to maintain its financial integrity; and,

3. to achieve returns commensurate with those achievable on alternative investments of comparable risk.

[1] Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia (262 U.S. 679, 1923) and Federal Power Commission v. Hope Natural Gas Company (320 U.S. 391, 1944).

Bonbright et. al. in their authoritative treatise on ratemaking, add further criteria that govern the fair return.[2] Those criteria include: rewards for managerial efficiency, rate predictability and stability, and consumer rationing. The first two are self-explanatory. The third can be explained as follows: Customers should be charged prices that reflect the economic cost of providing service. If the rate of return is set too low (below the cost of equity), customers will be charged a price which understates the true cost of the service being consumed. Consequently, if the return is too low, the customer will be sent a faulty signal to over-consume scarce resources, e.g., natural gas.

Q. How are the determination of a fair return and the base on which that return is set inter-related?

A. 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). The application of a capital market-derived "cost of attracting capital" to a historic rate base in principle means that the value of the investment will trend toward the historic cost. The arguments in support of that result focus on the way "cost" has typically been interpreted and applied in determining other cost elements in the regulation of North American utilities. For most utilities, rates are set on the basis of average book costs; that concept has been applied to cost of debt, depreciation expense, as well as to all operating and maintenance expenses.

For economists, the theoretically appropriate definition of cost is marginal or incremental cost. Average historic costs have been substituted for marginal or incremental costs for two reasons: first, as a practical matter, long-run incremental costs are difficult to measure; second, for the capital intensive utility industries, pricing on the basis of short-run marginal costs would not cover total costs incurred.

[2] James C. Bonbright, Albert L. Danielsen, and David R. Kamerschen, Principles of Public Utility Rates, Second Edition, Arlington, VA: Public Utilities Reports, Inc. 1988, p. 203.

The determination of the return on common equity has traditionally been a "hybrid" concept: to the extent that the cost of equity is based on a forward-looking measure of the cost of attracting capital, it is in principle an incremental cost concept. It has not, however, been applied to a similarly determined base. It is applied to an original cost rate base. When there is a significant difference in the historic original cost rate base and the corresponding current cost of the investment, application of a current cost of attracting capital to an original cost rate base produces an earnings stream that is significantly lower than that which is implied by the application of that same cost rate to market value.

The current cost of attracting capital is measured by reference to market values. The discounted cash flow test, for example, measures the return that investors require on the market value of the equity. For a utility regulated on the basis of original cost book value, the current cost of attracting equity capital is only equivalent to the return investors require on book value when the market value of the common stock is equal to its book value.

As the market value of the equity of regulated utilities increases relative to its book value, the application of a market-value derived cost of equity to the book value of that equity increasingly understates investors' return requirements (in dollar terms).

Some would argue that the market-value of utility shares should be equal to book value. However, economic principles do not support that conclusion. A basic economic principle establishes the expected relationship between market value and replacement cost which provides support for market prices in excess of original cost book value. That economic principle holds that, in the longer-run, in the aggregate for an industry, market value should equal replacement cost of the assets. The principle is based on the notion that, if the market value of firms exceeds the replacement cost of the productive capacity, there is an incentive to establish new firms. The existence of additional firms would lower prices of goods and services, lower profits and thus reduce market values of all the firms in the industry. In the opposite circumstance, there is an incentive to disinvest, i.e.,

to not replace depreciated assets. The disappearance of firms would push up prices of goods and services, raise the profits of the remaining firms, thereby raising the market values of the remaining firms. In equilibrium, market value should equal replacement cost. In the presence of inflation, even at moderate levels, absent significant technological advances, replacement cost should exceed the original cost book value of assets. Consequently, the market value of utility shares should be expected to exceed their book value.

To apply a market-derived current cost of equity to an original cost book value, without offsetting opportunities to achieve returns on book equity commensurate with investor return requirements, will tend to produce an uneconomic allocation of scarce capital resources. Hence, when the allowed return on original cost book value is set, the market-derived cost of attracting capital should be converted to a fair and reasonable return on book equity, so that the stream of dollar earnings on book value equates to the investors' dollar return requirements on market value.

## III. BUSINESS, FINANCIAL AND INVESTMENT RISK OF LACLEDE

Q. Please define business, financial and investment risk.

A. Risk refers to the probability that the actual return will fall short of the expected return, and of losing part or all of the invested capital. The total risk of a common stock investment is comprised of both the business and financial risks to which the stockholder is exposed.

The business risks to which a common shareholder in a utility is exposed are those which reflect the basic operating characteristics of the firm and its industry, which can lead to variations in operating income or the inability to recover a return of, and on, the entire capital investment made.

Financial risk relates to the use of leverage which results in fixed charges that must be met before the common shareholder is entitled to any compensation. The degree of leverage that a firm should reasonably assume is directly related to the level of business risk that it faces. For a public utility, which has an obligation to serve, the capital structure should allow access to the capital markets on reasonable terms.

Investment risk comprises the total business and financial risk to which the shareholders are exposed.

Q. What are the key elements of business risk to which a local gas distribution utility are exposed?

A. The key elements of an LDC's business risk are demand/market, supply/operating and regulatory risks.

Q. Please summarize the principal factors that characterize Laclede's business risk profile

A.

- Laclede is a relatively small gas distribution utility (assets of $932 million compared to an average of $1813 million for the proxy sample). It faces a highly saturated market, relatively low growth prospects compared to its peers, and declining per customer usage. The low growth prospects limit the Company's ability to enhance returns to its shareholders from its regulated operations.

- The Company's market continues to be dominated by a customer profile which is temperature sensitive. Temperature-sensitive load accounts for over 90% of net utility revenues. The Company's exposure to the vagaries of weather results in considerable annual earnings volatility. Moreover, when combined with special regulating requirements for maintaining service to customers who cannot afford to pay for such services, the high proportion of residential load serviced by Laclede exposes the Company to substantial business risks.

- In the absence of a weather normalization mechanism, Laclede's earnings will continue to be negatively impacted by warmer than normal weather, due to the long-term average of degree days relied upon for the specification of "normal". Despite the cold winter in 2001, the cumulative effect of warmer than normal weather over the past six years, on net balance, has resulted in millions of dollars of foregone earnings.

- In Fall 2001, Laclede's Gas Supply Incentive Plan (GSIP) was terminated by the Commission. The termination of the plan is likely to be perceived by investors as an increase in regulatory risk. Merrill Lynch, which is one of the leading analysts of utility stocks in the country, downgraded its rating of Laclede Gas Company's common stock following the Commission's decision. Among Merrill Lynch's comments were:

> "The Missouri Public Service Commission (MoPSC) inexplicably handed Laclede Gas a frustratingly negative decision regarding Laclede Gas' highly successful Gas Supply Incentive Plan (GSIP)."
>
> "The MoPSC has decided to completely eliminate the program, which we believe could lead to a negative impact to shareholders and ratepayers alike."
>
> "This move is rather surprising as historically the MoPSC has been relatively progressive in its oversight."

Not only was this decision contrary to the trends in regulation in the U.S., which are in the direction of incentive regulation, but its termination also had a negative impact on earnings. In fiscal 2001, the Company earned $1.61 per share, or about 10.5% return on equity (which is exactly what the Commission authorized in the

Company's prior rate case). In the absence of the GSIP, the Company's earnings would have been only $1.32, less than the $1.34 dividend, despite the fact that fiscal 2001 was an exceptionally cold year. In a normal year without the GSIP, Laclede's earnings would have been substantially less than its $1.34 dividend. In the absence of the GSIP, Laclede will face considerable difficulty earning a compensatory return from its regulated operations. Moreover, the elimination of the GSIP also exposes Laclede to additional risk in the form of potential prudence disallowances in connection with its acquisition and management of the gas supplies needed to service its customers.

Q. How does Laclede compare to the proxy sample of LDCs with regard to the level of business risk faced?

A. Laclede faces, on balance, a similar level of business risk to the proxy sample. Standard & Poor's ranks Laclede's business profile "3" (out of 10, with 10 being the riskiest), identical to the average business risk ranking of the sample (Schedule 1)

Q. What is Laclede's financial risk position?

A. Laclede's debt ratings are as follows:

| | | |
|---|---|---|
| Standard & Poor's | AA- | (negative outlook) |
| Moody's | AA3 | |
| Fitch | A+ | |

Standard & Poor's guidelines for an AA rating for a utility with a business risk rank of 3, along with Laclede's values for 1998-2001, are as follows:

| | S & P Guidelines | Laclede | |
|---|---|---|---|
| | | 1998-2000 | 2001 |
| Funds from Operations to Average Total Debt | 26.0-31.5% | 21.9% | 14.0% |
| Funds from Operations Interest Coverage | 3.9-4.5 times | 3.9 times | 2.9 times |
| Pre-Tax Interest Coverage | 3.4-4.0 times | 2.9 times | 2.5 times |
| Total Debt to Total Capital | 42.0-47.5% | 52.7% | 58.1% |

Source: Standard & Poor's *Creditstats; Annual Report to Shareholders, 2001*

As the comparisons of Laclede's actual financial performance to the guidelines indicate, the Company's financial parameters have been weak relative to the guidelines for its rating category.

As a result of continued deterioration in Laclede's key financial measures, S&P revised its outlook for Laclede from "stable" to "negative" in November 2000. The negative outlook was reconfirmed in both March and December 2001. In its December 12, 2001 *Research Report*, S&P stated,

> "Bondholder protection parameters are very weak for the current rating category. Financial deterioration can be traced to several factors related to Laclede's natural gas distribution business, including reduced sales volume reflecting several successive warmer-than-normal winters, extraordinarily high wholesale gas costs experienced last winter, and increasing debt leverage. Reflecting this, net of natural gas and propane inventory holdings, pretax interest coverage hovers around 3.0 times (x), funds from operations (FFO) interest coverage at some 3.5x,

FFO to total debt stands at just 18%, and average total debt to total capital is an aggressive 55%. These financial parameters are significantly below Standard & Poor's guideposts for a double-'A'-minus rated utility. While full realization of a $15 million rate increase, effective Dec. 2001, will help to improve the company's financial condition, a return to more normal winter weather or the implementation of a weather normalization clause, aggressive cost controls, and rapid reduction in debt leverage will be crucial to boost consolidated financial measures to levels more appropriate for current ratings."

Q. How does Laclede's financial position compare to its peers'?

A. In comparison to its peers', Laclede's total debt ratio at the end of 2000 was slightly higher than the average for the sample (55.9% for Laclede versus 51.5% for the sample; see Schedule 2). Based on total permanent capital only (i.e., exclusive of short-term debt), Laclede's long-term debt ratio was also higher than the average of the proxy sample (45.2% versus 43.6%; see Schedule 3).

With respect to pre-tax interest coverage ratios, Laclede's ratios have lagged those of its peers' over the 1998-2000 period, averaging only 2.9 times, compared to the sample's 3.8 times (Schedule 4). Since 1996 Laclede's coverage ratios, which are also an indicator of the adequacy of cash flows, have declined steadily, from 3.85 times in 1996 to 2.6 times in 2001.

On balance, Laclede's financial risk is somewhat higher than that faced by the proxy sample.

Q. What capital structure does Laclede propose to utilize for ratemaking purposes?

A. Laclede proposes to utilize its November 30, 2001 capital structure.

The ratios are as follows:

| | |
|---|---|
| Debt | 57.3% |
| Preferred Stock | 0.3% |
| Common Equity | 42.4% |

The proposed capital structure includes a debt ratio that is substantially higher than the upper end of the range of the S&P total debt/total capital guideline (47.5%) for an AA rated utility with a business risk rank of 3. However, the proposed ratios are within the range of those maintained by the LDCs in the proxy sample (Schedule 2).

Q. How does Laclede compare to the proxy sample on the basis of overall investment risk?

A. Based on *Value Line* measures, Laclede faces similar total investment risk to its peers. Its "Safety"[3] rating of "2" is identical to the sample mean; its Earnings Predictability measure of 70 lies between the sample's median of 68 and mean of 72. Its Financial Strength ranking of B++ is also equal to the sample mean. While Laclede's beta, at 0.50, is lower than the sample mean of 0.60, the difference is likely attributable to relatively thin trading rather than to any fundamental risk differences.[4] Further, Laclede's historic beta reflects a lower level of financial risk than it currently faces.

[3] *Value Line's* definition of Safety Rank is:

> "A measure of potential risk associated with individual common stocks rather than large diversified portfolios (for which Beta is a good risk measure). Safety is based on the stability of price, which includes sensitivity to the market (see Beta) as well as the stock's inherent volatility, adjusted for trend and other factors including company size, the penetration of its markets, product market volatility, the degree of financial leverage, the earnings quality, and the overall condition of the balance sheet. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit purchases to equities ranked 1 (Highest) or 2 (Above Average) for Safety."

[4] To put this in perspective, in 2001 slightly over 35% of Laclede's total outstanding common shares traded, compared to 65% for the sample of LDCs, which in turn, is well below the 102% turnover (2000) for the Dow Jones Industrials.

# IV. ECONOMIC AND CAPITAL MARKET TRENDS

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

## A. ECONOMIC GROWTH

A. Economic growth in the U.S. began to decelerate in mid-2000, prompted by the actions taken by the Federal Reserve from mid-1999 to mid-2000 to increase interest rates, as well as by rising energy prices, which began to put a squeeze on profit margins and reduce business spending. Signs of a slumping economy spilled over into the equity markets, which were widely viewed as overvalued. By the end of August 2001, the Dow Jones Industrials average had fallen 16% from its January 2000 peak; the technology-laden NASDAQ had plummeted by over 58%. As equity markets weakened and the public's net worth shrank, consumer confidence dropped, and with it, consumer spending. Reversing course, the Fed took steps to halt the economic slide. It lowered interest rates seven times between January and August 2001, for a total of 300 basis points, as the economy continued to weaken and threatened to sink into recession. With the Fed's actions, by early September 2001, the consensus view was that the U.S. would avoid an outright recession.

The September 11, 2001 terrorist attacks on the U.S. materially worsened the near-term outlook for the economy. The attacks further damaged already drooping consumer confidence and produced a sharp downturn in consumer spending, which had remained the only significant source of U.S. economic growth in the first half of the year. In addition, the unemployment rate jumped, experiencing its highest increase in over 21 years, rising from 4.8% in September to 5.4% in October. Since the September 11 attacks, the Fed has cut rates four more times, in an effort to ensure sufficient monetary policy stimulus to turn the economy around.

The current recession is not expected to be as deep or prolonged as the 1990 to 1991 downturn, given the massive monetary and fiscal stimulus being applied. The Fed Funds rate is now at its lowest level since 1958 (1.75%). Consumer confidence has rebounded, and the equity markets have surged from their post-September 11 lows. With the assistance of both monetary and fiscal policy initiatives, real GDP is expected to reach 2.6% by the second quarter of 2001, and jump to 3.8% by the third quarter (Blue Chip *Economic Indicators*, December 10, 2001).

For the long-term (2003 to 2012), real growth is forecast at 3.3% (Blue Chip *Economic Indicators*, October 10, 2001), equal to that experienced over the past business cycle and well above the 2.5% that had historically been viewed as sustainable. The higher long-term growth estimates reflect the increasingly accepted view that technology-driven productivity gains will allow higher long-term growth to be sustained with inflation maintained at acceptable levels.

## B. INFLATION

Inflation remained in check throughout the cyclical expansion, averaging only 2.7% (CPI) from 1991 to 1999 (Schedule 5). Spurred by rising energy prices, the CPI reached a cyclical high in 2000, rising 3.4%. However, with weakening economic activity, declining energy prices and higher unemployment rates, inflation is expected to moderate in the near term. Inflation is expected to average 2.9% in 2001; for 2002, the consensus forecast anticipates that the CPI will increase by only 1.8% (Blue Chip *Economic Indicators*, December 10, 2001).

Over the longer-term (2003-2012), inflation, as measured by the CPI, is expected to average 2.7%, and, as measured by the GDP Deflator, 2.2% (Blue Chip *Economic Indicators*, October 2001). The expected longer-term inflation rates are very similar to those experienced over the past business cycle.

## C. INTEREST RATES

With respect to short-term rates, the weakening economy, exacerbated by the events of September 11, and the aggressive Federal Reserve actions have reduced 90-day Treasury bill yields by over 450 basis points since peaking in November 2000 at 6.2%. At year-end 2001, the yield on 90-day Treasury bills stood at 1.7%. The optimism that the U.S. economy is on its way to recovery is evident in the consensus forecasts of short-term rates, which indicate a rise in the Federal Funds rate from 1.7% in first quarter 2002 to 3.3% by second quarter 2003. The corresponding forecast increase in Treasury bill rates is identical (Blue Chip *Financial Forecast*, January 1, 2002).

With respect to long-term rates, the 10-year Treasury note – which became the financial market benchmark in mid-2000 – declined from a peak of 6.7% (January 2000) to a low of 4.2% in early November 2001. The low yield followed the U.S. Treasury Department's October 31, 2001 announcement that it would no longer issue 30-year Treasury bonds. With the surge in confidence that the economy is close to recovery, the 10-year yield has since risen. At year-end 2001, the 10-year Treasury note was yielding 5.13% (December 27, 2001).

The most recent Blue Chip *Financial Forecasts* (January 1, 2002) anticipates 10-year Treasuries as follows:

| | | | |
|---|---|---|---|
| 1st Qtr. 2002 | 4.9% | 4th Qtr. 2002 | 5.3% |
| 2nd Qtr. 2002 | 5.0% | 1st Qtr. 2003 | 5.5% |
| 3rd Qtr. 2002 | 5.1% | 2nd Qtr. 2003 | 5.6% |

The long-term forecast for 10-year Treasuries published October 10, 2001 (Blue Chip *Economic Indicators)* was:

| 2003 to 2007 (Average) | 2008 to 2012 (Average) |
|---|---|
| 5.7% | 5.8% |

Utility bond yields have not declined to the same extent as government bond yields. In January 2000, when 10-year Treasury notes hit a peak of 6.7%, Moody's AA rated utility bonds were yielding 8.2%, a spread of 150 basis points. At the 10-year Treasury cyclical low of 4.2% (a decline of 250 basis points), AA utility bonds had only declined by 100 basis points, to 7.2%, expanding the spread to 300 basis points. The spread has since contracted somewhat with the recent surge in longer-term government bond yields. At December 27, 2001, with AA rated utility bonds yielding 7.4% and the 10-year note yielding 5.13%, the prevailing spread was 227 basis points.

## D. EQUITY MARKETS

Q. Please summarize the recent trends in the equity market.

A. Much of the last business cycle was characterized by an exuberant but volatile bull market, which favored high growth, high tech, "New Economy" stocks. The years 1998-1999, in particular, were characterized by over-exuberance for technology-based stocks, with valuations being pushed to irrationally high levels. The S&P 400 Industrials jumped 34% and 26% in 1998 and 1999 respectively; the corresponding increases for the NASDAQ were 40% and 86%. "Old Economy" stocks, including utilities, were generally ignored, dismissed as "untimely". As the overall market roared to new heights, fueled by the notion that the "only risk was not to be in the market", utilities languished. In mid-1999, with the economy at risk of overheating and the Federal Reserve pushing up interest rates, utility shares were further depressed. The total returns for LDC stocks

were negative in both 1998 and 1999 (as measured by the Moody's Gas Distribution Index).

In 2000, the market bubble burst. The economy stalled and investors quickly faced the reality of the equity market's overvaluation. Almost as quickly as the market had accelerated to its peak, the formerly-favored technology stocks were quickly discarded for the safer havens of "Old Economy" stocks (including utilities). Utility shares benefited from investors' change of heart, and the ensuing declines in interest rates. For LDC shares, that benefit has been short-lived. With the economy set to revive, and longer-term interest rates trending upward, the market returns from LDC shares in 2001 were only slightly higher than the dividend yield.

On balance, over the past cycle, the overall market has outperformed LDC shares by a wide margin: from 1990-2001, the average total (compound) return from the S&P 500 has been close to 13%; for LDCs the average return has been just over 10%, below the level that would be commensurate with their risk relative to the market as a whole.

# V. ESTIMATE OF A FAIR RETURN ON EQUITY FOR LACLEDE

## A. CONCEPTUAL CONSIDERATIONS

Q. Please summarize your approach to estimating a fair return on equity for Laclede.

A. My approach to estimating a fair return for a utility is premised on the following:

1. The return on equity, in an original cost regulatory framework, is applied to the book value of common equity. There must be a compatibility between the context in which estimates of the required return on equity are derived (e.g., market value), and the context in which the fair return is applied (i.e., book value). The implications of applying a market-derived cost of equity to an original cost book value were laid out in Section II.

2. The estimation of a fair return on equity is not a mechanical exercise. There are multiple models available to estimate the cost of equity. Each has different premises. Each has strengths and weaknesses. The fair return on equity cannot be determined with the precision that is sometimes implied by the recommendation of experts. The exercise of estimating a fair return entails by its very nature a degree of judgement (constrained by facts). As a result, it is incumbent on the analyst to rely on several models to arrive at a well-reasoned determination of a fair return.

3. The estimation of a fair return on equity must be based on, and commensurate, with the returns expected for companies with comparable risks.

Q. What tests have you relied upon to estimate a fair return on equity for Laclede?

A. I have utilized the discounted cash flow model, risk premium tests (including the capital asset pricing model), and the comparable earnings test.

## B. DISCOUNTED CASH FLOW MODEL

### B.1. CONCEPTUAL UNDERPINNINGS

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

A. The discounted cash flow 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 which 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 which equates the price of the stock to the discounted value of future cash flows.

Theoretically, the cash flows extend to infinity. However, as the expected cash flows extend further into the future, their discounted value adds less and less to the price of the stock. Investors in common stocks are unlikely to forecast (or be able to forecast with any accuracy) cash flows beyond five years.

There are multiple versions of the discounted cash flow 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.

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. As a pragmatic matter, the application of a constant growth model is compatible with the likelihood that investors do not forecast beyond five years. Hence, the current market price and dividend yield do not explicitly anticipate any changes in the outlook for growth.

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.

Q. Are these assumptions likely to represent reality?

A. No; it is likely that in the near-term, investors expect growth in dividends to be lower than growth in earnings.[5]

Q. How does one adapt the model given the potential disparity between earnings and dividend growth?

A. By recognizing that all investor returns must ultimately come from earnings. Hence, focusing on investor expectations of earnings growth will encompass the sources of investor returns.

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

A. The discounted cash flow test was applied to a sample of eight local gas distribution companies (LDCs) that serve as a proxy for Laclede. This sample includes all LDCs:

1. classified by *Value Line* as a gas distribution utility;
2. with no less than 85% of total assets devoted to gas distribution operations;
3. whose Standard & Poor's debt rating is A- or higher; and,
4. for which at least three analysts' earnings growth rate forecasts are available from the I/B/E/S and Zacks[6] data base.

The resulting eight LDCs are listed on Schedule 7.

Q. Why do you not apply the discounted cash flow test specifically to Laclede?

A. Aside from the applicable legal requirements as represented in *Hope*, I do not apply the discounted cash flow test specifically to Laclede, for two reasons:

1. circularity
2. potential for measurement error.

Q. What do you mean by circularity?

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[5] To illustrate, the average growth rate in dividends forecast by *Value Line* for my proxy sample of gas distributors over the next 6 years is 2.6%; the corresponding average *Value Line* forecast of earnings growth for the same period is 8.1%.

[6] To ensure that the forecasts are a "consensus" view, not those of a single analyst.

A. For a utility, the growth component of the DCF cost is integrally linked to the allowed ROE. As noted in *Regulatory Finance: Utilities' Cost of Capital* by Dr. Roger Morin (Arlington, VA: Public Utilities Reports, 1994),

> "To estimate what ROE resides in the minds of investors is equivalent to estimating the market's assessment of the outcome of regulatory hearings. Expected ROE is exactly what regulatory commissions set in determining an allowed rate of return. If the ROE input required by the model differs from the recommended return on equity, a fundamental contradiction in logic follows. In other words, the method requires an estimate of return on equity before it can even be implemented. Common sense would dictate the inconsistency of a return on equity recommendation that is different than the expected ROE that the method assumes the utility will earn forever. For example, using an expected return on equity ROE of 13% to determine the growth rate and using the growth rate to recommend a return on equity of 11.5% is inconsistent. It is not reasonable to assume that this company is expected to earn 13% forever, but recommend an 11.5% return on equity. The only way this utility can earn 13% is that rates be set by the regulator so that the utility will in fact earn 13%." (page 161)

Q. What is "measurement error"?

A. As noted earlier, the application of the DCF approach requires inferring investor growth expectations. The resulting DCF cost is very sensitive to the growth expectations inferred. Measurement error results when the growth forecast inferred does not equate to the expectation 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."[7]

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 Schedule 7) is a strong indication that a single company DCF cost is not a reliable estimate.

Q. Would the inclusion of Laclede in the sample entail circularity?

A. Not materially, if the sample is large enough. However, consensus forecasts for Laclede are based only on the outlooks of two analysts increasing the likelihood of measurement error.

B.2. INVESTOR GROWTH EXPECTATIONS

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

A. I have estimated investor growth expectations using consensus forecasts of long-term earnings growth. Specifically, I relied on two widely available sources: I/B/E/S

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

International and Zacks. I have supplemented these forecasts with the *Value Line* forecasts of cash flow per share growth.[8] Cash flow is considered by analysts to be the second most important input (after earnings) to the analysis of securities.[9]

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

A. 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 investor's expectations.[10]

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 ratios is at best redundant, and, at worst, potentially double counts growth rates which are irrelevant to future expectations.

## B.3. APPLICATION OF THE DCF MODEL

Q. Please summarize your application of the DCF model.

A. The DCF model was applied to the sample of eight LDCs using the following inputs:

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[8] Neither I/B/E/S nor Zacks provide a consensus forecast of cash flow growth.

[9] Stanley B. Block, "A Study of Financial Analysts: Practice and Theory", Association for Investment Management & Research, July/August 1999.

[10] 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, and, James H. Vander Weide and William T. Carleton, "Investor Growth Expectations: Analysts vs. History", *The Journal of Portfolio Management*, Spring 1998.

1. the annualized dividend paid during the three months ending December 31, 2001 as $D_o$;

2. the average of the monthly closing prices for the three months ending December 31, 2001 as $P_o$; and

3. the average of the most recent I/B/E/S and Zacks earnings growth forecasts and the most recent *Value Line* cash flow per share growth forecasts to estimate "g" in both the growth component and the dividend yield component.

The following table summarizes the DCF results for the sample of proxy LDCs.

| **Expected Dividend Yield** | | **Expected Growth Rate** | | **DCF Cost** | |
|---|---|---|---|---|---|
| Mean | Median | Mean | Median | Mean | Median |
| 5.3 | 5.2 | 6.3 | 6.2 | 11.7 | 11.1 |

Source: Schedule 7

Q. What is the cost of equity indicated by the constant growth model?

A. Based on the mean and median DCF costs of equity for the sample, the estimated required return on the current (market) value of common equity is in the range of approximately 11.25-11.5%.

Q. What does the 11.25-11.5% DCF cost represent?

A. It represents the return investors expect to earn on the current market value of their utility common equity investments. It is not, however, the return that investors expect the LDCs to earn on the book value of their common equity. *Value Line*, which publishes its

projections of utility ROEs quarterly, anticipates (2004-2006) that the average ROE for the sample of eight LDCs over the period will be 12.8-13.6% (Schedule 7).

Q. Isn't there a "disconnect" in logic if one expects the allowed return on equity to be set at the DCF cost of equity?

A. Yes. If a utility whose market/book ratio was 175% were expected to earn only 11.5% on book value, the market price would tend to decline to book value, so that investors experience a capital loss of 43%. The idea that investors are willing to pay a price equal to 175% of book value in order to see the market value of their investment drop by 43% is illogical.[11]

Q. Should regulators discard use of the DCF test under today's market conditions?

A. Not as long as appropriate adjustments are made. The appeal of the discounted cash flow test as a measure of the fair return lies in the relative simplicity of its application. As a measure of the fair return, however, in a regulatory framework that relies on original cost book value as the base to which the return is applied, as is the case in Missouri, the DCF test has limitations. The investor's required return as measured by the DCF test (derived directly from the current market price) and the expected return on book value will only converge when the market value is close to book value. In today's capital market

[11] To illustrate, assume a utility's book value is $10.00 and its stock sells at $17.50 (so that its market-to-book ratio is 175%); its approved return is 11.5% (earnings per share of $1.15); and its expected payout ratio is 55% (dividend per share of $0.63). An application of the DCF formula would show a yield of 3.6% ($0.63 / $17.50), and a longer-term "sustainable" growth rate of 5.2% (45% x 11.5%, i.e., sustainable growth = percent of earnings retained x return on equity), for a DCF cost of 9.0%.

If the calculated DCF cost of 9.0% were applied to book value, earnings would decline to $0.90 per share ($10.00 x 9.0%), the payout ratio would rise to 70% ($0.63 / $0.90) and the longer-term growth rate would decline to 2.7% (1.0 - .70) x 9.0%. Hence, investors' expectations for growth of 5.2% would not be realized, and the stock price would decline to book value. The expected return on the revalued stock would be 9.0%, comprised of a dividend yield of 6.3% ($0.63 / $10.00) and growth of only 2.7%. However, the realized holding period return for an investor purchasing the stock at $17.50 per share (assuming a one year work-out period) would be a capital loss of 43%. The proposition that investors are willing to invest $17.50 per share to end up with a stock whose value is $10.00 defies common sense.

environment, that premise does not hold, since utility market values are significantly higher than book value.

Q. How does one adjust the DCF cost in light of the deviation between book and market value so as to translate the current cost of equity into a fair return on book value?

A. At a minimum the DCF test result should be augmented by an increment for financial flexibility, which puts the utility in a position to raise new common equity without impairment of its financial integrity and which provides a cushion to protect against unanticipated capital market conditions (i.e., a major break in the capital markets). As discussed in Appendix B, a minimum allowance is 50 basis points, which raises the 11.25-11.5% DCF test result to no less than 11.75-12.0%.

Q. Does this adjustment for financing flexibility fully account for the deviation between book and market value so as to translate the current cost of equity into a fair return on book value?

A. No. As discussed in Section II, the first step is the recognition that regulation is intended to emulate competition. Under competition, equity market values tend to gravitate toward the replacement cost of the underlying assets. Absent inflation, the market value of firms operating in a competitive environment would tend to equal their book value or cost. This is due to the economic proposition that, if the discounted present value of expected returns (market value) exceeds the cost of adding capacity, firms will expand until an equilibrium is reached, when the market value equals the replacement cost of the productive capacity of the assets. However, the fact that inflation has occurred changes the above analysis. With inflation, under competition, the market value of a firm trends toward the current cost of its assets. The book value of the assets in contrast, reflects the historic depreciated cost of the assets. Since there have been moderate to relatively high levels of inflation over the past two business cycles, one would expect the market value to deviate systematically from the book value.

For reliance on the DCF cost result to produce a return compatible with the premise that regulation is a surrogate for competition, the DCF cost should be adjusted to reflect the replacement cost/book value. In principle, the replacement cost/book value ratio should correspond to the long-run equilibrium market/book ratio.

By repricing the equity of the LDCs for past inflation, an approximation of the replacement cost can be made. To reprice the equity, each annual increment to common equity needs to be increased by experienced inflation from the time the equity was added to the present. The total repriced equity is a proxy for replacement cost. The total repriced equity is then compared to the original cost book value of the equity to arrive at an estimate of the replacement cost/book value ratio. The replacement cost/book value ratio is, in turn, an estimate of the expected long-run equilibrium market value/book ratio that should be anticipated under competition. The resulting replacement cost/book value for the eight LDCs was 158% at the end of 2000.[12] Hence, an adjustment to the 11.25-11.5% DCF cost of equity to reflect a replacement cost/book value ratio of no less than 150% is warranted. In my opinion, if an adjustment of this nature is made to the DCF cost, the test results will provide an approximate measure of the fair return on book equity under current market conditions.

The replacement cost/book value relationship provides an economically sound basis for adjusting the current DCF cost of equity to a fair return on book value. The DCF model itself provides the technique for making the required adjustment.

$$ROE = \frac{M/B\ (k)}{1 + [r\ (M/B-1)]}$$

where:

ROE = return on book equity

k = market-derived cost of equity

r = earnings retention rate

[12] Due to data limitations, the increments to equity were only repriced for the past twenty years.

The derivation of the formula is found on Schedule 9.

Using a repriced equity/book value ratio of 150% as a proxy for the longer-run equilibrium market/book ratio, a market-derived cost of equity of 11.375% and a longer-term expected earnings retention rate of 45% (based on Value Line forecasts; see Schedule 7), the fair return can be estimated as follows:

$$\frac{1.50\ (11.375\%)}{1 + [.45\ (1.50 - 1.0)]} = 13.9\%$$

## C. EQUITY RISK PREMIUM TEST

### C.1 CONCEPTUAL UNDERPINNINGS

Q. What is the underlying premise of the equity risk premium test?

A. The risk premium test is derived from the basic concept of finance that there is a direct relationship between the level of risk assumed and the return required. Since an investor in common equity is exposed to greater risk than an investor in bonds, the former requires a premium above bond yields in 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. How did you apply the equity risk premium test?

A. I used the Capital Asset Pricing Model (CAPM), supplemented by two direct estimates of LDC risk premiums, the first by reference to both historic achieved risk premiums and the second by reference to forward-looking risk premium estimates.

## C.2 CAPITAL ASSET PRICING MODEL (CAPM)

### C.2.1. Conceptual Underpinnings of CAPM

Q. Please discuss the assumptions that underpin the CAPM.

A. The CAPM is a formal equity 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.

C. 3. 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 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.

In previous testimony presented to the Commission, I have utilized the forecast yield on the 30-year Treasury bond as a proxy for the risk-free rate. However, since the U.S. Treasury has announced it will no longer issue 30-year Treasuries, the 30-year Treasury yield is no longer a viable proxy for the risk-free rate. As a result, my CAPM analysis will rely on forecasts of 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 forecast yields on 10-year Treasury notes for the near term lie below the levels compatible with long-term fundamentals. 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 10-year forecast of inflation based on the GDP deflator is approximately 2.2% (Blue Chip *Economic Indicators*, October 2001). The yield on the 10-year real return (inflation-indexed) government bonds – which provides a proxy for the real cost of capital – is currently 3.5% (12/31/01). The yield on these bonds has averaged approximately 3.75% since they were first issued in 1997.[13] In the long run, the real cost of capital – which represents the productivity of capital should be approximately equal to the rate of growth in the economy, forecast to be approximately 3.3% over the next decade (Blue Chip *Economic Indicators*, October 10, 2001). Based on these data, the real cost of long-term capital is in the range of 3.3-3.5%. Combining the long-term expected inflation rate (2.2%) with a long term real cost of capital of 3.3-3.5% indicates a fundamental value for 10-year Treasuries of approximately 5.5-5.75%.

The fundamental analysis above is consistent with the longer-term forecasts of 10-year Treasuries, which, as shown in Section IV, are expected to be in the range of 5.7-5.8%. Based both on the fundamental analysis and the longer-term forecasts of 10-year Treasury note yields, a reasonable estimate of the risk-free rate is 5.5-5.75%.

[13] Through December 31, 2001.

## C.4. 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 equity 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 estimated equity risk premiums are obtained by subtracting the corresponding government bond yield from the estimated cost of equity.

### C. 4.1 Experienced Market Risk Premium

The estimation of the expected market risk premium from achieved 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 reflect 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. In principle, when historic risk premiums are used as a basis for estimating the expected risk premium, arithmetic averages should be used. 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.

Equity risk premiums were calculated for two historic periods: 1926-2001 and 1947-2001. The 1926-2001 period represents the longest period over which the seminal Ibbotson Associates data are available. The data for the post-World War II period (1947-2001) 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 on the patterns of consumption;

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

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:

| 1926-2001 | 1947-2001 |
|---|---|
| 7.5% | 7.6% |

Source: Schedule 10

Q. The preceding historic average risk premiums reflect differentials between equity market returns and income returns on a notional 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. Since 1993, the average spread between 10- and 20-year Treasuries has been approximately 40 basis points.[14]

Hence, the addition of 40 basis points to the achieved historic market risk premiums approximates the historic equity market/10-year Treasury risk premium, leading to a long-term average risk premium of approximately 7.75-8.0%.

C. 4.2 Forward-Looking Market Risk Premium

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. To illustrate, the following table separates the 1926-2001 risk premium into periods characterized by different economic conditions. The averages indicate that market risk premiums declined when inflation was rising, gradually increased as inflation and inflation fears fell and have been relatively high during periods of moderate inflation and relatively stable interest rates. The results suggest that investors are likely to anticipate higher equity risk premiums in periods of steady growth, low inflation and low interest rates.

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

| U.S. RISK PREMIUMS (1926-2001) | | | | | | |
|---|---|---|---|---|---|---|
| Period | Description | Stock Returns | Bond Income Returns | CPI Growth | GDP Growth | Risk Premium: |
| 1926-1939 | Pre-War, Market Crash, Deflation | 9.8% | 3.1% | -1.6% | 1.3% a/ | 6.8% |
| 1940-1951 | Growth and Inflation, Early Post World War II | 13.2 | 2.3 | 5.5 | 6.3 | 10.9 |
| 1952-1967 | Steady Low Inflation, Robust Growth | 14.8 | 3.6 | 1.6 | 3.8 | 11.2 |
| 1968-1982 | Rising Inflation, Interest Rates, Stagflation | 8.4 | 7.9 | 7.4 | 2.7 | 0.5 |
| 1983-1991 | Falling Nominal and Real Interest Rates, Moderately High/Steady Inflation | 17.8 | 9.4 | 3.9 | 3.5 | 8.4 |
| 1992-2001 | Low Inflation and Interest Rates, Moderate/Steady Growth | 14.2 | 6.5 | 2.6 | 3.4 | 7.7 |

a/ 1930-1939

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;

- the determination of a fair return on equity in today's interest rate environment requires a direct assessment of current stock market expectations.

The forward looking market premium may be determined by application of the discounted cash flow (DCF) model to the S&P 500. To estimate the DCF cost for the

S&P 500, the I/B/E/S consensus of analysts' forecasts of normalized earnings growth for the companies in the market index was used as a proxy for investor expectations of long-term growth. To illustrate, the average October-December 2001 dividend yield for the S&P 500 was 1.4%. The corresponding consensus forecasts for five-year normalized earnings growth rates available for companies in the S&P 500 index show an expected growth rate of 14.6% (Schedule 12). The resulting DCF cost is 16.0%. At a forecast 10-year Treasury yield of 5.5-5.75%, the forward looking estimate of the market risk premium would be approximately 10.5%.

Rather than focus on a "spot" differential, the analysis was extended to the past business cycle (1991-2001), which encompasses a relatively low interest rate/inflation environment. Monthly DCF costs of equity were estimated for the S&P 500 as the sum of the month-end dividend yield and the respective I/B/E/S five-year normalized earnings growth projections (as a proxy for longer-term growth). The monthly risk premium was then calculated as the differential between the DCF cost and the month-end yield on 10-year Treasury notes.

The table below summarizes the results:

| Period | Expected Market Return | 10-Year Treasury Note Yield | Expected Differentials |
|---|---|---|---|
| 1992-2001 | 15.7% | 6.3% | 9.4% |
| 1997-2001 | 16.9% | 5.6% | 11.2% |
| 1999-2001 | 17.9% | 5.6% | 12.2% |

Source: Schedule 12

The table above generally indicates an increase in the expected return for the market over the decade, driven by the increase in expected earnings growth (from 12% in 1991-1995 to over 18% in the third quarter 2000). Despite the near-term gloomy economic outlook,

the longer-term forecasts remain higher in late 2001 than in the first half of the decade (over 14% in October-December, 2001). The increase in the expected market return over the decade is consistent with the salutary effect of lower interest rates on profitability and the experienced (and expected) technology-driven increases in productivity. It must be recognized, however, that the expectations are likely to be optimistic, and not sustainable over the longer-term.

Focusing on the expected equity market returns over the past 10 years (approximately 15.5%) in relation to expected 10-year Treasury yields, the indicated expected risk premium in the near-term is approximately 9.5%.

C.4.3 Expected Market Risk Premium

Giving primary weight to the historic data, but recognizing the higher prevailing equity market return expectations over the near-term relative to historic averages, the indicated market risk premium (in relation to the 10-year Treasury) is approximately 8.0-9.0%.

C. 4.4 Beta

Q. What is the appropriate relative risk adjustment (beta) 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.[15] Reliance on *Value 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.[16] The applicability of a calculated historic beta to a future period needs to be analyzed in the context of events that gave rise to the calculation.

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

A. The most recent *Value Line* betas (mean and median) have been approximately 0.60. To some extent, the recent levels of LDC betas are a result of a decoupling of movements in utility stock prices from those of the market as a whole (as discussed in Section IV), and hence understate the fundamental risk of the LDCs relative to the market. On balance, the historic *Value Line* betas for the sample (1993-2001), support a forward looking beta in the range of 0.60-0.65 (Schedule 11).

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[15] Evidence of this is found in the following studies:

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.

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

C. 4.5 CAPM Risk Premium

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

A. The CAPM risk premium is in the approximate range of 4.8-5.8%, or a mid-point of approximately 5.25%, based on the following:

| **Risk Premium** | = | **Beta** | x | **Market Risk Premium** |
|---|---|---|---|---|
| 4.8% | = | 0.60 | x | 8.0% |
| 5.8% | = | 0.65 | x | 9.0% |

C. 4.6 Risk Premium Based On Achieved Risk Premiums For The Gas Distribution Industry

Q. Please summarize the basis for estimating the required LDC risk premium by reference to historic 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 LDC equity risk premiums?

A. The achieved equity risk premiums for Moody's Gas Distribution Index[17] were calculated over the period 1947-2001. The historic arithmetic (1–year) average risk premium relative to the 20-year U.S. Treasury bond was 6.3% (Schedule 10). Adding 40 basis points to adjust for the historic differential between 10- and 20-year Treasuries results in a premium of approximately 6.7% relative to the benchmark 10-year Treasury.

C. 4.7 DCF-Based Equity 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 series of differences between the discounted cash flow 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 dividend yield (adjusted for growth) and the investor's expectation 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 gas distributor in the LDC sample, monthly DCF costs were estimated as the sum of the month-end dividend yield (as adjusted for growth) 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 and the month-end 10-year Treasury bond yield. The analysis was limited to the post-Order 636 period (1993-2001).

The average risk premium over the entire period was 4.8%; the corresponding 10-year Treasury note yield averaged 6.0%. Looking only at the last three years (1999-2001), as

[17] At the end of 2000, the Moody's Gas Distribution Index included the following seven companies: AGL Resources, Inc.; Indiana Energy In.; Keyspan Energy; Laclede Gas Co.; Northwest Natural Gas Co.; Peoples Energy Corp.; and Washington Gas Light Co.

in the analysis for the S&P 500, during which 10-year Treasury note yields averaged 5.6%, the average LDC equity risk premium was 5.2% (Schedule 13).

The time series nature of the data lends itself to an analysis of the relationship between the LDC equity risk premium and the 10-year Treasury yield changes over time. A regression analysis used to estimate this relationship over the post-1992 period indicates the following:

**LDC Equity Risk Premium = 9.60 – 0.81 (10-year Treasury yield)**

$R^2$ = 63%

Based on the regression analysis, the DCF-based risk premium analysis for the LDC sample indicates a risk premium of approximately 5.0% at a 5.5-5.75% forecast 10-year Treasury yield.

## C. 5 CONCLUSIONS FROM THE EQUITY RISK PREMIUM TESTS

Q. Please summarize the results of your equity risk premium tests.

A. The table below summarizes the results of the equity risk premium tests.

| | |
|---|---|
| Capital Asset Pricing Model | 5.25% |
| Achieved LDC Equity Risk Premiums | 6.7% |
| DCF-Based Risk Premium for LDCs | 5.0% |

The results indicate a required equity risk premium for an average risk LDC of approximately 5.0-5.5% at a 10-year Treasury yield of 5.5-5.75%. The resulting market-derived cost of equity is 10.75-11.0%.

Q. What does the 10.75-11.0% risk premium test result represent?

A. Similar to the DCF result, the 10.5-11.0% cost determined by using variants of the risk premium test is a market-derived cost, which measures the return investors expect on the market value of their equity investments. As with the DCF test, the cost rate needs to be adjusted to recognize the disparity between market and book value. At a minimum, the adjustment should permit the utility to recover all flotation costs associated with equity financing, to be in a position to raise equity capital without dilution of book value, and to provide a cushion against unanticipated market conditions. A minimum allowance for financing flexibility is 50 basis points (See Appendix B). The addition of a 50 basis point allowance for financing flexibility results in a return on equity of 11.25-11.5%.

Q. What is the indicated return as determined by reference to the proxy LDCs if a similar adjustment is made for the long-run market/book ratio as was made in the application of the DCF test?

A. The equity risk premium result that is compatible with a longer-run market/book ratio of 1.50 is approximately 13.3%.[18]

## D. COMPARABLE EARNINGS TEST

### D.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

[18] $\frac{1.50\ (10.875\%)}{1 + (.45\ (1.50 - 1.0))} = 13.3\%$

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 comparable earnings test, which measures returns, in relation to book value, is the only test that can be directly applied to the equity component of an original cost rate base without an adjustment to correct for the discrepancy between book values and current market values.

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 completely circular. The achieved returns of utilities are in large measure a function of allowed returns. In contrast, the earnings of competitive firms represent returns available to alternative investments independent of the regulatory process.

## D.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 LDCs.
- The selection of an appropriate time period over which returns are to be measured in order to estimate prospective returns.
- The need for an adjustment to the "raw" comparable earnings results to reflect the differential risk of LDCs relative to 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 investment risk to LDCs.

LDCs are generally characterized by relatively low volatility with respect to both earnings and stock market performance. Since consumer-oriented industries, due to their demand characteristics, are likely to exhibit relatively greater stability than other industries (e.g., extractive industries), the initial universe selection was limited to consumer-oriented industries (SIC codes 2000-3999 and 5000-5999).[19]

[19]The major industrials represented by these SIC codes are: Food and Kindred Products, Tobacco Products, Textiles, Lumber and Wood Products, Paper Products, Petroleum Refining, Chemicals, Rubber, Plastics, Glass, Concrete, Primary Metals, Fabricated Metals, Industrial/Commercial Machinery, Transportation Equipment,

From this universe, U.S. firms were selected with book data available since 1991, market data available since December 1995 and with common equity of at least $250 million in 2000 and non-negative common equity throughout the period. This initial screen yielded 553 companies. Eliminating all companies incorporated outside of the United States left 490 firms. Next, companies with a *Value Line* Safety Rank[20] of 2 were selected, reducing the number of companies to 64. A Safety Rank of 2 is equivalent to the average Safety Rank of the eight company LDC sample selected for the DCF analysis (see Schedule 1).

From this group, 13 companies whose 1991-2000 average returns were above or below one standard deviation from the average were eliminated in order to exclude companies whose earnings are either extraordinarily profitable or chronically depressed. The remaining 51 companies were then arrayed in ascending order of *Value Line* beta. Companies with betas of one or higher were eliminated.[21] The final sample contains 34 companies and is found on Schedule 14.

Q. What are the industrial sample risk characteristics relative to those of LDCs?

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

| | **Industrials** | **LDCs** |
|---|---|---|

Computer and Electronic Equipment, Measuring Equipment, Wholesale and Retail Operations for both durable and non-durable goods.

[20] *Value Line's* definition of Safety Rank is:

"A measure of potential risk associated with individual common stocks rather than large diversified portfolios (for which Beta is a good risk measure). Safety is based on the stability of price, which includes sensitivity to the market (see Beta) as well as the stock's inherent volatility, adjusted for trend and other factors including company size, the penetration of its markets, product market volatility, the degree of financial leverage, the earnings quality, and the overall condition of the balance sheet. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit purchases to equities ranked 1 (Highest) or 2 (Above Average) for Safety."

[21] Enron was eliminated from the final sample because its Global Industry Classification Standard (GICS) sub-industry code defined it as a utility.

| | (Median) | (Median) |
|---|---|---|
| S&P Debt Ratings | A- | A |
| Value Line Risk Measures: | | |
| Safety Rank | 2 | 2 |
| Earnings Predictability | 88 | 68 |
| Financial Strength | A | B++ |
| Beta | 0.80 | 0.60 |

Source: Schedules 1 and 15.

Although the individual values for the LDCs and industrials are not identical, they are similar enough so that the returns for the industrials can be used as a point of departure. To recognize that the betas indicate that the LDCs face lower investment risk, the required adjustment to the industrials returns can be quantified using the relative beta coefficients of the two samples.

D.3. PERIOD FOR MEASUREMENT OF RETURNS

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

A. The measurement of returns for competitive industrials is, in large part, historical. The test, however, is intended, as are all tests used to estimate the fair return, 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 which is reasonably representative of prospective economic conditions. The business cycle (measured from point to point) covering the period 1991-2000 meets those criteria, essentially because it reflects an inflation rate (2.2% based on the GDP Price Index) and real economic growth rate (3.4%)

(Schedule 5) that are quite close to the most recent consensus estimates for longer-term (10-year) inflation and growth (2.2% inflation measured by the GDP Price Index; 3.3% expected growth in real GDP).

The achieved returns of the 34 companies for 1991-2000 are as follows:

| | |
|---|---|
| Average | 18.1% |
| Median | 18.0% |
| Average of Annual Medians | 18.5% |

Source: Schedule 14.

The results indicate that a low risk industrial in the consumer-oriented industries may be expected to earn a return of no less than 18.0%.

Q. Are the historic returns on equity compatible with the forecast returns on equity?

A. Yes. *Value Line* provides forecasts of the return on equity for each of these firms. The most recent *Value Line* forecasts[22] indicate returns on equity in the range of 18.3-20.9% (based on the sample median and mean) for the period 2004-2006.

D.4. RELATIVE RISK ADJUSTMENT

Q. Given the higher recent betas of the industrials compared to the LDCs, what is the indicated fair return for Laclede?

A. The results can be adjusted for the lower risk of an LDC by applying the relative betas of the LDCs and industrials to that portion of the book return in excess of the forecasts for 10-year Treasury notes (i.e., the risk premium). Using a forecast yield of 5.5-5.75% on

10-year Treasury notes, the median LDC beta of 0.60, and the median industrial beta of 0.80 (Schedules 1 and 14), the adjustment is made as follows:[23]

$$.60/.80\ (18.0\% - 5.62\%) + 5.625\% = 14.9\%$$

The risk-adjusted return of 14.9% (or a range of 14.75-15.0%) represents a fair return on original cost book equity, and, as such, a return which is compatible with providing an opportunity to a utility to earn a return in relation to original cost book value commensurate with that achievable by competitive firms of similar investment risk.

Q. Why are the results of the comparable earnings test relevant if the sample itself is not precisely of the same risk to the LDCs?

A. There is no legal or economic requirement that the sample of competitive firms is equal in risk to the regulated company. What is required is the application of appropriate adjustments to the results so that the return is compatible with the risk profile of the regulated firm. That adjustment has been made.

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 which a focus on only other regulated companies entails and ensures that the objective of regulation is achieved.

[22] Issues dated between October and December 2001.

[23] The adjustment effectively relies on the assumptions underpinning the Capital Asset Pricing Model, but makes no allowance for the recent depressed level of LDC betas.

## E. CONCLUSIONS

Q. Please summarize your test results.

A. The test results, as applied to the benchmark, or proxy, sample of LDCs is as follows:

| | |
|---|---|
| Discounted Cash Flow | 11.75-14.0% |
| Equity Risk Premium | 11.25-13.25% |
| Comparable Earnings | 14.75-15.0% |

Q. Based on the three test results above, what is a reasonable return on equity for Laclede?

A. In my opinion, the allowed return on equity for Laclede should be set at no less than 11.5%. A reasonable return on equity should be viewed as falling within a range of 11.5-13.5%.

# APPENDIX A
# QUALIFICATIONS OF
# KATHLEEN C. McSHANE

Kathleen McShane is a Senior Vice President and senior consultant with Foster Associates, Inc., were 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 is also a Chartered Financial Analyst.

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 100 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 studies include the assessment of the impact of business risk factors (e.g., competition, rate design, contractual arrangements), on capital structure and equity return requirements. Ms. McShane has also 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, and form of regulation (including performance-based regulation).

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. In a study prepared for the Canadian Ministry of Energy, Ms. McShane analyzed Federal regulation of U.S. pipelines, including trends in rate

design and rate structures. Ms. McShane has also co-managed market demand studies, focusing on demand for Canadian gas in U.S. markets. 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 and Papers

- "Marketing Canadian Natural Gas in the U.S.", (co-authored with Dr. William G. Foster), published by the IAEE in *Proceedings: Fifth Annual North American Meeting*, 1983.
- "Canadian Gas Exports: Impact of Competitive Pricing on Demand", (co-authored with Dr. William G. Foster), presented to A.G.A.'s Gas Price Elasticity Seminar, February 1986.
- "Market-Oriented Sales Rates and Transportation Services of U.S. Natural Gas Distribution Companies", (co-authored with Dr. William G. Foster), published by the IAEE in *Papers and Proceedings of the Eighth Annual North American Conference*, May 1987.
- "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.
- 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.
- "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.

**Expert Testimony/Opinions**

**on**

**Rate of Return & Capital Structure**

| | |
|---|---|
| Alberta Natural Gas | 1994 |
| Alberta Power/ATCO Electric | 1989, 1991, 1993, 1995, 1998, 1999, 2000 |
| AltaGas Utilities | 2000 |
| Ameren (Central Illinois Power & Union Electric) | 2000 (3 cases) |
| ATCO Gas | 2000 |
| ATCO Pipelines | 2000 |
| BC Gas | 1992, 1994 |
| 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 |
| Centra Gas Ontario | 1990, 1991, 1993, 1994, 1996 |
| Consumers Gas | 1988, 1989, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 2001 |
| Dow Pool A Joint Venture | 1992 |
| Edmonton Water/EPCOR Water Services | 1994, 2000 |
| Enbridge Gas New Brunswick | 2000 |
| Gas Company of Hawaii | 2000 |
| Gaz Metropolitain | 1988 |
| Gazifère | 1993, 1994, 1995, 1996, 1997, 1998 |
| HydroOne/Ontario Hydro Services Corp. | 1999, 2000 |
| Laclede Gas Company | 1998, 1999, 2001 |
| Maritimes NRG (Nova Scotia) and (New Brunswick) | 1999 |
| Multi-Pipeline Cost of Capital Hearing (National Energy Board) | 1994 |
| Natural Resource Gas | 1994, 1997 |

| | |
|---|---|
| Newfoundland & Labrador Hydro | 2001 |
| Newfoundland Power | 1998 |
| Newfoundland Telephone | 1992 |
| Northwestel, Inc. | 2000 |
| Northwestern Utilities | 1987, 1990 |
| Northwest Territories Power Corp. | 1990, 1992, 1993, 1995, 2001 |
| Nova Scotia Power Inc. | 2001 |
| Ozark Gas Transmission | 2000 |
| Pacific Northern Gas | 1990, 1991, 1994, 1997, 1999, 2001 |
| St. Lawrence Gas | 1997 |
| Southern Union Gas | 1990, 1991, 1993 |
| Stentor | 1997 |
| Tecumseh Gas Storage | 1989, 1990 |
| Telus Québec | 2001 |
| 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 |
| West Kootenay Power | 1995, 1999, 2001 |
| Yukon Electric Co. Ltd./Yukon Energy | 1991, 1993 |

## Expert Testimony/Opinions

## on

## Other Issues

| Client | Issue | Date |
|---|---|---|
| Gaz Metro/<br>Province of Québec | Cost Allocation/<br>Incremental vs. Rolled-In Tolling | 1984 |
| Canadian Western Natural Gas | Cash Working Capital/<br>Compounding Effect | 1989 |
| Maritime Electric | Form of Regulation | 1995 |
| Enbridge Consumers Gas | Principles of Cost Allocation | 1998 |
| Enbridge Consumers Gas | Unbundling/Regulatory Compact | 1998 |
| Gazifère Inc. | Cash Working Capital | 2000 |
| Maritime Electric | Subsidies | 2000 |
| ATCO Electric | Carrying Costs on Deferral Account | 2001 |
| Newfoundland & Labrador Hydro | Rate Base, Cash Working Capital | 2001 |

# APPENDIX B

# ADJUSTMENT FOR FINANCING FLEXIBILITY

The equity risk premium test result represents a return which conceptually, if applied to the book value of equity, would cause the utility market/book ratio to equal 1.0. This cost needs to be adjusted to permit the utility a certain degree of financial flexibility and integrity.

The adjustment for financing flexibility, or alternatively the flotation cost allowance is intended to serve two distinct but related purposes: first, to permit a company to recover all costs associated with issuing additional stock as required to meet its obligation to serve, at not less than book value per share, and thus without harming (diluting) the investment of existing shareholders, and second, to position the company at all times such that if it needs to issue additional equity to meet its obligation to serve, it can do so without harm to its existing shareholders.

The adjustment should at a minimum include:

(a) Financing costs, or out-of-pocket issue expenses. These comprise primarily administrative costs and the underwriters' fee. For gas distributors, this component averaged 5.8% over the 10-year period 1985-1994. On an after-tax basis, the cost is approximately 3.75%.[1]

(b) An allowance for market pressure, i.e., the tendency for the price of the stock to fall as an additional supply of stock is introduced into the market, of approximately 2-3 percent of the market price.

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[1]EBASCO Services, Inc., *Analysis of Public Utility Financing*, various issues, 1985-1994.

The article entitled "Total Flotation Costs for Electric Company Equity Issues", by Victor M. Borun and Susan L. Malley, *Public Utilities Fortnightly*, (February 20, 1986), summarizes the various studies which have been performed using utility data, as well as presents the results, of a study covering 641 electric utility issues. The various studies provide support for a market pressure adjustment of 2-3%.

Conceptually, the measurement of market pressure should be made by reference to the change in market price from the time of the announcement of the sale of additional equity to the time of the sale of this equity, with due regard to the trend of market prices in this period. However, the anticipation of raising equity may precede the announcement, particularly for utilities, so that the market may already reflect (partly, or entirely) the impact of dilution at the time of the announcement. It may then appear that there is no market pressure, when in fact it is merely not statistically measurable. To capture the impact of market pressure, it is therefore necessary to rely on a large number of observations. Moreover, since the flotation cost allowance is essentially a composite figure which is designed to recover flotation costs associated with past and future issues of various sizes, measurement of the market pressure component by reference to a large sample of issues of many relative sizes is appropriate.

The sum of the first two elements (6-7%) comprises an estimate of the minimum allowance required to afford a utility some financing flexibility. The flotation cost allowance should permit a company to recover all costs associated with issuing additional stock as required to meet its obligation to serve, at not less than book value per share, and thus without harming (diluting) the investment of existing shareholders, as well as, to position the company at all times such that if it needs to issue additional equity to meet its obligation to serve, it can do so without harm to its existing shareholders.

This total gives no consideration to the fairness principle, which would recognize that competitive industrials have, in periods of moderate inflation, consistently been able to maintain the real value of their assets, as evidenced by market/book ratios significantly

in excess of 1.0. Utilities should not be precluded from achieving a level of financial integrity that gives some recognition to the tendency for industrial market values to equate to replacement costs and thus produce market/original cost book values significantly in excess of 1.0. This is not only a fairness argument, but an economic argument, inasmuch as it is the role of regulation to simulate competition, under which long-run market value should equate to the replacement cost of the productive capacity. The argument is even stronger when regulated utilities are also exposed to competition with other regulated utilities or alternative energy service providers. Hence, an adjustment of 6.0% in the context of original cost regulation is conservative.

A 6.0% flotation cost adjustment is approximately equivalent to an adjustment sufficient to permit a utility to maintain a market/book ratio of 1.06. The DCF formula provides a means of adjusting the market-derived cost to arrive at the book return required for a market/book ratio of 1.06 (see Schedule 5 for derivation):

$$\text{Return on Book Equity} = \frac{\text{Market/Book Ratio x Market-Derived Cost}}{1 + [\text{earnings retention rate } (M/B - 1)]}$$

To achieve a market/book ratio of 1.06, based on the LDCs' historic dividend payout ratio of 75% (retention rate of 25%) and a market-derived DCF cost of capital of 11.375%, the required return is 11.9%.

$$11.9\% = \frac{1.06\ (11.375\%)}{1 + [.25\ (1.06 - 1.0)]}$$

Hence, a minimum adjustment for financing flexibility, equal to the difference between 11.9% and 11.375%, is approximately 50 basis points.

# LACLEDE GAS COMPANY

Statistical Materials

to accompany

Prepared Testimony

of

KATHLEEN C. McSHANE

FOSTER ASSOCIATES, INC.
Bethesda, MD. 20814

January 2002

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SCHEDULE 1

**INDIVIDUAL COMPANY RISK DATA FOR**
**SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES**

| | Value Line | | | | S & P | |
|---|---|---|---|---|---|---|
| Company | Safety Rank | Earnings Predictability | Financial Strength | Beta | Business Profile | Debt Rating |
| AGL RESOURCES INC | 2 | 55 | B++ | 0.60 | 3 | A- |
| ATMOS ENERGY CORP | 3 | 45 | B+ | 0.55 | 4 | A- |
| NEW JERSEY RESOURCES | 2 | 100 | B++ | 0.55 | 2[1/] | A[1/] |
| NICOR INC | 1 | 90 | A+ | 0.60 | 3 | AA |
| NORTHWEST NATURAL GAS CO | 2 | 60 | B++ | 0.60 | 3 | A |
| PEOPLES ENERGY CORP | 1 | 65 | A | 0.70 | 4 | A+ |
| PIEDMONT NATURAL GAS CO | 2 | 90 | B++ | 0.60 | 3 | A |
| WGL HOLDINGS INC | 1 | 70 | A | 0.60 | 3 | AA- |
| **Median** | **2** | **68** | **B++** | **0.60** | **3** | **A** |
| **Mean** | **2** | **72** | **B++** | **0.60** | **3** | **A** |
| LACLEDE GAS CO | 2 | 70 | B++ | 0.50 | 3 | AA- |

Source: Value Line (December 28, 2001);
Standard & Poor's Utilities and Perspectives (December 10, 2001).

1/ For subsidiary, New Jersey Natural Gas

RKLDC

**TOTAL DEBT TO TOTAL CAPITAL**
**FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES**
**(1998-2000)**

| | 1998 | 1999 | 2000 | Average (1998-2000) |
|---|---|---|---|---|
| AGL RESOURCES INC | 50.3 | 47.3 | 49.4 | 49.0 |
| ATMOS ENERGY CORP | 58.5 | 59.9 | 61.6 | 60.0 |
| NEW JERSEY RESOURCES | 55.6 | 57.7 | 50.5 | 54.6 |
| NICOR INC | 50.9 | 51.8 | 56.1 | 52.9 |
| NORTHWEST NATURAL GAS CO | 50.0 | 51.8 | 49.5 | 50.4 |
| PEOPLES ENERGY CORP | 42.0 | 45.8 | 56.0 | 47.9 |
| PIEDMONT NATURAL GAS CO | 47.4 | 50.6 | 52.5 | 50.2 |
| WGL HOLDINGS INC | 49.3 | 46.6 | 49.4 | 48.4 |
| **Median** | **50.2** | **51.2** | **51.5** | **50.3** |
| **Mean** | **50.5** | **51.4** | **53.1** | **51.7** |
| LACLEDE GAS CO | 51.8 | 50.4 | 55.9 | 52.7 |

Source: Standard & Poor's CreditStats

CAPST

SCHEDULE 3

**YEAR-END CAPITAL STRUCTURE RATIOS FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES (2000 Fiscal Year End)**

| | Long-Term Debt | Preferred Stock | Common Equity |
|---|---|---|---|
| AGL RESOURCES INC | 51.7 | 0.0 | 48.3 |
| ATMOS ENERGY CORP | 48.1 | 0.0 | 51.9 |
| NEW JERSEY RESOURCES | 47.0 | 0.1 | 52.9 |
| NICOR INC | 32.7 | 0.6 | 66.7 |
| NORTHWEST NATURAL GAS CO | 45.1 | 3.9 | 50.9 |
| PEOPLES ENERGY CORP | 35.1 | 0.0 | 64.9 |
| PIEDMONT NATURAL GAS CO | 46.1 | 0.0 | 53.9 |
| WGL HOLDINGS INC | 43.1 | 2.2 | 54.8 |
| **AVERAGE** | **43.6** | **0.8** | **55.6** |
| LACLEDE GAS CO | 45.2 | 0.3 | 54.5 |

Source: Standard & Poor's Research Insight.

CAPLDC

**INTEREST COVERAGE RATIOS**
**FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES**
**(1998-2000)**

| | 1998 | 1999 | 2000 | Average (1998-2000) |
|---|---|---|---|---|
| AGL RESOURCES INC | 3.3 | 3.3 | 2.8 | 3.1 |
| ATMOS ENERGY CORP | 3.4 | 1.9 | 2.3 | 2.5 |
| NEW JERSEY RESOURCES | 4.4 | 4.6 | 5.1 | 4.7 |
| NICOR INC | 4.4 | 4.8 | 5.1 | 4.8 |
| NORTHWEST NATURAL GAS CO | 2.4 | 3.2 | 3.2 | 2.9 |
| PEOPLES ENERGY CORP | 4.2 | 4.7 | 3.8 | 4.2 |
| PIEDMONT NATURAL GAS CO | 3.8 | 3.7 | 3.4 | 3.6 |
| WGL HOLDINGS INC | 3.8 | 3.9 | 4.0 | 3.9 |
| **Median** | **3.8** | **3.8** | **3.6** | **3.8** |
| LACLEDE GAS CO | 3.0 | 3.0 | 2.7 | 2.9 |

Source: Standard & Poor's CreditStats

INTCOV

SCHEDULE 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 Index b/ (7) | Corporate Profit Index (8) | Corporate Profit as a % of GDP (9) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1989 | | 100.0 | 100.0 | 100.0 | 100.0 | | 100.0 | | 100.0 | 100.0 |
| 1990 | | 102.1 | 105.7 | 99.8 | 103.6 | 3.6 | 105.4 | 5.4 | 110.9 | 104.5 |
| 1991 | | 101.6 | 109.1 | 97.9 | 107.3 | 3.6 | 109.8 | 4.2 | 120.1 | 109.4 |
| 1992 | | 104.7 | 115.1 | 100.9 | 109.9 | 2.4 | 113.2 | 3.0 | 131.1 | 114.8 |
| 1993 | | 107.5 | 121.0 | 104.3 | 112.6 | 2.4 | 116.5 | 3.0 | 146.6 | 120.7 |
| 1994 | | 111.9 | 128.5 | 110.1 | 114.9 | 2.1 | 119.5 | 2.6 | 164.3 | 127.3 |
| 1995 | | 114.8 | 134.8 | 115.4 | 117.4 | 2.2 | 122.9 | 2.8 | 194.4 | 135.2 |
| 1996 | | 118.9 | 142.3 | 120.7 | 119.7 | 1.9 | 126.5 | 2.9 | 213.6 | 143.9 |
| 1997 | | 124.2 | 151.5 | 129.1 | 121.7 | 1.7 | 129.5 | 2.3 | 236.0 | 153.5 |
| 1998 | | 129.6 | 160.1 | 135.7 | 123.5 | 1.5 | 131.5 | 1.6 | 218.3 | 162.5 |
| 1999 | | 134.9 | 168.9 | 140.7 | 125.2 | 1.4 | 134.4 | 2.2 | 222.4 | 168.3 |
| 2000 | | 140.4 | 179.9 | 147.0 | 128.1 | 2.3 | 138.9 | 3.3 | 243.9 | 179.0 |
| 1999 | 1Q | 133.0 | 165.7 | 135.8 | 124.6 | 1.3 | 132.9 | 1.8 | 216.4 | 164.5 |
| | 2Q | 133.5 | 166.9 | 137.3 | 125.0 | 1.4 | 134.0 | 2.1 | 217.3 | 167.0 |
| | 3Q | 135.1 | 169.4 | 139.0 | 125.4 | 1.3 | 134.9 | 2.4 | 218.9 | 169.5 |
| | 4Q | 137.8 | 173.5 | 141.2 | 125.9 | 1.5 | 135.9 | 2.7 | 237.0 | 172.2 |
| 2000 | 1Q | 138.6 | 176.1 | 143.0 | 127.1 | 2.0 | 137.0 | 3.1 | 241.3 | 174.9 |
| | 2Q | 140.5 | 179.6 | 145.8 | 127.8 | 2.3 | 138.5 | 3.3 | 247.2 | 177.6 |
| | 3Q | 141.0 | 181.0 | 146.9 | 128.4 | 2.4 | 139.6 | 3.5 | 247.9 | 180.3 |
| | 4Q | 141.6 | 182.7 | 149.3 | 129.0 | 2.4 | 140.3 | 3.3 | 239.3 | 183.3 |
| 2001 | 1Q | 142.1 | 184.8 | 144.7 | 130.0 | 2.3 | 141.7 | 3.4 | 220.5 | 185.9 |
| | 2Q | 142.2 | 185.9 | 142.6 | 130.7 | 2.2 | 143.2 | 3.4 | 216.9 | 188.7 |
| | 3Q | 141.7 | 186.3 | 141.0 | 131.4 | 2.3 | 143.4 | 2.7 | 202.1 | 191.4 |

Source: Economic Indicators, prepared by the Council of Economic Advisors

a/ Data are based on Chain Weighted Indexes.
b/ Inflation rate measured against prior year period.

ECOIN

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

| Year | Prime Rate | Government Securities: 3-Month Bills a/ | Government Securities: 10-Year Bonds | Government Securities: 30-Year Bonds b/ | Moody's Utility Bonds: AA | Moody's Utility Bonds: A | Moody's Corporate Bonds: AAA |
|---|---|---|---|---|---|---|---|
| 1976 | 6.84 | 5.00 | 7.61 | 7.86 | 8.92 | 9.29 | 8.43 |
| 1977 | 6.83 | 5.26 | 7.42 | 7.67 | 8.43 | 8.61 | 8.02 |
| 1978 | 9.06 | 7.22 | 8.41 | 8.49 | 9.10 | 9.29 | 8.73 |
| 1979 | 12.67 | 10.04 | 9.44 | 9.29 | 10.22 | 10.49 | 9.63 |
| 1980 | 15.27 | 11.51 | 11.46 | 11.30 | 13.00 | 13.34 | 11.94 |
| 1981 | 18.87 | 14.08 | 13.91 | 13.44 | 15.30 | 15.95 | 14.17 |
| 1982 | 14.86 | 10.69 | 13.00 | 12.76 | 14.79 | 15.86 | 13.79 |
| 1983 | 10.79 | 8.63 | 11.10 | 11.18 | 12.83 | 13.66 | 12.04 |
| 1984 | 12.04 | 9.58 | 12.44 | 12.39 | 13.66 | 14.03 | 12.71 |
| 1985 | 9.93 | 7.49 | 10.62 | 10.79 | 12.06 | 12.47 | 11.37 |
| 1986 | 8.33 | 5.97 | 7.68 | 7.80 | 9.30 | 9.58 | 9.02 |
| 1987 | 8.22 | 5.82 | 8.39 | 8.59 | 9.77 | 10.10 | 9.38 |
| 1988 | 9.32 | 6.69 | 8.85 | 8.96 | 10.26 | 10.49 | 9.71 |
| 1989 | 10.87 | 8.12 | 8.49 | 8.45 | 9.56 | 9.77 | 9.26 |
| 1990 | 10.01 | 7.51 | 8.55 | 8.61 | 9.65 | 9.86 | 9.32 |
| 1991 | 8.46 | 5.42 | 7.86 | 8.14 | 9.09 | 9.36 | 8.77 |
| 1992 | 6.25 | 3.45 | 7.01 | 7.67 | 8.55 | 8.69 | 8.14 |
| 1993 | 6.00 | 3.02 | 5.87 | 6.59 | 7.44 | 7.59 | 7.22 |
| 1994 | 7.23 | 4.34 | 7.08 | 7.37 | 8.21 | 8.31 | 7.96 |
| 1995 | 8.81 | 5.44 | 6.58 | 6.88 | 7.77 | 7.89 | 7.59 |
| 1996 | 8.27 | 5.04 | 6.44 | 6.73 | 7.57 | 7.75 | 7.37 |
| 1997 | 5.44 | 5.11 | 6.32 | 6.58 | 7.54 | 7.60 | 7.26 |
| 1998 | 8.31 | 4.79 | 5.26 | 5.54 | 6.91 | 7.04 | 6.53 |
| 1999 | 8.02 | 4.70 | 5.69 | 5.91 | 7.50 | 7.62 | 7.04 |
| 2000 | 9.27 | 5.85 | 5.99 | 5.91 | 8.04 | 8.22 | 7.62 |
| 2001 | 6.77 | 3.34 | 4.99 | 5.51 | 7.54 | 7.74 | 7.06 |
| 2000 Jan | 8.50 | 5.39 | 6.68 | 6.57 | 8.17 | 8.35 | 7.78 |
| Feb | 8.75 | 5.67 | 6.38 | 6.13 | 7.99 | 8.25 | 7.68 |
| Mar | 9.00 | 5.70 | 6.13 | 5.94 | 7.99 | 8.28 | 7.68 |
| Apr | 9.00 | 5.62 | 6.15 | 5.95 | 8.00 | 8.29 | 7.64 |
| May | 9.50 | 5.73 | 6.42 | 6.14 | 8.44 | 8.70 | 7.99 |
| June | 9.50 | 5.68 | 6.08 | 5.94 | 8.10 | 8.36 | 7.67 |
| July | 9.50 | 6.01 | 6.04 | 5.80 | 8.10 | 8.25 | 7.65 |
| Aug | 9.50 | 6.14 | 5.80 | 5.74 | 7.95 | 8.13 | 7.55 |
| Sep | 9.50 | 6.03 | 5.82 | 5.89 | 8.14 | 8.21 | 7.62 |
| Oct | 9.50 | 6.18 | 5.74 | 5.80 | 8.05 | 8.13 | 7.55 |
| Nov | 9.50 | 6.21 | 5.48 | 5.60 | 7.88 | 7.95 | 7.45 |
| Dec | 9.50 | 5.89 | 5.12 | 5.46 | 7.71 | 7.75 | 7.21 |
| 2001 Jan | 9.00 | 4.99 | 5.19 | 5.54 | 7.63 | 7.73 | 7.15 |
| Feb | 8.50 | 4.73 | 4.90 | 5.33 | 7.55 | 7.68 | 7.10 |
| Mar | 8.00 | 4.20 | 4.97 | 5.46 | 7.61 | 7.82 | 6.98 |
| Apr | 7.50 | 3.95 | 5.34 | 5.78 | 7.80 | 8.01 | 7.20 |
| May | 7.00 | 3.71 | 5.41 | 5.78 | 7.75 | 7.98 | 7.29 |
| June | 6.75 | 3.65 | 5.42 | 5.75 | 7.63 | 7.85 | 7.18 |
| July | 6.75 | 3.54 | 5.07 | 5.51 | 7.41 | 7.68 | 7.13 |
| Aug | 6.50 | 3.35 | 4.84 | 5.48 | 7.32 | 7.47 | 7.02 |
| Sep | 6.00 | 2.38 | 4.59 | 5.48 | 7.52 | 7.76 | 7.17 |
| Oct | 5.50 | 2.05 | 4.25 | 5.27 | 7.25 | 7.36 | 6.96 |
| Nov | 5.00 | 1.80 | 4.79 | 5.24 | 7.53 | 7.71 | 6.97 |
| Dec | 4.75 | 1.71 | 5.07 | 5.48 | 7.42 | 7.77 | 6.61 |

a/ Rates on new issues.

b/ 20-year constant maturities for 1974-1978; 30-year maturities after 1978. Series represents yields on the more actively traded issues adjusted to constant maturities by the U.S. Treasury based on daily closing bids.

Note: Monthly data reflect rate in effect at end of month, except for Moody's data, which reflect monthly average.
Source: Annual Statistical Digest (Federal Reserve System); Federal Reserve Bulletin (various issues).

SCHEDULE 7

## DCF COST OF EQUITY, HISTORIC PAYOUT RATIOS, AND VALUE LINE RETURN ON EQUITY AND PAYOUT FORECASTS FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES
## (Percentages)

| Company | Oct - Dec 2001 Dividend Yield | Long-Term EPS Forecasts I/B/E/S Dec 2001) | Long-Term EPS Forecasts Zacks (Dec 2001) | Cash Flow Growth Per Share Forecast Value Line (Dec 2001) | Average of Forecasts | DCF Cost | Value Line ROE Forecast (2004-2006) | Value Line Historic Dividend Payout (1993-2000) | Value Line Dividend Payout Forecast (2004-2006) |
|---|---|---|---|---|---|---|---|---|---|
| AGL RESOURCES INC | 5.3 | 8.0 | 6.8 | 8.5 | 7.8 | 13.5 | 13.5 | 98.8 | 56.0 |
| ATMOS ENERGY CORP | 5.9 | 6.0 | 6.6 | 5.0 | 5.9 | 12.1 | 13.5 | 93.0 | 66.0 |
| NEW JERSEY RESOURCES | 4.0 | 6.3 | 6.7 | 7.5 | 6.8 | 11.0 | 14.5 | 75.1 | 47.0 |
| NICOR INC | 4.6 | 6.0 | 6.5 | 6.5 | 6.3 | 11.2 | 20.0 | 72.5 | 50.0 |
| NORTHWEST NATURAL GAS | 5.2 | 4.2 | 7.5 | 5.0 | 5.6 | 11.1 | 11.0 | 75.0 | 56.0 |
| PEOPLES ENERGY | 5.7 | 6.0 | 6.8 | 8.0 | 6.9 | 13.0 | 12.0 | 79.9 | 53.0 |
| PIEDMONT NATURAL GAS | 4.7 | 5.0 | 7.0 | 6.0 | 6.0 | 11.0 | 12.0 | 70.3 | 63.0 |
| WGL HOLDINGS INC | 4.7 | 4.0 | 5.7 | 6.5 | 5.4 | 10.3 | 12.0 | 74.2 | 53.0 |
| **Mean** | **5.0** | **5.7** | **6.7** | **6.6** | **6.3** | **11.7** | **13.6** | **79.9** | **55.5** |
| **Median** | **5.0** | **6.0** | **6.7** | **6.5** | **6.2** | **11.1** | **12.8** | **75.1** | **54.5** |

1/ Adjusted dividend yield plus growth;
[DY*(1+(Growth))] + Growth

Source: IBES International, Inc., Zacks, Standard & Poor's Research Insight, Value Line (Dec 21, 2001)

LDCDCF

## MARKET/BOOK AND REPRICED EQUITY/BOOK VALUE RATIOS FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION UTILITIES

| | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | Average 1992-2001 | 2000 Repriced Equity/ Book Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AGL RESOURCES INC | 194 | 190 | 150 | 190 | 181 | 172 | 170 | 140 | 174 | 166 | 173 | 161 |
| ATMOS ENERGY CORP | 160 | 180 | 190 | 186 | 204 | 221 | 230 | 195 | 168 | 151 | 188 | 119 |
| NEW JERSEY RESOURCES | 155 | 185 | 178 | 162 | 181 | 197 | 213 | 217 | 218 | 223 | 193 | 147 |
| NICOR INC | 190 | 205 | 193 | 187 | 223 | 258 | 269 | 213 | 278 | 253 | 227 | 245 |
| NORTHWEST NATURAL GAS CO | 154 | 164 | 159 | 148 | 154 | 175 | 174 | 131 | 148 | 139 | 155 | 156 |
| PEOPLES ENERGY CORP | 165 | 176 | 160 | 146 | 162 | 180 | 178 | 159 | 152 | 166 | 164 | 266 |
| PIEDMONT NATURAL GAS CO | 175 | 213 | 204 | 178 | 183 | 195 | 218 | 195 | 185 | 168 | 191 | 139 |
| WGL HOLDINGS INC | 173 | 194 | 180 | 161 | 169 | 181 | 195 | 165 | 176 | 164 | 176 | 160 |
| **MEDIAN** | **169** | **187** | **179** | **170** | **181** | **188** | **204** | **180** | **175** | **166** | **182** | **158** |
| **AVERAGE OF ANNUAL MEDIANS** | | | | | | | | | | | **182** | |

Source: Standard & Poor's Research Insight

LDCMB

# DERIVATION OF IMPLICIT RELATIONSHIP AMONG "BARE-BONES" 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) by definition, $$g = \frac{RE}{E} \times \frac{E}{B} = \frac{RE}{B}$$

Substitute Equation (5) into Equation (3):

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

Solve for 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):

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

Solve Equation (9) for r:

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

**HISTORIC MARKET EQUITY RISK PREMIUMS**
**(Percentages)**

| | Annual Average Returns | | Risk Premium in Relation to: |
|---|---|---|---|
| | S & P 500 Common Stock Index | Long-Term U.S. Treasury Bonds 1/ | S & P 500 Common Stock Index |
| 1926-2001 | 12.7 | 5.2 | 7.5 |
| 1947-2001 | 13.7 | 6.1 | 7.6 |

| | Annual Average Returns | | Risk Premium in Relation to: |
|---|---|---|---|
| | Moody's Gas Distribution Stock Index | Long-Term U.S. Treasury Bonds | Moody's Gas Distribution Stock Index |
| 1947-2001 | 12.4 | 6.1 | 6.3 |

1/ Average of annual income returns.

Source: Stocks, Bonds, Bills and Inflation: 2000 Yearbook, Ibbotson Associates; Moody's Public Utility Manual.

HRP

## HISTORIC VALUE LINE BETAS FOR SELECTED LOCAL NATURAL GAS DISTRIBUTION COMPANIES

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|---|---|---|
| AGL RESOURCES INC | 0.60 | 0.60 | 0.70 | 0.75 | 0.75 | 0.65 | 0.65 | 0.60 | 0.60 |
| ATMOS ENERGY CORP | 0.50 | 0.55 | 0.60 | 0.65 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| NEW JERSEY RESOURCES | 0.65 | 0.65 | 0.65 | 0.65 | 0.60 | 0.55 | 0.55 | 0.55 | 0.55 |
| NICOR INC | 0.60 | 0.60 | 0.70 | 0.70 | 0.75 | 0.65 | 0.60 | 0.60 | 0.60 |
| NORTHWEST NATURAL GAS | 0.60 | 0.55 | 0.50 | 0.45 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| PEOPLES ENERGY | 0.75 | 0.80 | 0.80 | 0.80 | 0.90 | 0.80 | 0.75 | 0.70 | 0.70 |
| PIEDMONT NATURAL GAS | 0.60 | 0.60 | 0.60 | 0.65 | 0.60 | 0.55 | 0.55 | 0.60 | 0.60 |
| WGL HOLDINGS INC | 0.65 | 0.70 | 0.65 | 0.70 | 0.75 | 0.60 | 0.60 | 0.60 | 0.60 |
| **MEDIAN** | **0.60** | **0.60** | **0.65** | **0.68** | **0.68** | **0.60** | **0.60** | **0.60** | **0.60** |

Source: Value Line

HBETA

# S&P 500
# MARKET RISK PREMIUM STUDY
# (Quarterly Averages of Monthly Data)

| | S&P 500 Growth | Dividend Yield | DCF Cost | 10 Year Treasury Bond Yield | Risk Premium |
|---|---|---|---|---|---|
| 1991 1Q | 11.8 % | 3.2 % | 15.0 % | 8.0 % | 7.0 % |
| 2Q | 11.9 | 3.7 | 15.5 | 8.1 | 7.4 |
| 3Q | 11.9 | 3.3 | 15.2 | 7.9 | 7.2 |
| 4Q | 11.9 | 3.2 | 15.2 | 7.3 | 7.8 |
| 1992 1Q | 12.1 | 3.0 | 15.2 | 7.3 | 7.8 |
| 2Q | 12.0 | 3.4 | 15.4 | 7.4 | 8.0 |
| 3Q | 12.0 | 3.2 | 15.2 | 6.6 | 8.6 |
| 4Q | 12.0 | 2.9 | 15.0 | 6.7 | 8.2 |
| 1993 1Q | 11.8 | 3.0 | 14.8 | 6.3 | 8.5 |
| 2Q | 11.5 | 3.1 | 14.6 | 6.0 | 8.6 |
| 3Q | 11.3 | 3.0 | 14.3 | 5.6 | 8.7 |
| 4Q | 11.3 | 2.7 | 14.0 | 5.6 | 8.4 |
| 1994 1Q | 11.4 | 2.8 | 14.2 | 6.1 | 8.1 |
| 2Q | 11.5 | 3.2 | 14.7 | 7.1 | 7.6 |
| 3Q | 11.6 | 3.0 | 14.6 | 7.3 | 7.3 |
| 4Q | 11.6 | 3.0 | 14.6 | 7.8 | 6.7 |
| 1995 1Q | 11.5 | 2.8 | 14.3 | 7.5 | 6.8 |
| 2Q | 11.6 | 2.9 | 14.5 | 6.6 | 7.9 |
| 3Q | 11.9 | 2.6 | 14.5 | 6.3 | 8.1 |
| 4Q | 12.0 | 2.5 | 14.5 | 5.9 | 8.6 |
| 1996 1Q | 11.9 | 2.3 | 14.2 | 5.9 | 8.3 |
| 2Q | 12.3 | 2.3 | 14.7 | 6.7 | 7.9 |
| 3Q | 12.5 | 2.5 | 15.1 | 6.8 | 8.3 |
| 4Q | 12.8 | 2.1 | 15.0 | 6.3 | 8.6 |
| 1997 1Q | 13.0 | 1.9 | 14.9 | 6.6 | 8.3 |
| 2Q | 13.3 | 1.9 | 15.2 | 6.6 | 8.5 |
| 3Q | 13.7 | 1.7 | 15.4 | 6.2 | 9.3 |
| 4Q | 13.6 | 1.7 | 15.3 | 5.8 | 9.5 |
| 1998 1Q | 13.7 | 1.5 | 15.3 | 5.6 | 9.6 |
| 2Q | 14.0 | 1.5 | 15.5 | 5.6 | 9.9 |
| 3Q | 14.4 | 1.7 | 16.1 | 5.1 | 11.0 |
| 4Q | 14.6 | 1.4 | 16.0 | 4.7 | 11.3 |
| 1999 1Q | 15.7 | 1.4 | 17.0 | 5.0 | 12.0 |
| 2Q | 15.7 | 1.3 | 17.0 | 5.6 | 11.5 |
| 3Q | 16.0 | 1.4 | 17.4 | 5.9 | 11.5 |
| 4Q | 16.9 | 1.2 | 18.1 | 6.3 | 11.8 |
| 2000 1Q | 17.7 | 1.2 | 18.9 | 6.4 | 12.5 |
| 2Q | 17.9 | 1.3 | 19.2 | 6.2 | 13.0 |
| 3Q | 18.6 | 1.2 | 19.8 | 5.9 | 13.9 |
| 4Q | 17.9 | 1.2 | 19.1 | 5.4 | 13.4 |
| 2001 1Q | 16.8 | 1.3 | 18.0 | 5.0 | 13.0 |
| 2Q | 15.8 | 1.3 | 17.1 | 5.4 | 11.3 |
| 3Q | 15.1 | 1.4 | 16.5 | 4.8 | 11.7 |
| 4Q | 14.6 | 1.4 | 16.0 | 4.7 | 11.3 |
| **Averages** | | | | | |
| **1992 - 2001** | **13.5** | **2.2** | **15.7** | **6.3** | **9.4** |
| **1997 - 2001** | **15.5** | **1.4** | **16.9** | **5.6** | **11.2** |
| **1999 - 2001** | **16.6** | **1.3** | **17.9** | **5.6** | **12.2** |

Source: I/B/E/S Rewind, Standard & Poor's Research Insight

SPMRP

**SELECTED U.S. LOCAL NATURAL GAS DISTRIBUTION COMPANIES**
**RISK PREMIUM STUDY**
**(Quarterly Averages of Monthly Data)**

| | Dividend Yields 1/ | I/B/E/S EPS Growth Forecast | DCF Cost | 10-Year Treasury Yield | Risk Premium | Dividend Yield/ Treasury Yield |
|---|---|---|---|---|---|---|
| 1993 1Q | 5.4 | 6.5 | 11.9 | 6.3 | 5.6 | 85.5 |
| 2Q | 5.2 | 6.4 | 11.6 | 6.0 | 5.6 | 87.1 |
| 3Q | 4.9 | 6.5 | 11.4 | 5.6 | 5.8 | 87.6 |
| 4Q | 5.3 | 6.0 | 11.2 | 5.6 | 5.6 | 93.7 |
| 1994 1Q | 5.4 | 5.4 | 10.8 | 6.1 | 4.8 | 89.0 |
| 2Q | 5.8 | 5.6 | 11.4 | 7.1 | 4.3 | 81.7 |
| 3Q | 6.0 | 5.6 | 11.6 | 7.3 | 4.3 | 82.1 |
| 4Q | 6.3 | 5.2 | 11.5 | 7.8 | 3.7 | 80.2 |
| 1995 1Q | 6.1 | 4.9 | 11.0 | 7.5 | 3.5 | 81.0 |
| 2Q | 5.9 | 5.1 | 11.0 | 6.6 | 4.4 | 89.3 |
| 3Q | 5.8 | 5.0 | 10.8 | 6.3 | 4.5 | 92.5 |
| 4Q | 5.4 | 5.1 | 10.5 | 5.9 | 4.6 | 91.7 |
| 1996 1Q | 5.3 | 5.2 | 10.5 | 5.9 | 4.6 | 89.8 |
| 2Q | 5.3 | 5.2 | 10.5 | 6.7 | 3.8 | 78.8 |
| 3Q | 5.2 | 5.3 | 10.5 | 6.8 | 3.7 | 76.5 |
| 4Q | 4.9 | 5.4 | 10.3 | 6.3 | 3.9 | 77.2 |
| 1997 1Q | 5.1 | 5.2 | 10.3 | 6.6 | 3.7 | 76.7 |
| 2Q | 5.0 | 5.2 | 10.2 | 6.6 | 3.5 | 75.4 |
| 3Q | 4.8 | 5.3 | 10.1 | 6.2 | 3.9 | 77.2 |
| 4Q | 4.5 | 5.5 | 10.0 | 5.8 | 4.2 | 77.1 |
| 1998 1Q | 4.5 | 5.9 | 10.3 | 5.6 | 4.7 | 79.2 |
| 2Q | 4.5 | 5.9 | 10.4 | 5.6 | 4.8 | 80.9 |
| 3Q | 4.8 | 6.0 | 10.8 | 5.1 | 5.7 | 93.7 |
| 4Q | 4.4 | 5.8 | 10.2 | 4.7 | 5.4 | 92.6 |
| 1999 1Q | 5.0 | 5.8 | 10.8 | 5.0 | 5.7 | 99.4 |
| 2Q | 4.9 | 5.6 | 10.6 | 5.6 | 5.0 | 88.9 |
| 3Q | 4.9 | 5.6 | 10.5 | 5.9 | 4.5 | 82.1 |
| 4Q | 5.1 | 5.5 | 10.6 | 6.3 | 4.3 | 80.6 |
| 2000 1Q | 5.8 | 5.4 | 11.3 | 6.4 | 4.9 | 91.1 |
| 2Q | 5.7 | 5.3 | 11.0 | 6.2 | 4.8 | 91.3 |
| 3Q | 5.3 | 5.7 | 11.1 | 5.9 | 5.2 | 91.1 |
| 4Q | 4.8 | 5.7 | 10.5 | 5.4 | 5.1 | 88.1 |
| 2001 1Q | 4.9 | 5.7 | 10.6 | 5.0 | 5.6 | 97.6 |
| 2Q | 4.8 | 5.6 | 10.4 | 5.4 | 5.0 | 89.1 |
| 3Q | 5.0 | 6.1 | 11.1 | 4.8 | 6.3 | 103.3 |
| 4Q | 4.9 | 5.8 | 10.7 | 4.7 | 6.0 | 104.3 |
| **Averages** | | | | | | |
| **1993-2001** | **5.2** | **5.6** | **10.8** | **6.0** | **4.8** | **86.8** |
| **1999-2001** | **5.1** | **5.7** | **10.8** | **5.6** | **5.2** | **92.2** |

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

Note: Values reflect quarterly averages of monthly data used in the analysis.
4Q 2001 is through Nov

Source: Standard & Poor's Research Insight, I/B/E/S International, Inc.,
U.S. Federal Reserve Statistical Release

LDCMRP

# RETURNS ON EQUITY AND BETAS
# FOR 34 LOW RISK U.S. INDUSTRIALS

| | Returns on Equity | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | Average 1991-2000 | Value Line Forecast 2004-2006 ROE | Value Line Beta |
| ALBERTO-CULVER CO | 12.5 | 14.4 | 14.1 | 14.1 | 15.1 | 15.8 | 18.5 | 16.1 | 15.6 | 17.1 | 15.3 | 13.0 | 0.80 |
| ALBERTSONS INC | 22.5 | 21.3 | 24.5 | 27.1 | 25.5 | 23.5 | 22.2 | 21.7 | 10.0 | 13.4 | 21.2 | 15.5 | 0.65 |
| AMERICAN HOME PRODUCTS CORP | 46.0 | 33.5 | 39.5 | 37.6 | 34.3 | 30.1 | 27.0 | 27.8 | -15.5 | -52.5 | 20.8 | 92.5 | 0.85 |
| AVERY DENNISON CORP | 7.5 | 9.8 | 10.9 | 15.1 | 18.6 | 21.4 | 24.5 | 26.7 | 26.2 | 34.6 | 19.5 | 20.5 | 0.95 |
| BALDOR ELECTRIC | 9.3 | 10.9 | 12.7 | 15.3 | 16.3 | 17.1 | 18.2 | 17.6 | 16.5 | 17.6 | 15.1 | 15.5 | 0.70 |
| BARD (C.R.) INC | 16.2 | 19.8 | 16.0 | 18.2 | 17.3 | 15.9 | 12.3 | 44.2 | 20.7 | 18.0 | 19.9 | 23.5 | 0.85 |
| BECTON DICKINSON & CO | 14.5 | 13.5 | 13.8 | 15.4 | 17.4 | 20.8 | 22.2 | 15.8 | 16.4 | 21.2 | 17.1 | 18.5 | 0.80 |
| BRIGGS & STRATTON | 13.1 | 17.3 | 20.9 | 26.8 | 24.9 | 19.7 | 14.5 | 21.2 | 31.1 | 35.2 | 22.5 | 19.5 | 0.95 |
| CLOROX CO/DE | 6.6 | 14.7 | 19.7 | 23.7 | 21.7 | 23.7 | 25.3 | 28.1 | 18.5 | 23.4 | 20.6 | 20.0 | 0.85 |
| CONAGRA FOODS INC | 17.2 | 17.1 | 19.3 | 20.0 | 7.6 | 26.0 | 23.9 | 12.6 | 13.2 | 19.9 | 17.7 | 19.0 | 0.70 |
| CURTISS-WRIGHT CORP | 16.1 | 14.7 | -2.0 | 12.9 | 11.0 | 9.1 | 14.4 | 13.4 | 16.0 | 15.0 | 12.1 | 10.0 | 0.60 |
| DENTSPLY INTERNATL INC | 12.5 | 22.5 | 18.1 | 23.1 | 17.5 | 19.7 | 18.9 | 8.3 | 20.4 | 20.4 | 18.2 | 20.0 | 0.65 |
| DONALDSON CO INC | 18.0 | 17.2 | 16.9 | 17.6 | 18.8 | 19.3 | 21.4 | 22.8 | 24.1 | 25.9 | 20.2 | 25.0 | 0.80 |
| DONNELLEY (R R) & SONS CO | 12.3 | 13.1 | 9.7 | 14.1 | 14.4 | -8.3 | 8.1 | 20.4 | 25.3 | 22.5 | 13.2 | 27.0 | 0.85 |
| EASTMAN KODAK CO | 0.3 | 15.7 | 13.5 | 22.3 | 27.4 | 26.1 | 0.1 | 38.9 | 35.2 | 38.3 | 21.8 | 21.5 | 0.85 |
| EATON CORP | 6.5 | 13.3 | 17.5 | 23.9 | 21.8 | 16.9 | 21.9 | 16.9 | 26.4 | 18.0 | 18.3 | 15.5 | 0.90 |
| ECOLAB INC | -69.6 | 20.0 | 21.2 | 20.2 | 21.6 | 23.2 | 25.0 | 31.0 | 24.2 | 27.5 | 14.4 | 27.0 | 0.90 |
| FEDERAL SIGNAL CORP | 20.0 | 20.0 | 21.0 | 22.3 | 22.0 | 23.8 | 20.6 | 19.1 | 17.0 | 16.4 | 20.2 | 18.0 | 0.80 |
| HILLENBRAND INDUSTRIES | 19.2 | 20.3 | 24.6 | 13.4 | 12.5 | 18.3 | 18.8 | 20.0 | 13.9 | 18.5 | 17.9 | 17.0 | 0.80 |
| INTL FLAVORS & FRAGRANCES | 18.2 | 18.2 | 21.7 | 23.8 | 23.4 | 17.3 | 21.0 | 20.9 | 18.0 | 16.5 | 19.9 | 23.5 | 0.80 |
| JOHNSON CONTROLS INC | 8.3 | 10.3 | 11.5 | 13.9 | 14.9 | 16.1 | 17.7 | 18.4 | 19.6 | 19.4 | 15.0 | 15.5 | 0.90 |
| KNIGHT-RIDDER INC | 12.9 | 12.5 | 12.2 | 13.9 | 14.3 | 23.9 | 30.8 | 22.8 | 18.9 | 18.3 | 18.1 | 18.5 | 0.80 |
| LA-Z-BOY INC | 10.6 | 10.7 | 12.5 | 11.8 | 11.8 | 12.9 | 13.4 | 16.5 | 16.3 | 10.1 | 12.6 | 12.5 | 0.85 |
| LIZ CLAIBORNE INC | 27.5 | 22.9 | 12.7 | 8.4 | 12.9 | 15.5 | 19.0 | 17.8 | 20.4 | 21.3 | 17.8 | 15.0 | 0.95 |
| MCCORMICK & CO | 21.5 | 23.0 | 22.0 | 12.8 | 19.3 | 10.3 | 23.3 | 26.6 | 26.8 | 37.1 | 22.3 | 32.5 | 0.55 |
| PALL CORP | 17.2 | 17.5 | 14.4 | 17.5 | 19.2 | 20.0 | 8.6 | 11.8 | 6.9 | 19.7 | 15.3 | 17.5 | 0.80 |
| PROCTER & GAMBLE CO | 22.4 | 21.4 | 2.1 | 26.4 | 26.6 | 26.9 | 28.4 | 30.8 | 30.6 | 28.8 | 24.4 | 27.0 | 0.70 |
| SENSIENT TECHNOLOGIES CORP | 21.6 | 14.0 | 18.6 | 16.1 | 19.2 | 12.4 | 17.7 | 18.5 | 19.1 | 14.0 | 17.1 | 16.5 | 0.60 |
| SHERWIN-WILLIAMS CO | 15.7 | 16.3 | 17.0 | 17.9 | 17.7 | 17.5 | 17.4 | 16.5 | 17.8 | 1.0 | 15.5 | 17.0 | 0.95 |
| SIGMA-ALDRICH | 19.7 | 20.0 | 19.4 | 17.1 | 17.3 | 16.7 | 16.6 | 14.6 | 13.9 | 30.2 | 18.6 | 14.0 | 0.75 |
| SONOCO PRODUCTS CO | 17.6 | 14.5 | 20.0 | 19.1 | 22.3 | 21.2 | -0.1 | 23.0 | 21.8 | 19.5 | 17.9 | 19.5 | 0.90 |
| SUPERIOR INDUSTRIES INTL | 19.2 | 23.8 | 28.8 | 29.9 | 24.7 | 19.5 | 20.6 | 17.5 | 21.3 | 21.2 | 22.6 | 10.0 | 0.75 |
| UNIVERSAL CORP/VA | 6.1 | 20.5 | 22.3 | 9.7 | 6.7 | 17.7 | 22.7 | 27.8 | 23.4 | 22.0 | 17.9 | 17.0 | 0.60 |
| WENDY'S INTERNATIONAL INC | 11.2 | 12.9 | 14.0 | 15.2 | 14.7 | 16.6 | 11.6 | 11.0 | 15.6 | 15.5 | 13.8 | 15.0 | 0.75 |
| **Median** | **15.9** | **17.2** | **17.3** | **17.5** | **18.2** | **18.8** | **19.0** | **19.6** | **19.0** | **19.6** | **18.0** | **18.3** | **0.80** |
| **Average** | | | | | | | | | | | **18.1** | **20.9** | **0.79** |
| **Average of Annual Medians** | | | | | | | | | | | **18.5** | | |

Source: Standard & Poor's Research Insight, Value Line.

USIND34

## S&P DEBT RATINGS AND VALUE LINE RISK MEASURES FOR 34 LOW RISK INDUSTRIALS

| | S&P Debt Rating | Value Line Risk Measures: Safety Rating | Earning Predictability | Financial Strength | Beta |
|---|---|---|---|---|---|
| ALBERTO-CULVER CO | BBB+ | 2 | 100 | B++ | 0.75 |
| ALBERTSONS INC | BBB+ | 2 | 90 | A | 0.60 |
| AMERICAN HOME PRODUCTS CORP | A | 2 | 85 | A+ | 0.90 |
| AVERY DENNISON CORP | A | 2 | 65 | B+ | 0.90 |
| BALDOR ELECTRIC | | 2 | 90 | B++ | 0.70 |
| BARD (C.R.) INC | BBB+ | 2 | 85 | A | 0.80 |
| BECTON DICKINSON & CO | A+ | 2 | 90 | A+ | 0.80 |
| BRIGGS & STRATTON | BBB- | 2 | 45 | A | 0.95 |
| CLOROX CO/DE | A+ | 2 | 100 | A+ | 0.85 |
| CONAGRA FOODS INC | BBB+ | 2 | 95 | A | 0.70 |
| CURTISS-WRIGHT CORP | | 2 | 75 | B++ | 0.60 |
| DENTSPLY INTERNATL INC | BBB+ | 2 | 95 | B++ | 0.65 |
| DONALDSON CO INC | | 2 | 95 | B++ | 0.80 |
| DONNELLEY (R R) & SONS CO | A | 2 | 80 | B++ | 0.85 |
| EASTMAN KODAK CO | A+ | 2 | 70 | A+ | 0.80 |
| EATON CORP | A- | 2 | 65 | A | 0.90 |
| ECOLAB INC | A | 2 | 100 | B++ | 0.85 |
| FEDERAL SIGNAL CORP | | 2 | 85 | A | 0.85 |
| HILLENBRAND INDUSTRIES | A+ | 2 | 70 | A | 0.80 |
| INTL FLAVORS & FRAGRANCES | | 2 | 80 | B++ | 0.85 |
| JOHNSON CONTROLS INC | A- | 2 | 100 | A | 0.90 |
| KNIGHT-RIDDER INC | A | 2 | 45 | B++ | 0.80 |
| LA-Z-BOY INC | | 2 | 80 | B++ | 0.85 |
| LIZ CLAIBORNE INC | BBB | 2 | 90 | A+ | 0.95 |
| MCCORMICK & CO | A- | 2 | 80 | B++ | 0.55 |
| PALL CORP | | 2 | 40 | A | 0.80 |
| PROCTER & GAMBLE CO | AA | 2 | 100 | A++ | 0.70 |
| SENSIENT TECHNOLOGIES CORP | BBB | 2 | 90 | B++ | 0.60 |
| SHERWIN-WILLIAMS CO | A | 2 | 95 | A | 0.95 |
| SIGMA-ALDRICH | | 2 | 90 | A | 0.75 |
| SONOCO PRODUCTS CO | A- | 2 | 95 | A | 0.90 |
| SUPERIOR INDUSTRIES INTL | | 2 | 70 | B++ | 0.80 |
| UNIVERSAL CORP/VA | | 2 | 50 | A | 0.60 |
| WENDY'S INTERNATIONAL INC | BBB+ | 2 | 90 | A | 0.75 |
| **AVERAGE** | **A-** | **2** | **82** | **A-** | **0.79** |
| **MEDIAN** | **A-** | **2** | **88** | **A** | **0.80** |

Source: S&P Research Insight, S&P Bond Guide, Value Line.

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JAN 2 5 2002

Missouri Public Service Commission

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

| | | |
|---|---|---|
| In the Matter of Laclede Gas Company's Tariff to Revise Natural Gas Rate Schedules. | ) ) ) | Case No. GR-2002-356 |

AFFIDAVIT

STATE OF MISSOURI )
) SS.
CITY OF ST. LOUIS )

Kenneth M. Beerup, Jr., of lawful age, being first duly sworn, deposes and states:

1. My name is Kenneth M. Beerup, Jr. My business address is 720 Olive Street, St. Louis, Missouri 63101; and I am Manager, General Accounting for Laclede Gas Company.

2. Attached hereto and made part hereof for all purposes is my direct testimony, consisting of pages 1 to 3, inclusive; and Section A - Schedule 9.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded and the information contained in the attached schedules are true and correct to the best of my knowledge and belief.

Kenneth M. Beerup, Jr.

Subscribed and sworn to before me this 24th day of January, 2002.

Susan M. Kopp

SUSAN M. KOPP
Notary Public — Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Dec. 19, 2003