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Issue:	*Capital Structure/Rate of Return*
Witness:	*David Murray*
Sponsoring Party:	*MoPSC Staff*
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Case No.:	*GR-2004-0209*
Date Testimony Prepared:	*April 15, 2004*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

DAVID MURRAY

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

Jefferson City, Missouri
April 2004

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's Tariffs to Implement a General Rate Increase for Natural Gas Service	)))	Case No. GR-2004-0209

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

David Murray, being of lawful age, on his oath states: that he has participated in the preparation of the following direct testimony in question and answer form, consisting of 35 pages to be presented in the above case; that the answers in the following direct testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

David Murray

David Murray

Subscribed and sworn to before me this 14th day of April 2004.

Toni M Charlton

TONI M. CHARLTON
NOTARY SEAL
NOTARY PUBLIC
STATE OF MISSOURI

TONI M. CHARLTON
NOTARY PUBLIC STATE OF MISSOURI
COUNTY OF COLE
My Commission Expires December 28, 2004

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DIRECT TESTIMONY

OF

DAVID MURRAY

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

Q. Please state your name.

A. My name is David Murray.

Q. Please state your business address.

A. My business address is P.O. Box 360, Jefferson City, Missouri 65102.

Q. What is your present occupation?

A. I am employed as a Utility Regulatory Auditor III for the Missouri Public Service Commission (Commission). I accepted the position of a Public Utility Financial Analyst in June 2000 and have since had my position reclassified to my current title.

Q. Were you employed before you joined the Commission's Staff (Staff)?

A. Yes, I was employed by the Missouri Department of Insurance in a regulatory position.

Q. What is your educational background?

A. In May 1995, I earned a Bachelor of Science degree in Business Administration with an emphasis in Finance and Banking, and Real Estate from the University of Missouri-Columbia. I earned a Masters in Business Administration from Lincoln University in December 2003.

Q. Have you filed testimony in other cases before this Commission?

A. Yes. Please see Attachment A for a list of these cases.

Q. Have you made recommendations in any other cases before this Commission?

A. Yes, I have made recommendations on finance, merger and acquisition cases before this Commission.

Q. What is the purpose of your testimony in this case?

A. My testimony is presented to recommend to the Commission a fair and reasonable rate of return for Southern Union Company's (Southern Union) Missouri Gas Energy (MGE) division's natural gas utility rate base.

Q. Have you prepared any schedules as part of your analysis of the cost of capital for MGE's natural gas utility operations?

A. Yes. I am sponsoring a study entitled "An Analysis of the Cost of Capital for Missouri Gas Energy, Case No. GR-2004-0209" consisting of 25 schedules which are attached to this direct testimony (see Schedule 1).

Q. What do you conclude is the cost of capital for MGE?

A. The cost of capital for MGE is in the range of 6.68 to 6.94 percent.

Economic and Legal Rationale for Regulation

Q. Why are the prices charged to customers by utilities such as MGE regulated?

A. A primary purpose of price regulation is to restrain the exercise of monopoly power. Monopoly power represents the ability to charge excessive or unduly discriminatory prices. Monopoly power may arise from the presence of economies of scale and/or from the granting of a monopoly franchise.

For services that operate efficiently and have the ability to achieve economies of scale, a monopoly is the most efficient form of market organization. Utility companies can supply service at lower costs if the duplication of facilities by competitors is avoided. This allows the use of larger and more efficient equipment and results in lower per unit costs. For instance, it may cost more to have two or more competing companies maintaining natural gas utility distribution systems and providing competing residential services to one household. This situation could result in price wars and lead to unsatisfactory and perhaps irregular service. For these reasons, exclusive rights may be granted to a single utility to provide service to a given territory. This also creates a more stable environment for operating the utility company. Utility regulation acts as a substitute for the economic control of market competition and allows the consumer to receive adequate utility service at a reasonable price.

Natural gas utility providers such as MGE provide natural gas utility services essentially under a monopoly franchise. Therefore, it is clear that MGE has monopoly power.

Another purpose of price regulation is to provide the utility company with an opportunity to earn a fair return on its capital, particularly on investments made as a result of a monopoly franchise.

Q. Please describe your understanding of the basis you must use when determining a fair and reasonable return for a public utility.

A. Several landmark decisions by the U.S. Supreme Court provide the framework for regulation and for what constitutes a fair and reasonable rate of return for a public utility. Listed below are some of the cases:

1. Munn v. People of Illinois (1877);
2. Bluefield Water Works and Improvement Company (1923);
3. Natural Gas Pipeline Company of America (1942); and
4. Hope Natural Gas Company (1944).

In the case of Munn v. People of Illinois, 94 U.S. 113 (1877), the Court found that:

> . . . when private property is "affected with a public interest, it ceases to be *juris privati* only" . . . . Property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created. Id at 126.

The Munn decision is important because it states the basis for regulation of both utility and non-utility industries.

In the case of Bluefield Water Works and Improvement Company v. Public Service Commission of the State of West Virginia, 262 U.S. 679 (1923), the Supreme Court ruled that a fair return would be:

1. A return "generally being made at the same time" in that "general part of the country;"
2. A return achieved by other companies with "corresponding risks and uncertainties;" and
3. A return "sufficient to assure confidence in the financial soundness of the utility."

The Court specifically stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally. Id. at 692-3.

In Federal Power Commission et al. v. Natural Gas Pipeline Company of America et al., 315 U.S. 575 (1942), the Court decided that:

> The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas . . . . If the Commission's order, as applied to the facts before it and viewed in its entirety, produces no arbitrary result, our inquiry is at an end. Id. at 586.

The U.S. Supreme Court also discussed the reasonableness of a return for a utility in the case of Federal Power Commission et al. v. Hope Natural Gas Company, 320 U.S. 591 (1944). The Court stated that:

> The rate-making process . . . , i.e., the fixing of "just and reasonable" rates, involves a balancing of the investor and the consumer interests. Thus we stated . . . that "regulation does not insure that the business shall produce net revenues" . . . it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock . . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. Id. at 603.

The Hope case restates the concept of comparable returns to include those achieved by any other enterprises that have "corresponding risks." The Supreme Court also noted in this case that regulation does not guarantee profits to a utility company.

A more recent case heard by the Supreme Court of Pennsylvania discusses the Hope case decision as it relates to balancing the interests of the investors and the consumers. The Supreme Court of Pennsylvania stated that:

> We do not believe, however, . . . that the end result of a rate-making body's adjudication *must* be the setting of rates at a level that will, in any given case, guarantee the continued financial integrity of the utility concerned . . . . In cases where the balancing of consumer interests against the interests of investors causes rates to be set at a "just and reasonable" level which is insufficient to ensure the continued financial integrity of the utility, it may simply be said that

> the utility has encountered one of the risks that imperil any business enterprise, namely the risk of financial failure. Pennsylvania Electric Company, et al. v. Pennsylvania Public Utility Commission, 502 A.2d 130, 133-34 (1985), cert. denied, 476 U.S. 1137 (1986).

I included the Pennsylvania Electric Company case in my testimony to illustrate a point, which is simply this: captive ratepayers of public utilities should not be forced to pay higher rates to ensure the continued financial integrity of a utility if it is deemed that to do so would result in unreasonable rates. It should be noted that I do not believe that utility companies should be casually subjected to risk of financial failure in a rate case proceeding. However, I do not believe it would always be appropriate for a regulatory agency to provide sufficient funds for management to continue operations, no matter what the costs are to the ratepayers.

Through these and other court decisions, it has generally been recognized that public utilities can operate more efficiently when they operate as monopolies. It has also been recognized that regulation is required to offset the lack of competition and maintain prices at a reasonable level. It is the regulatory agency's duty to determine a fair rate of return and the appropriate revenue requirement for the utility, while maintaining reasonable prices for the public consumer.

Cost of Common Equity and Fair Rate of Return

Q. Is the recommendation of the cost of common equity consistent with a fair rate of return?

A. Yes. It is generally recognized that authorizing an allowed return based on a utility's cost of capital is consistent with a fair rate of return. It is this very reason that the Discounted Cash Flow (DCF) model, which will be described in more detail later in my testimony, is widely recognized as an appropriate model to utilize in arriving at a reasonable recommended return on equity that should be authorized for a utility. The concept underlying the DCF model is to determine the cost of common equity capital to the utility, which reflects the current economic and capital market environment. For example, a company may achieve a return on common equity higher than its cost of common equity. This situation will tend to achieve an increase in its share price. However, this does not mean that this past achieved return is the barometer for what would be a fair authorized return in the context of a rate case. It is the lower cost of capital that should be recognized as a fair authorized return. If a utility continues to be allowed a return on common equity that is not reflective of today's current low cost of capital environment, then this will result in the possibility of excessive returns.

The authorized return should provide a fair and reasonable return to the investors of the company, while ensuring that excessive earnings do not result from the utility's monopolistic powers. However, this fair and reasonable rate does not necessarily guarantee revenues or the continued financial integrity of the utility.

It should be noted that a reasonable return may vary over time as economic, such as the level of interest rates, and business conditions change. Therefore, the past, present and projected economic and business conditions must be analyzed in order to calculate a fair and reasonable rate of return.

<u>Historical Economic Conditions</u>

Q. Please discuss the relevant historical economic conditions in which MGE has operated.

A. One of the most commonly accepted indicators of economic conditions is the discount rate set by the Federal Reserve Board (Federal Reserve). The Federal Reserve tries to achieve its monetary policy objectives by controlling the discount rate (the interest rate charged by the Federal Reserve for loans of reserves to depository institutions) and the Federal (Fed) Funds Rate (the overnight lending rate between banks). However, recently the Fed Funds Rate has become the primary means for the Federal Reserve to achieve its monetary policy and the discount rate has become more of a symbolic interest rate. At the end of 1982, the U.S. economy was in the early stages of an economic expansion, following the longest post-World War II recession. This economic expansion began when the Federal Reserve reduced the discount rate seven times in the second half of 1982 in an attempt to stimulate the economy. This reduction in the discount rate led to a reduction in the prime interest rate (the rate charged by banks on short-term loans to borrowers with high credit ratings) from 16.50 percent in June 1982, to 11.50 percent in December 1982. The economic expansion continued for approximately eight years until July 1990, when the economy entered into a recession.

In December 1990, the Federal Reserve responded to the slumping economy by lowering the discount rate to 6.50 percent (see Schedules 2-1 and 2-2). Over the next year-and-a-half, the Federal Reserve lowered the discount rate another six times to a low of 3.00 percent, which had the effect of lowering the prime interest rate to 6.00 percent (see Schedules 3-1 and 3-2).

In 1993, perhaps the most important factor for the U.S. economy was the passage of the North American Free Trade Agreement (NAFTA). NAFTA created a free trade zone consisting of the United States, Canada and Mexico. The rate of economic growth for the fourth quarter of 1993 was one the Federal Reserve believed could not be sustained without experiencing higher inflation. In the first quarter of 1994, the Federal Reserve took steps to try to restrict the economy by increasing interest rates. As a result, on March 24, 1994, the prime interest rate increased to 6.25 percent. On April 18, 1994, the Federal Reserve announced its intention to raise its targeted interest rates, which resulted in the prime interest rate being increased to 6.75 percent. The Federal Reserve took action on May 17, 1994, by raising the discount rate to 3.50 percent. The Federal Reserve took three additional restrictive monetary actions with the last occurring on February 1, 1995. These actions raised the discount rate to 5.25 percent, and in turn, banks raised the prime interest rate to 9.00 percent.

The Federal Reserve then reversed its policy in late 1995 by lowering its target for the Fed Funds Rate by 0.25 percentage points on two different occasions. This had the effect of lowering the prime interest rate to 8.50 percent. On January 31, 1996, the Federal Reserve lowered the discount rate to a rate of 5.00 percent.

The actions of the Federal Reserve from 1996 through 2000 were primarily focused on keeping the level of inflation under control, and it was successful. The inflation rate, as measured by the *Consumer Price Index - All Urban Consumers* (CPI), was at a high of 3.70 percent in March 2000. The increase in CPI stood at 1.90 percent for the twelve months ending January 31, 2004 (see attached Schedule 6). Although inflation has not been a problem recently, the unemployment rate has shown some signs that the job market has loosened, meaning unemployment has increased. While not as high as the January 1993 level of 7.3 percent, the unemployment rate now stands at 5.6 percent as of February 2004 (see Schedule 6).

The combination of low inflation and low unemployment had led to a prosperous economy, until recently, as evidenced by the real gross domestic product (GDP) of the United States. From 1993 through the end of 2000, real GDP had increased every quarter.

However, GDP data for the first three quarters of 2001 indicate there was a contraction in the economy during these three quarters. This contraction of GDP for more than two quarters in a row meets the textbook definition of a recession. According to the National Bureau of Economic Research, the recession began in March of 2001 and ended eight months later. Since the recession ended, GDP had been low, but has recently shown signs of improvement as illustrated in the fourth quarter of 2003 when it grew by 4.10 percent (see attached Schedule 6).

After raising the Fed Funds Rate six times in 1999 and 2000 to hold down inflation in a rapidly growing economy, Federal Reserve policy-makers began expressing concern about a slowdown in December 2000. On January 3, 2001, the Federal Open Market Committee lowered the Fed Funds Rate by 50 basis points to 6.00 percent. In a related action, the Board of Governors approved a decrease in the discount rate to 5.75 percent. These actions were taken in light of further weakening of sales and production, and in the context of lower consumer confidence, tight conditions in some segments of financial markets, slowing of real GDP and high energy prices sapping household and business purchasing power. On January 31, 2001, the Federal Reserve again lowered the Fed Funds Rate by 50 basis points to 5.50 percent in an attempt to provide lower rates for many business and consumer loans. At the same time, the discount rate was also lowered by 50 basis points to 5.00 percent (see attached Schedule 2-1). In cutting its benchmark rate by a full point in the first month of 2001, the Federal Reserve had taken its most aggressive action to boost the economy since December 1991. The Federal Reserve justified its actions by citing eroding consumer and business confidence and rising energy costs.

The Federal Reserve cut the Fed Funds Rate a total of eleven times in 2001 with the last rate cut occurring on December 11, 2001, when it lowered the Fed Funds Rate to 1.75 percent. The Federal Reserve announced on May 7, 2002, "it would wait for stronger final demand before raising interest rates." The Federal Reserve also noted that inflationary pressures remained subdued, in part because of excellent productivity gains. Therefore, as of May 7, 2002, the Fed Funds Rate remained at 1.75 percent with the discount rate remaining at 1.25 percent. However, on November 6, 2002, the Federal Reserve lowered the Fed Funds Rate to 1.25 percent and kept it at this level until June 25, 2003, when it decided to lower the rate to 1.00 percent, a quarter of a percentage point less than some analysts had expected.

On March 17, 2004, the Federal Reserve kept its interest rate target at a 46-year low of 1.00 percent. The Fed indicated that it can be "patient" about raising rates because of low inflation, ample unused factory capacity and still-high unemployment. The Fed also indicated that the risks to economic growth remain "roughly equal" while the risk of an "unwelcome fall in inflation" was "almost equal" to that of a rise in inflation (*Wall Street Journal,* p. A1 and A2, March 17, 2004). Long-term interest rates have fallen recently as well. Yields on Thirty-Year U.S. Treasury Bonds decreased to 4.71 percent on March 15, 2004, from 5.16 percent as of October 2003. This compares to a low of 4.37 percent as of June 2003 (see attached Schedule 5-2 and Schedule 6).

In light of the above interest rate activity, it is important to reflect on the results of the major stock market indexes in the past year. According to the January 16, 2004, issue of the *The Value Line Investment Survey: Selection & Opinion*, for the calendar year 2003, the Dow Jones Industrial Average (DJIA) increased 25.3 percent, the S&P 500 increased 26.4 percent, the Nasdaq Composite Index (NASDAQ) increased 50.0 percent and the Dow Jones Utility

Average (DJUA) increased 24.0 percent. According to the same publication, for the fourth quarter of 2003, the DJIA increased 12.7 percent, the S&P 500 increased 11.6 percent, the NASDAQ increased 12.1 percent and the DJUA increased 6.5 percent. According to the April 1, 2004, issue of the *Wall Street Journal*, page C12, for the first quarter of 2004, the DJIA decreased 0.9 percent, the S&P increased 1.3 percent and the NASDAQ decreased 0.5 percent. According to closing quotes obtained from *Wall Street City's* website, the DJUA increased 4.7 percent.

These economic changes have resulted in cost of capital changes for utilities and are closely reflected in the yields on public utility bonds and yields of Thirty-Year U.S. Treasury Bonds (see attached Schedules 5-1 and 5-2). Schedule 5-3, attached to this direct testimony, shows how closely the Mergent's "Public Utility Bond Yields" have followed the yields of Thirty-Year U.S. Treasury Bonds during the period from 1988 to the present. The average spread for this period between these two composite indices has been 139 basis points, with the spread ranging from a low of 80 basis points to a high of 250 basis points (see attached Schedule 5-4). These spread parameters can be utilized with numerous published forecasts of Thirty-Year U.S. Treasury Bond yields to estimate future long-term debt costs for utility companies.

Economic Projections

Q. What are the inflationary estimations and expectations for 2003 through 2005?

A. *The Value Line Investment Survey: Selection & Opinion*, November 28, 2003, estimates inflation to be 2.1 percent for 2003, 2.0 percent for 2004 and 2.1 percent for 2005. The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years*

2005-2014, issued January 31, 2004, states that inflation is expected to be 2.3 percent for 2003, 1.6 percent for 2004 and 1.7 percent for 2005 (see attached Schedule 6).

Q. What are the interest rate estimates and forecasts for 2003, 2004 and 2005?

A. Short-term interest rates, those measured by Three-Month U.S. Treasury Bills, are estimated to be 1.0 percent in 2003, 1.2 percent in 2004 and 1.7 percent in 2005 according to Value Line's predictions. Value Line expects long-term interest rates, those measured by the Thirty-Year U.S. Treasury Bond, to average 4.9 percent in 2003, 5.5 percent in 2004 and 6.0 percent in 2005.

The current rate for the period ending February 2004 is 0.94 percent for 3-month Treasury Bills, as noted on the Federal Reserve website, http://www.stls.frb.org/fred/data/rates.html. The rate for 30-Year U.S. Treasury Bonds was 4.71 percent as of March 15, 2004, as quoted on Investopedia at: http://investopedia.com.

Q. What are the growth estimates and expectations for real GDP?

A. GDP is a benchmark utilized by the Commerce Department to measure economic growth within the United States' borders. Real GDP is measured by the actual Gross Domestic Product, adjusted for inflation. Value Line stated that real GDP growth is expected to increase by 2.9 percent in 2003, 4.2 percent in 2004 and 3.6 percent in 2005. The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2005-2014*, stated that real GDP is expected to increase by 3.2 percent in 2003, 4.8 percent in 2004 and 4.2 percent in 2005 (see attached Schedule 6).

Q. Please summarize the expectations of the economic conditions for the next few years.

A. In summary, when combining the previously mentioned sources, inflation is expected to be in the range of 1.6 to 2.3 percent, increase in real GDP in the range of 2.9 to 4.8 percent and long-term interest rates are expected to range from 4.9 to 6.0 percent.

The Value Line Investment Survey: Selection & Opinion, March 26, 2004, states that:

> **The economy is getting support along a number of fronts.** Recently, for example, we have seen a jump in industrial production, a rise in factory usage, and continued high levels of homebuilding. This resilience by the economy comes in spite of the severe winter storms and low temperatures that gripped much of the country in January and February. In fact, the gross domestic product should still rise by 4%, or more, this quarter. Although that is a healthy rate of growth, the Federal Reserve's recent decision to leave interest rates unchanged clearly implies that it isn't an excessive one, especially in light of the sluggish pace of new hiring.
>
> **This favorable overall economic pattern is likely to continue for the balance of the year.** However, given the maturing nature of the business expansion (which is now in its third year), it is possible that the industrial arena will show greater strength than the retail and housing sectors. GDP growth in the aggregate is likely to average more than 4% in 2004.
>
> **The broad nature of the business expansion should help to underpin a revival in corporate earnings.** In fact, the ever-more inclusive nature of the upturn suggests that even such earlier laggards as the high-tech and metals groups will show improvement as well. We estimate U.S. corporate earnings will increase by 10%-15% in 2004.
>
> **Solid economic growth, higher earnings, and low interest rates are likely to be supportive of a rising stock market.** It has been this very combination—which has been in place for more than a year—that has helped lift the leading averages sharply off of their multiyear bear market lows. The market's recovery through early this year came despite the increasing instances of international terrorism.
>
> **Meanwhile, the stock market's more recent slide has helped lower previously inflated P/E ratios.** The more modest valuations, coupled with a positive economic and earnings backdrop, argue that stocks could be higher several months from now.

S&P's Chief Technical Analyst, Mark Arbeter, states the following in the March 24, 2004, issue of *The Outlook*:

> We believe stocks are likely to resume their upward trend once the market's near-term uncertainty is out of the way, and Standard & Poor's now recommends an allocation of 55% U.S. stocks, 15% foreign stocks, 10% bonds and 20% cash.
>
> One reason for this optimism is that market rallies rarely flare out this quickly. The second year of a market rally is generally a good one for large-cap stocks, and large-caps tend to correlate with the shares that pay dividends. Thanks to last year's reduction in the tax rate on dividends, 2004 is shaping up to be a good year for dividend-paying stocks.
>
> David Wyss, chief economist at S&P, expects that the lower tax rates for dividends and capital gains will lead to a large increase in refunds sent by the IRS this year. Overall, he estimates tax refunds for 2004 will total about $250 billion, or roughly $50 billion more than in 2003. While some of that rise can be credited to economic growth, the more important factors will be the increased child care allowance and the tax cuts for dividend and capital gains income.
>
> Howard Silverblatt of S&P Quantitative Services says that since the tax cut was enacted, dividend payouts have been on an unmistakable upward trend. A disproportionately large number of dividend increases get made early in the year, when companies want to put shareholders in a good mood before their annual meetings. Through March 18, there were 86 dividend increases for stocks in the S&P 500 vs. 67 for the first three months of 2003.
>
> Perhaps the best news is that the favorable trends for dividends may be here to stay. Whoever wins the presidency, we believe that political realities will dictate that the dividend tax cut won't be erased anytime soon.
>
> This will leave several billion extra dollars in the hands of taxpayers each year, and we believe some of this money will get steered back into the market and contribute to higher stock prices.

Business Operations of Southern Union Company

Q. Please describe Southern Union's business operations.

A. In its 2003 Stockholders' Annual Report, Southern Union states:

> Southern Union Company (*Southern Union* and together with its subsidiaries, the *Company)* was incorporated under the laws of the State of Delaware in 1932. The Company is primarily engaged in the transportation, storage and distribution of natural gas in the United States. The Company's interstate natural gas transportation and storage operations are conducted through Panhandle Eastern Pipe Line Company, LLC and its subsidiaries (hereafter collectively referred to as *Panhandle Energy*), which serve approximately 500 customers in the Midwest and Southwest. Panhandle Energy was acquired by Southern Union on June 11, 2003. The Company's local natural gas distribution operations are conducted through its three regulated utility divisions, Missouri Gas Energy, PG Energy and New England Gas Company, which collectively serve over 950,000 residential, commercial and industrial customers in Missouri, Pennsylvania, Rhode Island and Massachusetts.

Southern Union's total operating revenues were $1,188,507,000 for the 12 months ended December 31, 2003. These total operating revenues resulted in an overall net income of $76,189,000. These revenues and net incomes were generated from a net utility plant in service with a book value of $3,144,800,000 at December 31, 2003. These figures were taken from Southern Union's 2003 Annual Report.

Q. Please describe the credit ratings of Southern Union.

A. Currently, Standard & Poor's Corporation (S&P) rates the senior unsecured debt of Southern Union as "BBB." It should be noted that in the financial community S&P's "BBB" credit rating is comparable to Mergent Bond Record's "Baa2" credit rating.

Q. What is S&P's credit rating methodology?

A. S&P's Corporation's Global Utilities Rating Service, *Utility Credit Report* for Southern Union, January 2000, states:

> The company's credit rating is derived from an analysis of the financial and business profile of the consolidated company, taking into account management skills, business strategy, mix of assets, and the economics and regulation of the service territory.

S&P will assign a business profile to a company based on the above factors. Utilities are typically scored a business profile on a scale from one to ten with one representing a company that has a very strong business profile, which translates into low business risk, and a ten representing a company that has a very weak business profile, which translates into high business risk. Typically, transmission/distribution utilities will score anywhere from a one to a four because of the noncompetitive nature of its business. Business profile is important because if a company has a good ranking, then S&P will tend to have less stringent standards on a company's financial ratios, such as its debt to capital ratio, in order for that company to sustain a given credit rating. For example, a company with a business profile of ten will have to maintain a much lower debt to capital ratio than a company with a business profile of one.

Q. What is the business profile of Southern Union?

A. The business profile of Southern Union was a four as of March 22, 2004, according to S&P's *Utilities and Perspectives*. This is a higher business profile than the three that Southern Union had before it acquired Panhandle Eastern Pipeline Company (Panhandle).

Q. Please provide S&P's most recent outlook concerning the credit rating assigned to Southern Union.

A. S&P's *Ratings Direct*, March 5 2004, provides a summary explaining the outlook. Specifically the report states:

> **OUTLOOK: NEGATIVE**
>
> **RATIONALE**
>
> On March 5, 2004, Standard & Poor's Ratings Services affirmed its 'BBB' corporate credit rating on Southern Union Co. and its subsidiary, Panhandle Eastern Pipe Line LLC, and revised the outlook

> to negative from stable. The company has $2.5 billion of debt outstanding.
>
> Southern Union's mid-2003 acquisition of Panhandle Eastern Pipe Line and its subsidiaries, Trunkline Gas Co. LLC and Trunkline LNG Co. LLC, and Panhandle Eastern Pipe Line's joint venture, Sea Robin Pipeline Co., resulted in a highly leveraged consolidated balance sheet. Although Southern Union financed the acquisition with proceeds from the sale of Southern Union's Texas gas distribution business and the sale of common equity and convertible debt, Panhandle Eastern Pipe Line itself had $1.2 billion debt. This drove Southern Union's total debt up to 72% of total capital at closing.
>
> Management has committed to improve its balance sheet rapidly. It refinanced Panhandle Eastern Pipe Line's debt shortly after the acquisition, lowering interest expense by about $6 million. In addition, the company issued $230 million of noncumulative preferred stock, using proceeds to reduce debt. Management expects cash from operations to improve by at least $15 million through the successful integration efforts, including implementation of a new companywide information technology platform. This improvement in cash from operations, together with free cash flow, will be dedicated to debt reduction, as will the proceeds from any future sales of equity. Furthermore, the company is expected to continue its stock dividend policy allowing it to build equity through retained earnings.
>
> **OUTLOOK**
>
> The negative outlook reflects the execution challenges facing the company in achieving its commitment to rapidly deleverage. Southern Union has been in an acquisitive mode for several years, which has resulted in significant swings in leverage. Going forward, the company will need to show sufficient balance sheet strengthening prior to consummating a future acquisition in order for Standard & Poor's to maintain the current rating.

Q. Please provide some historical financial information for Southern Union.

A. Schedules 7 and 8 present historical capital structures and selected financial ratios from 1999 to 2003 for Southern Union. Southern Union and its subsidiaries' consolidated common equity ratio has ranged from a high of 46.82 percent in 2000 to a low of 25.44 percent in 2003. The wide swing in Southern Union's common equity ratio is due to its ongoing aggressive acquisition strategy. Edward Jones *Natural Gas Industry Summary*, December 31, 2003, reported that the average common equity ratio for the natural gas distribution industry for the twelve months ending September 30, 2003, was 46.0 percent. Southern Union's common equity ratio of 25.44 percent, as of December 31, 2003, is significantly lower than the industry average. This low common equity ratio is a result of Southern Union's recent acquisition of Panhandle and already highly leveraged capital structure before the acquisition. According to *The Value Line Investment Survey: Ratings & Reports*, December 19, 2003, "Southern Union is still operating with a relatively high amount of leverage. It has committed its free cash flow, as well as the proceeds from any asset sales, to debt reduction. SUG [Southern Union Company] currently has feelers out on some plant and equipment, including its Sea Robin pipeline. Continued reductions in leverage should boost earnings in the coming years, as interest costs fall. However, Southern Union still has a ways to go until debt reaches a more comfortable level."

Southern Union's consolidated return on common equity (ROE) has been quite low from 1999 through 2003 ranging from a high of 5.30 percent in 2002 to a low of 1.50 percent in 2000. Southern Union's 2003 ROE of 4.70 percent was below the average earned by natural gas distribution utilities of 10.10 percent for the twelve months ending September 30, 2003, according to Edward Jones *Natural Gas Investment Survey*, December 31, 2003. Southern Union's market-to-book ratio has varied in the past five years from a high of 2.11 times in 1999 to a low of 1.04 in the year 2000.

<u>Cost of Capital Methodology</u>

Q. Please describe the approach for determining a utility company's cost of capital.

A. The total dollars of capital for the utility company are determined as of a specific point in time. This total dollar amount is then apportioned into each specific capital component, i.e. common equity, long-term debt, preferred stock and short-term debt. A weighted cost for each capital component is determined by multiplying each capital component ratio by the appropriate embedded cost or by the estimated cost of common equity component. The individual weighted costs are summed to arrive at a total weighted cost of capital. This total weighted cost of capital is synonymous with the fair rate of return for the utility company.

Q. Why is a total weighted cost of capital synonymous with a fair rate of return?

A. From a financial viewpoint, a company employs different forms of capital to support or fund the assets of the company. Each different form of capital has a cost and these costs are weighted proportionately to fund each dollar invested in the assets.

Assuming that the various forms of capital are within a reasonable balance and are costed correctly, the resulting total weighted cost of capital, when applied to rate base, will provide the funds necessary to service the various forms of capital. Thus, the total weighted cost of capital corresponds to a fair rate of return for the utility company.

Capital Structure and Embedded Costs

Q. What capital structure did you use?

A. The capital structure I have used for this case is Southern Union's on a consolidated basis as of December 31, 2003. Schedule 9 presents Southern Union's capital structure and associated capital ratios. The resulting capital structure consists of 25.38 percent common stock equity, 6.17 percent preferred stock, 61.10 percent long-term debt and 7.35 percent short-term debt.

The amount of long-term debt outstanding on December 31, 2003, includes current maturities due within one year and was reduced for unamortized costs (see Schedule 10).

The amount of preferred stock outstanding on December 31, 2003, includes current maturities due within one year and was reduced for unamortized costs (see Schedule 11).

The amount of short-term debt outstanding on December 31, 2003, was \$295,175,000, compared to \$28,575,399 of Construction Work In Progress (CWIP) outstanding. Therefore, I included a short-term debt balance of \$266,599,601 in the capital structure, which is the difference between the amount of short-term debt outstanding and the CWIP outstanding. I used the difference between actual short-term debt outstanding and CWIP outstanding for the short-term debt balance in my recommended capital structure because it is assumed that CWIP will eventually be funded by long-term debt.

Q. Why did you use Southern Union's consolidated capital structure as of the update period, December 31, 2003, for purposes of your recommendation in this case?

A. Missouri Gas Energy is a division of Southern Union. Because the debt and equity are generated from the parent company, Southern Union, MGE relies on the parent company to finance its investment in MGE assets. Because MGE does not issue its own debt or equity, the actual consolidated capital structure for Southern Union was used for MGE.

Q. Did you determine what Southern Union's capital structure may be if one were to try to exclude the Panhandle operations?

A. Yes. After discovering that Panhandle is still filing financial statements with the Securities and Exchange Commission (SEC), I decided that analyzing this information would be the best way to estimate what Southern Union's capital structure would be if one were to try to exclude the Panhandle operations. After reviewing the December 31, 2003, Balance Sheet filed by Panhandle with the SEC, I determined that Southern Union shows a $646,818,000 common equity balance for Panhandle and a $1,205,444,000 long-term debt balance, which includes current maturities on long-term debt, for Panhandle. Panhandle's December 31, 2003, Balance Sheet does not show any short-term debt or preferred stock outstanding. When backing out the long-term debt and common equity that is indicated in the Panhandle Balance Sheet from the balances indicated on my Schedule 9, which includes all of Southern Union's operations, this would result in the following capital structure: 15.42 percent common equity, 12.61 percent preferred stock, 56.95 percent long-term debt and 15.02 percent short-term debt.

Q. Why didn't you utilize the preceding capital structure for purposes of your recommended rate of return in this case?

A. Southern Union's divisions receive capital from the corporate treasury and this corporate treasury can have various mixes of capital in it at any given point in time with debt proceeds from various debt issuances. Therefore, it is appropriate to utilize Southern Union's consolidated capital structure, if it is reasonable, because it is verifiable and represents how Southern Union's divisions are capitalized.

Additionally, Southern Union's credit rating is a function of its consolidated capital structure, not on the hypothetical of what Southern Union might be if one tried to exclude the Panhandle operations. S&P does not evaluate the creditworthiness of Southern Union's natural gas distribution operations on a stand-alone basis because they are not subsidiaries that issue their own debt. Therefore, no objective analysis has been performed that would indicate if a 15.42 percent common equity ratio for natural gas distribution operations would be appropriate for a BBB-rated natural gas distribution company. If Southern Union's natural gas distribution operations were spun-off into their own subsidiary and this subsidiary were ring-fenced from the rest of Southern Union's operations, then it may be possible to analyze the capital structure of Southern Union's natural gas distribution operations and determine if credit rating agencies believe the capital structure is adequate for an investment grade credit rating.

Q. What was the embedded cost of long-term debt for Southern Union on December 31, 2003?

A. The embedded cost of long-term debt for Southern Union was 6.383 percent on December 31, 2003. I arrived at this cost by calculating the consolidated embedded cost of long-term debt for all of Southern Union's operations, which includes Panhandle. I relied on the updated embedded cost of long-term debt, including Panhandle, provided in Southern Union's response to Staff Data Request No. 0102.

Q. What was the embedded cost of preferred stock for Southern Union on December 31, 2003?

A. The embedded cost of preferred stock for Southern Union was 7.76 percent on December 31, 2003. I relied on the updated embedded cost of preferred stock provided in Southern Union's response to Staff Data Request No. 0102.

Q. What was the weighted average cost of short-term debt for Southern Union as of December 31, 2003?

A. As indicated in Southern Union's response to Staff Data Request No. 0102, the updated weighted average cost of short-term debt for Southern Union was 1.89 percent.

Cost of Equity

Q. How do you propose to analyze those factors by which the cost of equity for MGE may be determined?

A. In order to calculate the cost of equity for MGE, I performed a comparable company analysis of eight companies. I have selected the Discounted Cash Flow (DCF) model as the primary tool to determine the cost of equity for MGE, but I also used the Risk Premium model and the Capital Asset Pricing Model (CAPM) to check the reasonableness of the DCF results.

The Discounted Cash Flow (DCF) Model

Q. Please describe the DCF model.

A. The DCF model is a market-oriented approach for deriving the cost of equity. The return on equity calculated from the DCF model is inherently capable of attracting capital. This results from the theory that security prices adjust continually over time, so that an equilibrium price exists and the stock is neither undervalued nor overvalued. It can also be stated that stock prices continually fluctuate to reflect the required and expected return for the investor.

The continuous growth form of the DCF model was used in this analysis. This model relies upon the fact that a company's common stock price is dependent upon the expected cash dividends and upon cash flows received through capital gains or losses that result from stock price changes. The interest rate which discounts the sum of the future expected cash flows to the current market price of the common stock is the calculated cost of equity. This can be expressed algebraically as:

$$\text{Present Price} = \underset{\text{Discounted by k}}{\text{Expected Dividends}} + \underset{\text{Discounted by k}}{\text{Expected Price in 1 year}} \qquad (1)$$

where k equals the cost of equity. Since the expected price of a stock in one year is equal to the present price multiplied by one plus the growth rate, equation (1) can be restated as:

$$\text{Present Price} = \frac{\text{Expected Dividends}}{(1+k)} + \frac{\text{Present Price }(1+g)}{(1+k)} \qquad (2)$$

where g equals the growth rate and k equals the cost of equity. Letting the present price equal P_0 and expected dividends equal D_1, the equation appears as:

$$P_0 = \frac{D_1}{(1+k)} + \frac{P_0(1+g)}{(1+k)} \qquad (3)$$

The cost of equity equation may also be algebraically represented as:

$$k = \frac{D_1}{P_0} + g \qquad (4)$$

Thus, the cost of common stock equity, k, is equal to the expected dividend yield (D_1/P_0) plus the expected growth in dividends (g) continuously summed into the future. The growth in dividends and implied growth in earnings will be reflected in the current price. Therefore, this model also recognizes the potential of capital gains or losses associated with owning a share of common stock.

The discounted cash flow method is a continuous stock valuation model. The DCF theory is based on the following assumptions:

1. Market equilibrium;
2. Perpetual life of the company;

3. Constant payout ratio;

4. Payout of less than 100% earnings;

5. Constant price/earnings ratio;

6. Constant growth in cash dividends;

7. Stability in interest rates over time;

8. Stability in required rates of return over time; and

9. Stability in earned returns over time.

Flowing from these, it is further assumed that an investor's growth horizon is unlimited and that earnings, book values and market prices grow hand-in-hand. Although the entire list of the above assumptions is rarely met, the DCF model is a reasonable working model describing an actual investor's expectations and resulting behaviors.

Q. Can you directly analyze the cost of equity for MGE?

A. No. In order to directly determine the cost of equity for MGE, it would have to be a stand-alone company that is publicly traded and pay a cash dividend. The only way that an investor can invest in the operations of MGE is by investing in the consolidated corporation of Southern Union, which does not pay cash dividends. I cannot directly analyze Southern Union's cost of equity because it does not pay a cash dividend.

Q. Please explain how you approached the determination of the cost of equity for MGE.

A. I decided to do an analysis of the cost of equity for a comparable group of natural gas distribution companies.

Q. How did you determine which companies you would include to represent the comparable natural gas distribution companies?

A. Schedule 13 presents a list of fifteen market-traded natural gas distribution companies monitored by Edward Jones. This list was reviewed for the following criteria:

1. Stock publicly traded: This criterion did not eliminate any companies;
2. Distribution revenues greater than 90% of total revenues: This criterion did not eliminate any companies;
3. Information printed in Value Line: This criterion eliminated two companies;
4. Positive dividend per share annualized compound growth rate from 1992 through 2002: This criterion did not eliminate any companies;
5. No Missouri Operations: This criterion eliminated three additional companies;
6. Ten years of data available: This criterion eliminated one additional company;
7. Total capitalization less than $5 billion: This criterion did not eliminate any companies.

This final group of eight publicly traded natural gas distribution companies (Comparables) was used as a proxy group to determine the cost of equity for MGE. The Comparables are listed on Schedule 14.

Q. Please explain how you approached the determination of the cost of equity for the Comparables.

A. I have calculated a DCF cost of equity for each of the Comparables. The first step was to calculate a growth rate. I reviewed the actual dividends per share (DPS), earnings per share (EPS), and book values per share (BVPS) as well as projected growth rates for the Comparables. Schedule 15-1 lists the annual compound growth rates for DPS, EPS, and BVPS for the period 1992 through 2002. Schedule 15-2 lists the annual compound growth rates for DPS, EPS, and BVPS for the period of 1997 through 2002. Schedule 15-3 presents the averages of the growth rates determined in Schedules 15-1 and

15-2. Schedule 16 presents the average historical growth rates and the projected growth rates for the Comparables. The projected growth rates were obtained from three outside sources; I/B/E/S Inc.'s *Institutional Brokers Estimate System*, S&P's *Earnings Guide*, and *The Value Line Investment Survey: Ratings and Reports*. The three projected growth rates were averaged to develop an average projected growth rate of 5.10 percent which was averaged with the historical growth rates to produce an average historical and projected growth rate of 3.93 percent. All the growth rates were then analyzed to arrive at a growth rate range for the Comparables of 3.90 percent to 4.90 percent.

The next step was to calculate an expected yield for each of the Comparables. The yield term of the DCF model is calculated by dividing the amount of common dividends per share expected to be paid over the next twelve months by the market price per share of the firm's stock. Although the model requires a spot price, I have chosen to use a monthly average market price for each of the Comparables. This averaging technique is an attempt to minimize the effects on the dividend yield which can occur due to daily volatility in the stock market. Schedule 17 presents the average high/low stock price for the period of October 1, 2003, through January 31, 2004, for each Comparable. Column 1 of Schedule 18 indicates the expected dividend for each Comparable over the next 12 months as projected by *The Value Line Investment Survey: Ratings & Reports*, December 19, 2003. Column 3 of Schedule 18 shows the projected dividend yield for each of the Comparables. The dividend yield for each Comparable was averaged to calculate the projected dividend yield for the Comparables of 4.29 percent.

As illustrated in column 5 of Schedule 18, the average cost of equity based on the projected dividend yield added to the average of historical and projected growth is 8.35 percent.

Q. What analysis was performed to determine the reasonableness of your DCF model derived return on common equity for the comparable company group?

A. I performed a Risk Premium and CAPM cost of equity analysis for the comparables.

Q. Please describe the CAPM.

A. The CAPM describes the relationship between a security's investment risk and its market rate of return. This relationship identifies the rate of return which investors expect a security to earn so that its market return is comparable with the market returns earned by other securities that have similar risk. The general form of the CAPM is as follows:

$$k = R_f + \beta (R_m - R_f)$$

where:

k = the expected return on equity for a specific security;
R_f = the risk-free rate;
β = beta; and
$R_m - R_f$ = the market risk premium.

The first term of the CAPM is the risk-free rate (R_f). The risk-free rate reflects the level of return that can be achieved without accepting any risk. In reality, there is no such risk-free asset, but it is generally represented by U.S. Treasury securities. For purposes of this analysis, the risk-free rate was represented by the average yield on the 30-Year U.S.

Treasury Bond of 4.93 percent for the month of February 2004 as quoted on the Investopedia Website: http://www.investopedia.com.

The second term of the CAPM is beta (β). Beta is an indicator of a security's investment risk. It represents the relative movement and relative risk between a particular security and the market as a whole (where beta for the market equals 1.00). Securities with betas greater than 1.00 exhibit greater volatility than do securities with betas less than 1.00. This causes a higher beta security to be less desirable and therefore requires a higher return in order to attract investor capital away from a lower beta security. Schedule 19 contains the appropriate betas for the Comparables.

The final term of the CAPM is the market risk premium (R_m - R_f). The market risk premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment. For purposes of this analysis, I looked at two time periods for risk premium estimates. The first risk premium used was based on the long-term period of 1926 to 2002, which was 6.40 percent. The second risk premium used was based on the short-term, recent period of 1993 to 2002, which was determined to be -0.34 percent. These risk premiums were taken from Ibbotson Associates, Inc.'s *Stocks, Bonds, Bills, and Inflation: 2003 Yearbook.*

Schedule 19 presents the CAPM analysis with regard to the Comparables. The CAPM analysis produces an estimated cost of common equity of 9.29 percent for the comparables when using the long-term risk premium period. Using the short-term risk premium period produces an estimated cost of common equity of 4.70 percent. Although the long-term risk premium CAPM results support the upper part of my recommended cost of common equity range based on my DCF analysis, the CAPM has not historically been relied upon by the Financial Analysis Department in determining the cost of equity for a utility company. It is strictly used as a test of reasonableness to provide some comfort with the results of the DCF, and in this case the long-term risk premium CAPM supports the DCF results. Although the short-term risk premium CAPM results are extremely low, it is interesting to observe that the stock market returns over the last ten years have actually been less than the returns on long-term government bonds over the same period.

Q. Please describe the Risk Premium model.

A. The risk premium concept implies that the required return on equity is found by adding an explicit premium for risk to a current interest rate. Schedules 20-1 through 20-8 show the average risk premium above the yield on the Thirty-Year U.S. Treasury Bond for each of the Comparables' expected return on common equity. The necessary information, both actual returns and projected returns, for South Jersey Industries, Inc. (South Jersey) was not readily available. Therefore, an average risk premium result with and without South Jersey's results is shown on Schedule 21. This analysis shows, on average, that the expected return on equity as reported by *The Value Line Investment Survey: Ratings & Reports* ranges from 391 basis points to 786 basis points higher than the average yields on the Thirty-Year U.S. Treasury Bonds for the period of January 1994 through December 2003 (see Schedule 21). The lower end of this range is 456 basis points if South Jersey is excluded. The risk premium is then added to the average Thirty-Year U.S. Treasury Bond yield for February 2004. Column 3 of Schedule 21 shows that the risk premium cost of equity estimate for each of the Comparables ranged from 8.84 percent to 12.79 percent (9.49 percent to 12.79 percent if South Jersey is excluded), with an average of 10.41 percent including South Jersey and 10.64 percent excluding South Jersey.

Q. Please summarize your cost of equity analysis to this point.

A. I have performed a DCF, CAPM and risk premium cost of equity analysis on a group of eight comparable companies. The results are summarized below.

	DCF	**CAPM**	**Risk Premium**
Comparable Companies	8.20% - 9.20%	9.29%	10.41%

Q. Do you have any adjustments that you need to make to your DCF recommended cost of common equity?

A. Yes. As indicated on Schedule 18 attached to this testimony, the cost of common equity range for the comparable companies is 8.20 percent to 9.20 percent. However, I made an upward adjustment of 32 basis points to my recommended cost of common equity for MGE in order to take into consideration the fact that Southern Union's credit rating is BBB. Considering that the average credit rating of the comparable companies is A (Schedule 22 attached to this testimony), it is appropriate to make an adjustment to the estimated cost of common equity for the proxy group to reflect the credit rating differential of Southern Union and the comparable group. In order to do this, I calculated the average spread of the bond rates for BBB-rated and A-rated public utilities for approximately the past nine years, as published in the *Mergent Bond Record*, September 2001 and March 2004. This calculation showed a spread of 32 basis points between A-rated bonds and BBB-rated bonds for approximately the past nine years. I applied the full 32 basis point spread as an upwards adjustment to the DCF recommended cost of common equity for MGE because the comparable group's average credit rating was an A and Southern Union's was BBB so the full amount of the spread should be reflected.

Q. Based on the analysis you performed, what is your recommended return on common equity in this proceeding?

A. I am recommending a return on common equity in the range of 8.52 percent to 9.52 percent based on the results of the DCF analysis.

Q. Did you perform an analysis on Southern Union's resulting pre-tax interest coverage ratios?

A. Yes. A pro forma pre-tax interest coverage calculation was completed for Southern Union (see Schedule 23). It reveals that the return on equity range of 8.52 percent to 9.52 percent would yield a pre-tax interest coverage ratio in the range of 2.01 times to 2.11 times. This interest coverage range is only slightly higher than the 1.98 in Standard & Poor's lower quartile of "BBB" rated natural gas distribution companies, but is much higher than Southern Union's 1.53 interest coverage ratio at the end of September 30, 2003, shown in Edward Jones *Natural Gas Industry Summary*, December 31, 2003.

Additionally, as explained earlier in my testimony on page 16, line 15 through page 17, line 9, Southern Union is rated a business profile of four by S&P. On June 18, 1999, S&P published a range of benchmarks for four financial ratios that may be used by analysts to evaluate the creditworthiness of a company. The interest coverage ratio benchmark at the low end of the range is 2.2 for companies with a business profile of four. This compares to the benchmark interest coverage ratio of 1.8 at the low end of the range for companies with a business profile of three, which was Southern Union's business profile before it acquired Panhandle. A company with an interest coverage ratio below these numbers does not necessarily mean that a company will be rated below investment grade

(BB+ or lower). Additionally, it does not mean that a company with an interest coverage ratio greater than these numbers will be rated investment grade or better (BBB- or higher).

Rate of Return for MGE

Q. Please explain how the returns developed for each capital component are used in the rate making approach you have adopted for MGE.

A. The cost of service rate making method was adopted in this case. This approach develops the public utility's revenue requirement. The cost of service (revenue requirement) is based on the following components: operating costs, rate base and a return allowed on the rate base (see Schedule 24).

It is my responsibility to calculate and recommend a rate of return that should be authorized on the Missouri jurisdictional rate base of Southern Union. Under the cost of service rate making approach, a weighted cost of capital in the range of 6.68 to 6.94 percent was developed for Southern Union's MGE natural gas distribution operations (see Schedule 25). This rate was calculated by applying an embedded cost of long-term debt of 6.38 percent, an embedded cost of preferred stock of 7.76 percent, a weighted average cost of short-term debt of 1.89 percent and a return on common equity range of 8.52 percent to 9.52 percent to a capital structure consisting of 61.10 percent long-term debt, 6.17 percent preferred stock, 7.35 percent short-term debt and 25.38 percent common equity. Therefore, from a financial risk/return prospective, as I suggested earlier, I am recommending that Southern Union's MGE natural gas distribution operations be allowed to earn a return on its original cost rate base in the range of 6.68 to 6.94 percent.

Through my analysis, I believe that I have developed a fair and reasonable return and, when applied to Southern Union's MGE jurisdictional rate base, will allow Southern Union the opportunity to earn the revenue requirement developed in this rate case.

True-up Audit

Q. Is the Staff proposing a true-up audit in this case?

A. Yes. I am recommending a true-up audit be performed for the purpose of updating the capital structure and associated embedded costs through April 30, 2004.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

CASE PROCEEDING PARTICIPATION

DAVID MURRAY

Date Filed	Issue	Case Number	Exhibit	Case Name
1/31/2001	Rate of Return Capital Structure	TC2001402	Direct	Ozark Telephone Company
2/28/2001	Rate of Return Capital Structure	TR2001344	Direct	Northeast Missouri Rural Telephone Company
3/1/2001	Rate of Return Capital Structure	TT2001328	Rebuttal	Oregon Farmers Mutual Telephone Company
4/19/2001	Rate of Return Capital Structure	GR2001292	Direct	Missouri Gas Energy, A Division of Southern Union Company
5/22/2001	Rate of Return Capital Structure	GR2001292	Rebuttal	Missouri Gas Energy, A Division of Southern Union Company
12/6/2001	Rate of Return Capital Structure	ER2001672	Direct	UtiliCorp United Inc. dba Missouri Public Service
12/6/2001	Rate of Return Capital Structure	EC2002265	Direct	UtiliCorp United Inc. dba Missouri Public Service
1/8/2002	Rate of Return Capital Structure	ER2001672	Rebuttal	UtiliCorp United Inc. dba Missouri Public Service
1/8/2002	Rate of Return Capital Structure	EC2002265	Rebuttal	UtiliCorp United Inc. dba Missouri Public Service
1/22/2002	Rate of Return Capital Structure	EC2002265	Surrebuttal	UtiliCorp United Inc. dba Missouri Public Service
1/22/2002	Rate of Return Capital Structure	ER2001265	Surrebuttal	UtiliCorp United Inc. dba Missouri Public Service
8/6/2002	Rate of Return Capital Structure	TC20021076	Direct	BPS Telephone Company
8/16/2002	Rate of Return Capital Structure	ER2002424	Direct	The Empire District Electric Company
9/24/2002	Rate of Return Capital Structure	ER2002424	Rebuttal	The Empire District Electric Company
10/16/2002	Rate of Return Capital Structure	ER2002424	Surrebuttal	The Empire District Electric Company
3/17/2003	Insulation	GM20030238	Rebuttal	Southern Union Co. dba Missouri Gas Energy
10/3/2003	Rate of Return Capital Structure	WC20040168	Direct	Missouri-American Water Company

Date Filed	Issue	Case Number	Exhibit	Case Name
10/3/2003	Rate of Return Capital Structure	WR20030500	Direct	Missouri-American Water Company
11/10/2003	Rate of Return Capital Structure	WR20030500	Rebuttal	Missouri-American Water Company
11/10/2003	Rate of Return Capital Structure	WC20040168	Rebuttal	Missouri-American Water Company
12/5/2003	Rate of Return Capital Structure	WC20040168	Surrebuttal	Missouri-American Water Co
12/5/2003	Rate of Return Capital Structure	WR20030500	Surrebuttal	Missouri-American Water Co
12/9/2003	Rate of Return Capital Structure	ER20040034	Direct	Aquila, Inc.
12/9/2003	Rate of Return Capital Structure	HR20040024	Direct	Aquila, Inc.
12/19/2003	Rate of Return Capital Structure	ST20030562	Direct	Osage Water Company
12/19/2003	Rate of Return Capital Structure	WT20030563	Direct	Osage Water Company
1/6/2004	Rate of Return Capital Structure	GR20040072	Direct	Aquila, Inc.
1/9/2004	Rate of Return Capital Structure	WT20030563	Rebuttal	Osage Water Company
1/9/2004	Rate of Return Capital Structure	ST20030562	Rebuttal	Osage Water Company
1/26/2004	Rate of Return Capital Structure	HR20040024	Rebuttal	Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks L&P
1/26/2004	Rate of Return Capital Structure	ER20040034	Rebuttal	Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks L&P
2/13/2004	Rate of Return Capital Structure	GR20040072	Rebuttal	Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P
2/13/2004	Rate of Return Capital Structure	ER20040034	Surrebuttal	Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P
2/13/2004	Rate of Return Capital Structure	HR20040024	Surrebuttal	Aquila, Inc. dba Aquila Networks-MPS and Aquila Networks-L&P
3/11/2004	Rate of Return Capital Structure	IR20040272	Direct	Fidelity Telephone Company

AN ANALYSIS OF THE COST OF CAPITAL

FOR

MISSOURI GAS ENERGY

CASE NO. GR-2004-0209

SCHEDULES

BY

DAVID MURRAY

UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

APRIL 2004

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

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3-2	Graph of Average Prime Interest Rates
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21	Risk Premium Cost of Equity Estimates for the Eight Comparable Natural Gas Distribution Companies
22	Selected Financial Ratios for the Eight Comparable Natural Gas Distribution Companies
23	Pro Forma Pre-Tax Interest Coverage Ratios for Southern Union Company
24	Public Utility Revenue Requirement or Cost of Service
25	Weighted Cost of Capital as of December 31, 2003 for Missouri Gas Energy

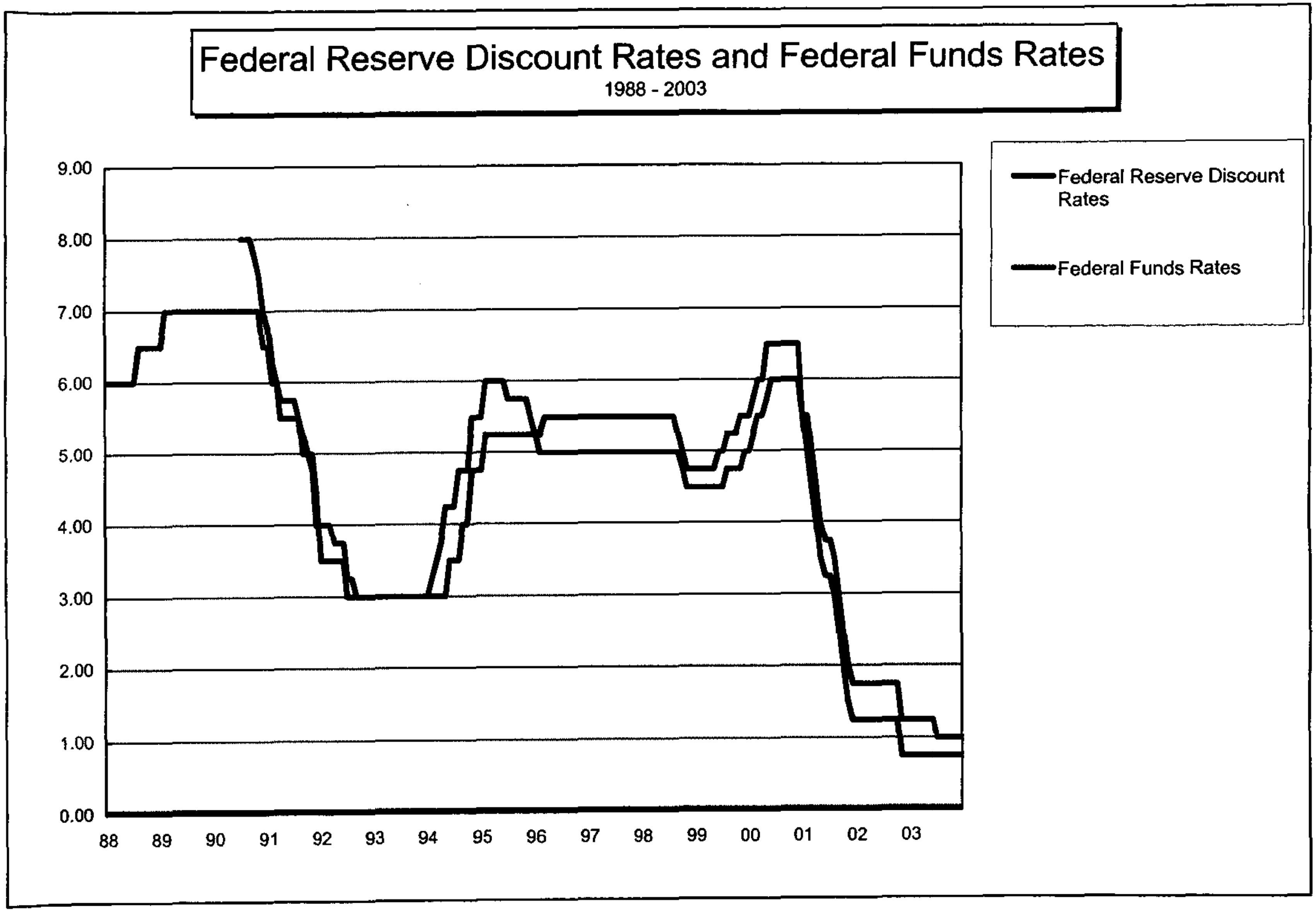
MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Federal Reserve Discount Rate Changes

Date	Discount Rate	Federal Reserve Rate
05/20/85	7.50%	
03/07/86	7.00%	
04/21/86	6.50%	
07/11/86	6.00%	
08/21/86	5.50%	
09/04/87	6.00%	
08/09/88	6.50%	
02/24/89	7.00%	
07/13/90		8.00% *
10/29/90		7.75%
11/13/90		7.50%
12/07/90		7.25%
12/18/90		7.00%
12/19/90	6.50%	
01/09/91		6.75%
02/01/91	6.00%	6.25%
03/08/91		6.00%
04/30/91	5.50%	5.75%
08/06/91		5.50%
09/13/91	5.00%	5.25%
10/31/91		5.00%
11/06/91	4.50%	4.75%
12/06/91		4.50%
12/20/91	3.50%	4.00%
04/09/92		3.75%
07/02/92	3.00%	3.25%
09/04/92		3.00%
01/01/93		
12/31/93	No Changes	No Changes
02/04/94		3.25%
03/22/94		3.50%
04/18/94		3.75%
05/17/94	3.50%	4.25%
08/16/94	4.00%	4.75%
11/15/94	4.75%	5.50%
02/01/95	5.25%	6.00%
07/06/95		5.75%
12/19/95		5.50%
01/31/96	5.00%	5.25%
03/25/97		5.50%
12/12/97	5.00%	
01/09/98	5.00%	
03/06/98	5.00%	
09/29/98		5.25%
10/15/98	4.75%	5.00%
11/17/98	4.50%	4.75%
06/30/99	4.50%	5.00%
08/24/99	4.75%	5.25%
11/16/99	5.00%	5.50%
02/02/00	5.25%	5.75%
03/21/00	5.50%	6.00%
05/16/00	5.50%	6.50%
05/19/00	6.00%	
01/03/01	5.75%	6.00%
01/04/01	5.50%	
01/31/01	5.00%	5.50%
03/20/01	4.50%	5.00%
04/18/01	4.00%	4.50%
05/15/01	3.50%	4.00%
06/27/01	3.25%	3.75%
08/21/01	3.00%	3.50%
09/17/01	2.50%	3.00%
10/02/01	2.00%	2.50%
11/06/01	1.50%	2.00%
12/11/01	1.25%	1.75%
01/11/02	1.25%	
02/01/02	1.25%	
11/06/02	0.75%	1.25%
06/25/03		1.00%

* Began tracking the Federal Funds Rate.

Sources: Federal Reserve Bank of New York: http://www.ny.frb.org/pihome/statistics/dlyrates/fedrate.html
Historical Changes of the Fed Fund and Discount Rate - Statistics - Federal Reserve Bank of New York


Federal Reserve Discount Rates and Federal Funds Rates
1988 - 2003
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
Federal Reserve Discount Rates
Federal Funds Rates

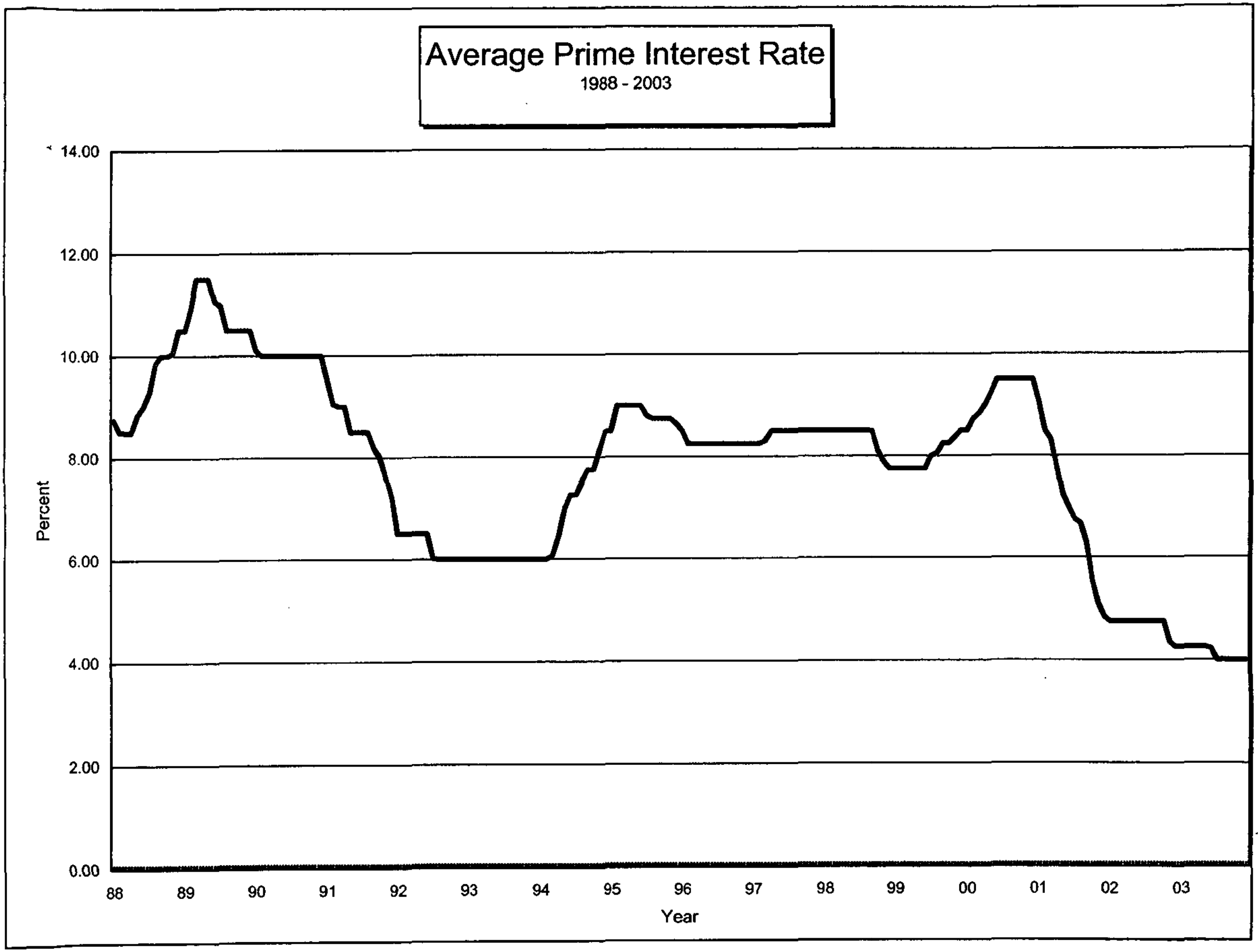
SCHEDULE 2-2

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Prime Interest Rates

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1988	8.75	Jan 1992	6.50	Jan 1996	8.50	Jan 2000	8.50
Feb	8.51	Feb	6.50	Feb	8.25	Feb	8.73
Mar	8.50	Mar	6.50	Mar	8.25	Mar	8.83
Apr	8.50	Apr	6.50	Apr	8.25	Apr	9.00
May	8.84	May	6.50	May	8.25	May	9.24
Jun	9.00	Jun	6.50	Jun	8.25	Jun	9.50
Jul	9.29	Jul	6.02	Jul	8.25	Jul	9.50
Aug	9.84	Aug	6.00	Aug	8.25	Aug	9.50
Sep	10.00	Sep	6.00	Sep	8.25	Sep	9.50
Oct	10.00	Oct	6.00	Oct	8.25	Oct	9.50
Nov	10.05	Nov	6.00	Nov	8.25	Nov	9.50
Dec	10.50	Dec	6.00	Dec	8.25	Dec	9.50
Jan 1989	10.50	Jan 1993	6.00	Jan 1997	8.26	Jan 2001	9.05
Feb	10.93	Feb	6.00	Feb	8.25	Feb	8.50
Mar	11.50	Mar	6.00	Mar	8.30	Mar	8.32
Apr	11.50	Apr	6.00	Apr	8.50	Apr	7.80
May	11.50	May	6.00	May	8.50	May	7.24
Jun	11.07	Jun	6.00	Jun	8.50	Jun	6.98
Jul	10.98	Jul	6.00	Jul	8.50	Jul	6.75
Aug	10.50	Aug	6.00	Aug	8.50	Aug	6.67
Sep	10.50	Sep	6.00	Sep	8.50	Sep	6.28
Oct	10.50	Oct	6.00	Oct	8.50	Oct	5.53
Nov	10.50	Nov	6.00	Nov	8.50	Nov	5.10
Dec	10.50	Dec	6.00	Dec	8.50	Dec	4.84
Jan 1990	10.11	Jan 1994	6.00	Jan 1998	8.50	Jan 2002	4.75
Feb	10.00	Feb	6.00	Feb	8.50	Feb	4.75
Mar	10.00	Mar	6.06	Mar	8.50	Mar	4.75
Apr	10.00	Apr	6.45	Apr	8.50	Apr	4.75
May	10.00	May	6.99	May	8.50	May	4.75
Jun	10.00	Jun	7.25	Jun	8.50	Jun	4.75
Jul	10.00	Jul	7.25	Jul	8.50	Jul	4.75
Aug	10.00	Aug	7.51	Aug	8.50	Aug	4.75
Sep	10.00	Sep	7.75	Sep	8.49	Sep	4.75
Oct	10.00	Oct	7.75	Oct	8.12	Oct	4.75
Nov	10.00	Nov	8.15	Nov	7.89	Nov	4.35
Dec	10.00	Dec	8.50	Dec	7.75	Dec	4.25
Jan 1991	9.52	Jan 1995	8.50	Jan 1999	7.75	Jan 2003	4.25
Feb	9.05	Feb	9.00	Feb	7.75	Feb	4.25
Mar	9.00	Mar	9.00	Mar	7.75	Mar	4.25
Apr	9.00	Apr	9.00	Apr	7.75	Apr	4.25
May	8.50	May	9.00	May	7.75	May	4.25
Jun	8.50	Jun	9.00	Jun	7.75	Jun	4.22
Jul	8.50	Jul	8.80	Jul	8.00	Jul	4.00
Aug	8.50	Aug	8.75	Aug	8.06	Aug	4.00
Sep	8.20	Sep	8.75	Sep	8.25	Sep	4.00
Oct	8.00	Oct	8.75	Oct	8.25	Oct	4.00
Nov	7.58	Nov	8.75	Nov	8.37	Nov	4.00
Dec	7.21	Dec	8.65	Dec	8.50	Dec	4.00

Sources: Federal Reserve, http://www.stls.frb.org/fred/data/irates/mprime


Average Prime Interest Rate
1988 - 2003
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Percent
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
Year

SCHEDULE 3-2

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

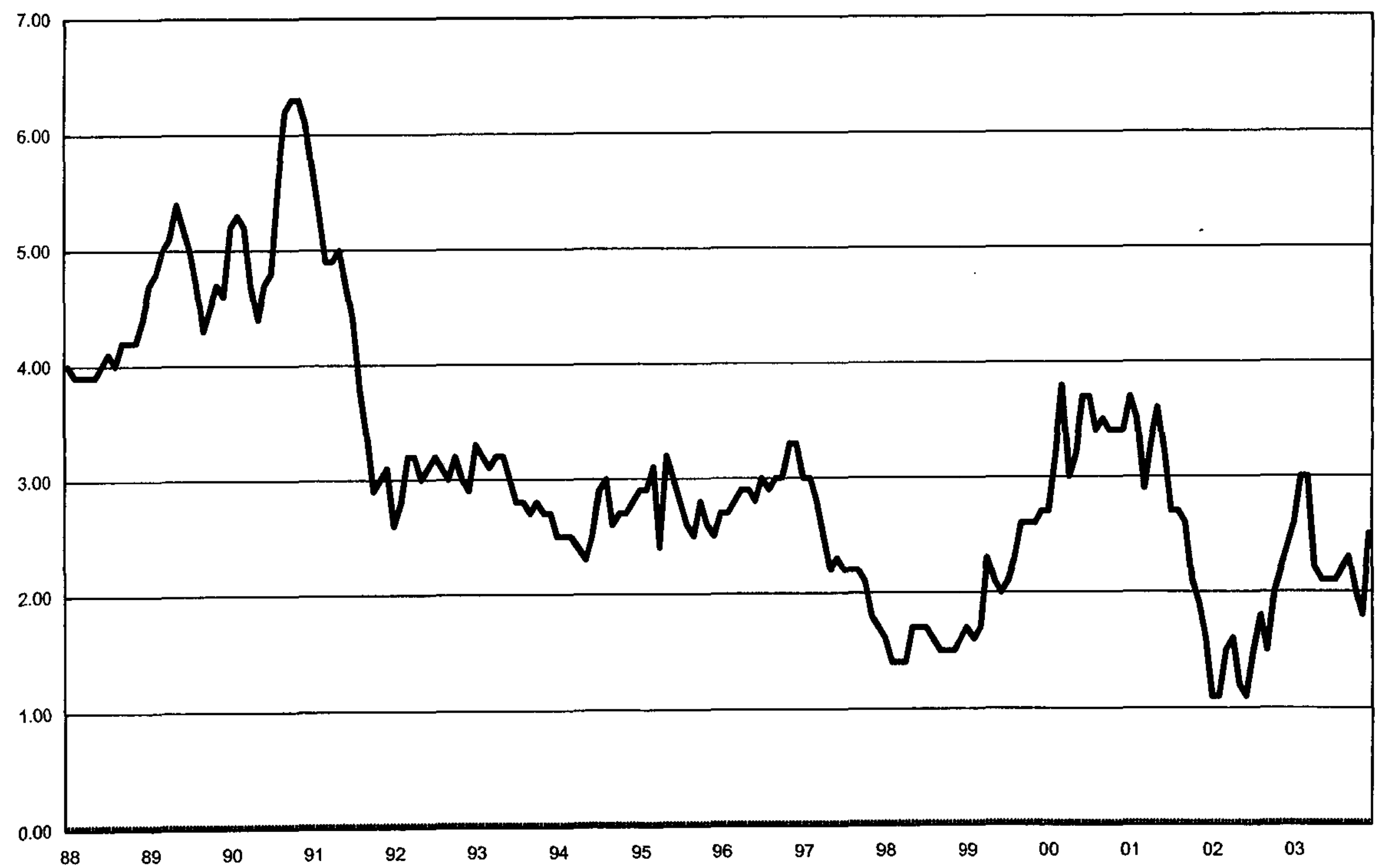
Rate of Inflation

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1988	4.00	Jan 1992	2.60	Jan 1996	2.70	Jan 2000	2.70
Feb	3.90	Feb	2.80	Feb	2.70	Feb	3.20
Mar	3.90	Mar	3.20	Mar	2.80	Mar	3.70
Apr	3.90	Apr	3.20	Apr	2.90	Apr	3.00
May	3.90	May	3.00	May	2.90	May	3.20
Jun	4.00	Jun	3.10	Jun	2.80	Jun	3.70
Jul	4.10	Jul	3.20	Jul	3.00	Jul	3.70
Aug	4.00	Aug	3.10	Aug	2.90	Aug	3.40
Sep	4.20	Sep	3.00	Sep	3.00	Sep	3.50
Oct	4.20	Oct	3.20	Oct	3.00	Oct	3.40
Nov	4.20	Nov	3.00	Nov	3.30	Nov	3.40
Dec	4.40	Dec	2.90	Dec	3.30	Dec	3.40
Jan 1989	4.70	Jan 1993	3.30	Jan 1997	3.00	Jan 2001	3.70
Feb	4.80	Feb	3.20	Feb	3.00	Feb	3.50
Mar	5.00	Mar	3.10	Mar	2.80	Mar	2.90
Apr	5.10	Apr	3.20	Apr	2.50	Apr	3.30
May	5.40	May	3.20	May	2.20	May	3.60
Jun	5.20	Jun	3.00	Jun	2.30	Jun	3.20
Jul	5.00	Jul	2.80	Jul	2.20	Jul	2.70
Aug	4.70	Aug	2.80	Aug	2.20	Aug	2.70
Sep	4.30	Sep	2.70	Sep	2.20	Sep	2.60
Oct	4.50	Oct	2.80	Oct	2.10	Oct	2.10
Nov	4.70	Nov	2.70	Nov	1.80	Nov	1.90
Dec	4.60	Dec	2.70	Dec	1.70	Dec	1.60
Jan 1990	5.20	Jan 1994	2.50	Jan 1998	1.60	Jan 2002	1.10
Feb	5.30	Feb	2.50	Feb	1.40	Feb	1.10
Mar	5.20	Mar	2.50	Mar	1.40	Mar	1.50
Apr	4.70	Apr	2.40	Apr	1.40	Apr	1.60
May	4.40	May	2.30	May	1.70	May	1.20
Jun	4.70	Jun	2.50	Jun	1.70	Jun	1.10
Jul	4.80	Jul	2.90	Jul	1.70	Jul	1.50
Aug	5.60	Aug	3.00	Aug	1.60	Aug	1.80
Sep	6.20	Sep	2.60	Sep	1.50	Sep	1.50
Oct	6.30	Oct	2.70	Oct	1.50	Oct	2.00
Nov	6.30	Nov	2.70	Nov	1.50	Nov	2.20
Dec	6.10	Dec	2.80	Dec	1.60	Dec	2.40
Jan 1991	5.70	Jan 1995	2.90	Jan 1999	1.70	Jan 2003	2.60
Feb	5.30	Feb	2.90	Feb	1.60	Feb	3.00
Mar	4.90	Mar	3.10	Mar	1.70	Mar	3.00
Apr	4.90	Apr	2.40	Apr	2.30	Apr	2.20
May	5.00	May	3.20	May	2.10	May	2.10
Jun	4.70	Jun	3.00	Jun	2.00	Jun	2.10
Jul	4.40	Jul	2.80	Jul	2.10	Jul	2.10
Aug	3.80	Aug	2.60	Aug	2.30	Aug	2.20
Sep	3.40	Sep	2.50	Sep	2.60	Sep	2.30
Oct	2.90	Oct	2.80	Oct	2.60	Oct	2.00
Nov	3.00	Nov	2.60	Nov	2.60	Nov	1.80
Dec	3.10	Dec	2.50	Dec	2.70	Dec	2.50

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Cc
Change for 12-Month Period, Bureau of Labor Statistics, ftp://ftp.bls.gov/pub/special.reque

Rate of Inflation

1988 - 2003



SCHEDULE 4-2

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Yields on Mergent's Public Utility Bonds

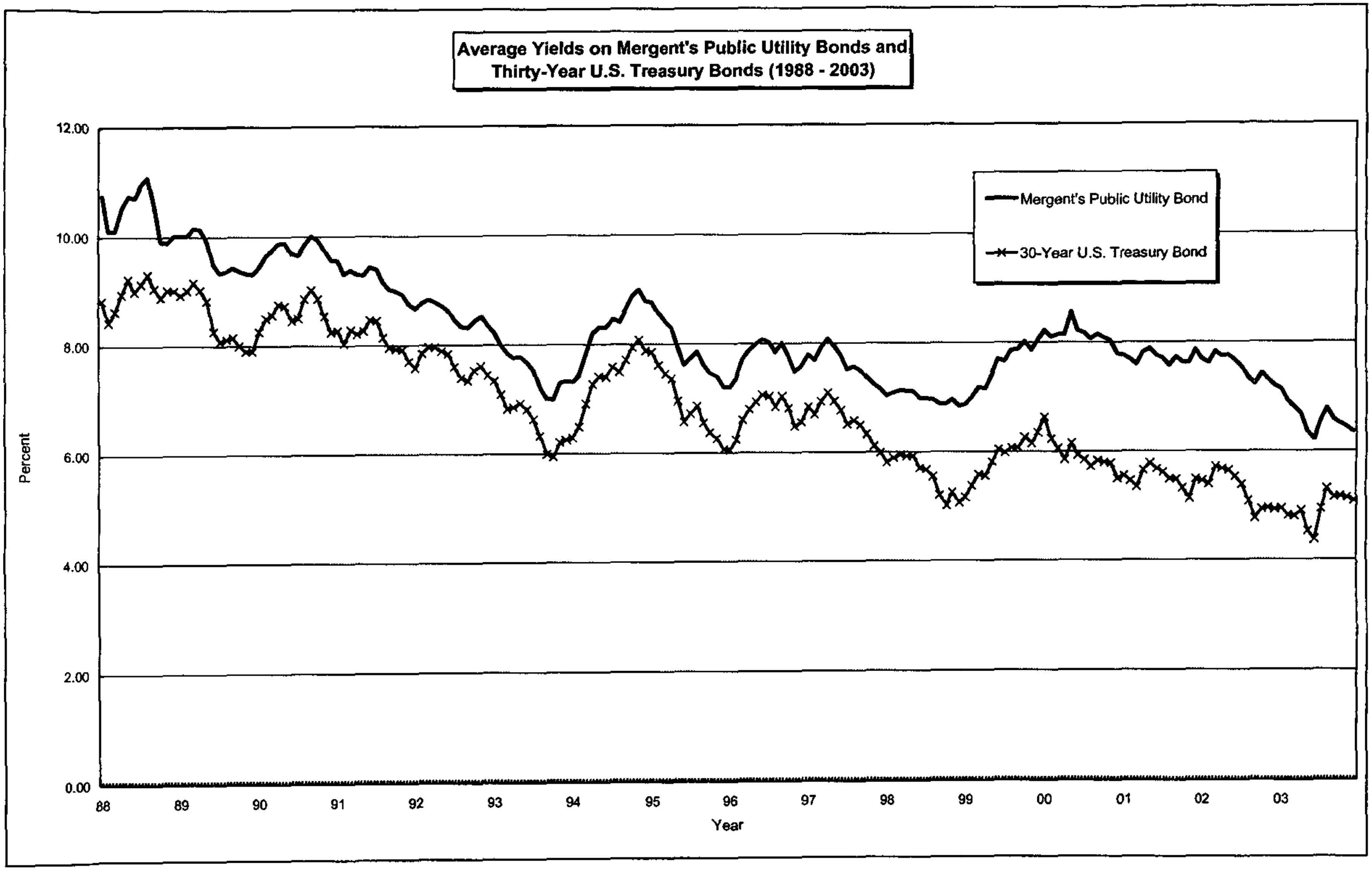
Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1988	10.75	Jan 1992	8.67	Jan 1996	7.20	Jan 2000	8.22
Feb	10.11	Feb	8.77	Feb	7.37	Feb	8.10
Mar	10.11	Mar	8.84	Mar	7.72	Mar	8.14
Apr	10.53	Apr	8.79	Apr	7.88	Apr	8.14
May	10.75	May	8.72	May	7.99	May	8.55
Jun	10.71	Jun	8.64	Jun	8.07	Jun	8.22
Jul	10.96	Jul	8.46	Jul	8.02	Jul	8.17
Aug	11.09	Aug	8.34	Aug	7.84	Aug	8.05
Sep	10.56	Sep	8.32	Sep	8.01	Sep	8.16
Oct	9.92	Oct	8.44	Oct	7.76	Oct	8.08
Nov	9.89	Nov	8.53	Nov	7.48	Nov	8.03
Dec	10.02	Dec	8.36	Dec	7.58	Dec	7.79
Jan 1989	10.02	Jan 1993	8.23	Jan 1997	7.79	Jan 2001	7.76
Feb	10.02	Feb	8.00	Feb	7.68	Feb	7.69
Mar	10.16	Mar	7.85	Mar	7.92	Mar	7.59
Apr	10.14	Apr	7.76	Apr	8.08	Apr	7.81
May	9.92	May	7.78	May	7.94	May	7.88
Jun	9.49	Jun	7.68	Jun	7.77	Jun	7.75
Jul	9.34	Jul	7.53	Jul	7.52	Jul	7.71
Aug	9.37	Aug	7.21	Aug	7.57	Aug	7.57
Sep	9.43	Sep	7.01	Sep	7.50	Sep	7.73
Oct	9.37	Oct	6.99	Oct	7.37	Oct	7.64
Nov	9.33	Nov	7.30	Nov	7.24	Nov	7.61
Dec	9.31	Dec	7.33	Dec	7.16	Dec	7.86
Jan 1990	9.44	Jan 1994	7.31	Jan 1998	7.03	Jan 2002	7.69
Feb	9.66	Feb	7.44	Feb	7.09	Feb	7.62
Mar	9.75	Mar	7.83	Mar	7.13	Mar	7.83
Apr	9.87	Apr	8.20	Apr	7.12	Apr	7.74
May	9.89	May	8.32	May	7.11	May	7.76
Jun	9.69	Jun	8.31	Jun	6.99	Jun	7.67
Jul	9.66	Jul	8.47	Jul	6.99	Jul	7.54
Aug	9.84	Aug	8.41	Aug	6.96	Aug	7.34
Sep	10.01	Sep	8.65	Sep	6.88	Sep	7.23
Oct	9.94	Oct	8.88	Oct	6.88	Oct	7.43
Nov	9.76	Nov	9.00	Nov	6.96	Nov	7.31
Dec	9.57	Dec	8.79	Dec	6.84	Dec	7.20
Jan 1991	9.56	Jan 1995	8.77	Jan 1999	6.87	Jan 2003	7.13
Feb	9.31	Feb	8.56	Feb	7.00	Feb	6.92
Mar	9.39	Mar	8.41	Mar	7.18	Mar	6.80
Apr	9.30	Apr	8.30	Apr	7.16	Apr	6.68
May	9.29	May	7.93	May	7.42	May	6.35
Jun	9.44	Jun	7.62	Jun	7.70	Jun	6.21
Jul	9.40	Jul	7.73	Jul	7.66	Jul	6.54
Aug	9.16	Aug	7.86	Aug	7.86	Aug	6.78
Sep	9.03	Sep	7.62	Sep	7.87	Sep	6.58
Oct	8.99	Oct	7.46	Oct	8.02	Oct	6.50
Nov	8.93	Nov	7.40	Nov	7.86	Nov	6.44
Dec	8.76	Dec	7.21	Dec	8.04	Dec	6.35

Source: Mergent Bond Record

Average Yields on Thirty-Year U.S. Treasury Bonds

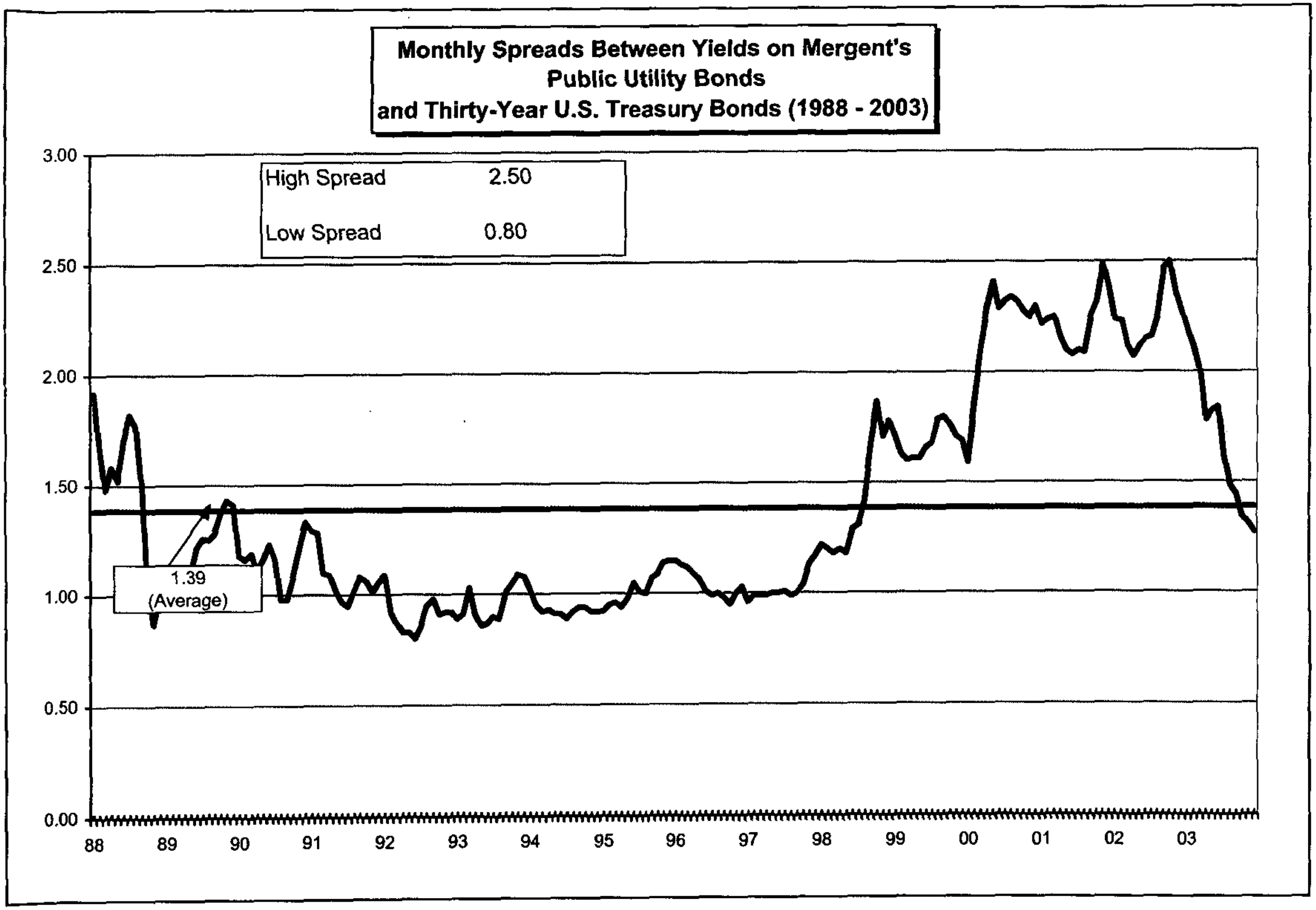
Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1988	8.83	Jan 1992	7.58	Jan 1996	6.05	Jan 2000	6.63
Feb	8.43	Feb	7.85	Feb	6.24	Feb	6.23
Mar	8.63	Mar	7.97	Mar	6.60	Mar	6.05
Apr	8.95	Apr	7.96	Apr	6.79	Apr	5.85
May	9.23	May	7.89	May	6.93	May	6.15
Jun	9.00	Jun	7.84	Jun	7.06	Jun	5.93
Jul	9.14	Jul	7.60	Jul	7.03	Jul	5.85
Aug	9.32	Aug	7.39	Aug	6.84	Aug	5.72
Sep	9.06	Sep	7.34	Sep	7.03	Sep	5.83
Oct	8.89	Oct	7.53	Oct	6.81	Oct	5.80
Nov	9.02	Nov	7.61	Nov	6.48	Nov	5.78
Dec	9.01	Dec	7.44	Dec	6.55	Dec	5.49
Jan 1989	8.93	Jan 1993	7.34	Jan 1997	6.83	Jan 2001	5.54
Feb	9.01	Feb	7.09	Feb	6.69	Feb	5.45
Mar	9.17	Mar	6.82	Mar	6.93	Mar	5.34
Apr	9.03	Apr	6.85	Apr	7.09	Apr	5.65
May	8.83	May	6.92	May	6.94	May	5.78
Jun	8.27	Jun	6.81	Jun	6.77	Jun	5.67
Jul	8.08	Jul	6.63	Jul	6.51	Jul	5.61
Aug	8.12	Aug	6.32	Aug	6.58	Aug	5.48
Sep	8.15	Sep	6.00	Sep	6.50	Sep	5.48
Oct	8.00	Oct	5.94	Oct	6.33	Oct	5.32
Nov	7.90	Nov	6.21	Nov	6.11	Nov	5.12
Dec	7.90	Dec	6.25	Dec	5.99	Dec	5.48
Jan 1990	8.26	Jan 1994	6.29	Jan 1998	5.81	Jan 2002	5.45
Feb	8.50	Feb	6.49	Feb	5.89	Feb	5.39
Mar	8.56	Mar	6.91	Mar	5.95	Mar	5.71
Apr	8.76	Apr	7.27	Apr	5.92	Apr	5.67
May	8.73	May	7.41	May	5.93	May	5.64
Jun	8.46	Jun	7.40	Jun	5.70	Jun	5.52
Jul	8.50	Jul	7.58	Jul	5.68	Jul	5.38
Aug	8.86	Aug	7.49	Aug	5.54	Aug	5.08
Sep	9.03	Sep	7.71	Sep	5.20	Sep	4.76
Oct	8.86	Oct	7.94	Oct	5.01	Oct	4.93
Nov	8.54	Nov	8.08	Nov	5.25	Nov	4.95
Dec	8.24	Dec	7.87	Dec	5.06	Dec	4.92
Jan 1991	8.27	Jan 1995	7.85	Jan 1999	5.16	Jan 2003	4.94
Feb	8.03	Feb	7.61	Feb	5.37	Feb	4.81
Mar	8.29	Mar	7.45	Mar	5.58	Mar	4.80
Apr	8.21	Apr	7.36	Apr	5.55	Apr	4.90
May	8.27	May	6.95	May	5.81	May	4.53
Jun	8.47	Jun	6.57	Jun	6.04	Jun	4.37
Jul	8.45	Jul	6.72	Jul	5.98	Jul	4.93
Aug	8.14	Aug	6.86	Aug	6.07	Aug	5.30
Sep	7.95	Sep	6.55	Sep	6.07	Sep	5.14
Oct	7.93	Oct	6.37	Oct	6.26	Oct	5.16
Nov	7.92	Nov	6.26	Nov	6.15	Nov	5.13
Dec	7.70	Dec	6.06	Dec	6.35	Dec	5.08

Source: Federal Reserve, http://www.stls.frb.org/fred/data/irates/gs30



Average Yields on Mergent's Public Utility Bonds and Thirty-Year U.S. Treasury Bonds (1988 - 2003)
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Percent
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03
Year
Mergent's Public Utility Bond
30-Year U.S. Treasury Bond

SCHEDULE 5-3


Monthly Spreads Between Yields on Mergent's
Public Utility Bonds
and Thirty-Year U.S. Treasury Bonds (1988 - 2003)
High Spread 2.50
Low Spread 0.80
1.39
(Average)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
88
89
90
91
92
93
94
95
96
97
98
99
00
01
02
03

SCHEDULE 5-4

Economic Estimates and Projections, 2003 - 2005

	Inflation Rate			Real GDP			Unemployment			3-Mo. T-Bill Rate			30-Yr. T-Bond Rate		
Source	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005
Value Line Investment Survey (11/28/03)	2.10%	2.00%	2.10%	2.90%	4.20%	3.60%	6.10%	6.00%	5.80%	1.00%	1.20%	1.70%	4.90%	5.50%	6.00%
The Budget and Economic Outlook FY2005-2014 (01/31/04)	2.30%	1.60%	1.70%	3.20%	4.80%	4.20%	6.00%	5.80%	5.30%	1.00%	1.30%	3.00%	N.A.	N.A.	N.A.
Current rate	1.90%			4.10% *			5.60% **			0.94%			4.71%		

Notes: N.A. = Not Available.
* Reflects 2003 Fourth Quarter Growth.
**Rate reported by Bureau of Labor Statisitics for the period ending February 2004.

Sources of Current Rates:
The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending January 31, 2004.
Federal Reserve website, http://research.stlouisfed.org/fred2/data/GS3M.txt, February 2004.
U.S. Department of Commerce, Bureau of Economic Analysis, for 2003 Fourth Quarter.
The Bureau of Labor Statistics, Employment Situation Summary, February 2004.
30-Year Treasury Bond Rates as reported on Investopedia website: http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETYX&d=1y, as of March 15, 2004.

Other Sources:
The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2005-2014, January 2004.
http://www.cbo.gov/showdoc.cfm?index=1824&sequence=0

SCHEDULE 6

Historical Capital Structures for Southern Union Company
Consolidated Basis
(Thousands of Dollars)

Capital Components	1999	2000	2001	2002	2003
Common Equity	$301,058	$735,854	$721,857	$685,346	$920,418
Preferred Stock	$100,000	$100,000	$100,000	$100,000	$100,000
Long-Term Debt	$392,457	$735,967	$1,335,544	$1,190,413	$2,346,405
Short-Term Debt	$21,003	$3	$190,600	$131,800	$251,500
Total	$814,518	$1,571,824	$2,348,001	$2,107,559	$3,618,323

Capital Structure	1999	2000	2001	2002	2003
Common Equity	36.96%	46.82%	30.74%	32.52%	25.44%
Preferred Stock	12.28%	6.36%	4.26%	4.74%	2.76%
Long-Term Debt	48.18%	46.82%	56.88%	56.48%	64.85%
Short-Term Debt	2.58%	0.00%	8.12%	6.25%	6.95%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

Notes: The amount of Long-Term Debt includes Current Maturities.

Source: Southern Union Company's Stockholders 2001 and 2003 Annual Reports.

Selected Financial Ratios for Southern Union Company
Consolidated Basis

Financial Ratios	1999	2000	2001	2002	2003
Return on Common Equity	3.50%	1.50%	1.80%	5.30%	4.70%
Earnings Per Common Share	$0.28	$0.22	$0.21	$0.61	$0.74
Cash Dividends Per Common Share	NA	NA	NA	NA	NA
Common Dividend Payout Ratio	0.00%	0.00%	0.00%	0.00%	0.00%
Market Price Per Common Share	$20.71 *	$15.81 *	$18.86 **	$16.50 **	$18.40 **
Book Value Per Common Share	$9.83 *	$15.17 *	$12.26 ***	$11.89 ***	$12.60 ***
Year-End Market to Book Ratio	2.11 x	1.04 x	1.54 x	1.39 x	1.46 x
Senior Debt Rating	BBB+	BBB+	BBB+	BBB+	BBB

Notes: Common Dividend Payout Ratio = Cash Dividends Per Common Share / Earnings Per Common Share.

Market to Book Ratio = Market Price Per Common Share / Book Value Per Common Share.

Year-End Market Price Per Common Share has been adjusted for stock splits and stock dividends.

Sources: *Southern Union Company's Stockholders Annual Reports.
**Standard & Poor's Stock Guide, December 2001, 2002, and 2003.
***Value Line Investment Survey: Ratings and Reports, December 19, 2003
Standard & Poor's RatingsDirect for credit ratings.
Value Line Investment Survey: Ratings and Reports, December 19, 2003 for return on common equity and earnings per common share.

MISSOURI GAS ENERGY
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Capital Structure as of December 31, 2003
for Southern Union Company

Capital Component	Amount in Dollars		Percentage of Capital
Common Stock Equity	$920,418,000		25.38%
Preferred Stock	223,828,509		6.17%
Long-Term Debt	2,216,067,767	*	61.10%
Short-Term Debt	266,599,601	**	7.35%
Total Capitalization	**$3,626,913,877**		**100.00%**

Gas Distribution Financial Ratio Benchmarks
Total Debt / Total Capital - Including Preferred Stock

	Lower Quartile	Median	Upper Quartile
Standard & Poor's Corporation's Utility Rating Service,	**BBB**	**BBB**	**BBB**
Financial Statistics as of July 7, 2000 (median)	52%	56%	61%

Note: * See Schedule 10 for the amount of Long-Term Debt at December 31, 2003.
**Short-term debt balance equals short-term debt as of December 31, 2003 less Construction Work in Progress (CWIP)

Source: Southern Union Company's response to Staff's Data Request No. 0102.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Embedded Cost of Long-Term Debt as of December 31, 2003
for Southern Union Company (Consolidated)

Southern Union Company Parent Only Embedded Cost of Long-Term Debt

Description	Issuance Date	Maturity Date	Original Issue	Outstanding as of December 31	Ann Int Rate	Ann Int Costs	Interest Pmt Dates	Issuance Costs (Orig)	Unamortized Issuance Costs & Discounts as of December 31	Embedded Rate
7.6% Senior Notes	2/1/1994	2/1/2024	475,000,000	359,765,000	7.60%	27,342,140	2/1 & 8/1	(5,386,788)	$ (2,766,840.80)	7.697%
8.25% Senior Notes	11/4/1999	11/15/2029	300,000,000	300,000,000	8.25%	24,750,000	5/15 & 11/15	(6,659,906)	$ (5,724,512.47)	8.486%
PGE MTG Notes 9.34%	11/4/1999	9/1/2019	15,000,000	15,000,000	9.34%	1,401,000	3/1 & 9/1	(539,460)	$ (270,839.21)	9.629%
Providence Series M 10.25%	9/28/2000	7/31/2008	10,000,000	1,363,000	10.25%	139,708	1/31 & 7/31	(80,531)	$ (48,112.07)	11.424%
Providence Series N 9.63%	9/28/2000	5/30/2020	10,000,000	10,000,000	9.63%	963,000	5/31 & 11/30	(284,477)	$ (244,135.84)	10.023%
Providence Series O 8.46%	9/28/2000	9/30/2022	12,500,000	11,875,000	8.46%	1,004,625	3/31 & 9/30	(678,625)	$ (587,448.76)	9.178%
Providence Series P 8.09%	9/28/2000	9/30/2022	12,500,000	12,500,000	8.09%	1,011,250	3/31 & 9/30	(323,564)	$ (284,266.16)	8.402%
Providence Series R 7.5%	9/28/2000	12/15/2025	15,000,000	15,000,000	7.50%	1,125,000	6/15 & 12/15	(367,971)	$ (330,904.32)	7.772%
Providence Series S 6.82%	9/28/2000	4/1/2018	15,000,000	14,464,000	6.82%	986,445	4/1 & 10/1	(391,911)	$ (328,976.38)	7.142%
Providence Series T 6.5%	9/28/2000	2/1/2029	15,000,000	13,802,000	6.50%	897,130	2/1 & 5/1& 8/1 & 11/1	(2,485,117)	$ (2,201,910.25)	8.491%
Fall River 9.44%	9/28/2000	2/15/2020	6,500,000	6,500,000	9.44%	613,600	2/15 & 8/15	(226,342)	$ (189,990.69)	9.911%
Fall River 7.99%	9/28/2000	12/15/2026	7,000,000	7,000,000	7.96%	559,300	3/15 & 9/15	(135,410)	$ (118,676.84)	8.204%
Fall River 7.24%	9/28/2000	12/15/2027	6,000,000	6,000,000	7.24%	434,400	6/15 & 12/15	(109,972)	$ (97,057.45)	7.428%
Mandatory Convertibles 5.75%	6/11/2003	8/16/2006	125,000,000	125,000,000	5.75%	7,187,500	8/16, 11/16, 2/16 & 5/16	(411,010)	$ (348,211.67)	5.871%
Term Loan	7/15/2002	8/26/2005	311,086,956	161,086,956	LIBOR+87.5bp	3,552,303	monthly	(1,470,798)	$ (1,057,448.21)	2.616%
Acct 189 unamortized issue costs/discounts									$ (16,317,490.52)	
Acct 257 unamortorized premiums									$ 2,096,132.78	
Totals for Southern Union Company			1,335,586,956	1,059,355,956		71,967,400		(19,651,882)	(28,820,689)	7.170%

Panhandle Eastern Pipe Line Company Embedded Cost of Long-Term debt

Description	Issuance Date	Maturity Date	Original Issue	Outstanding as of December 31	Ann Int Rate	Ann Int Costs	Interest Pmt Dates	Issuance Costs (Orig)	Unamortized Issuance Costs & Discounts as of December 31	Embedded Rate
A										
6.125% Senior Notes	3/15/1994	3/15/2004	300,000,000	146,080,000	6.125%	8,947,400	3/15 & 9/15	(5,386,788)	$ (39,997.00)	6.237%
7.875% Senior Notes	8/15/1994	8/15/2004	100,000,000	52,455,000	7.875%	4,130,831	2/15 & 8/15	(6,659,906)	$ (27,122.00)	8.437%
6.50% Senior Notes	7/15/1999	7/15/2009	200,000,000	60,623,000	6.500%	3,940,495	1/15 & 7/15	(342,871)	$ (507,191.00)	6.511%
8.25% Senior Notes	4/1/2000	4/1/2010	100,000,000	40,500,000	8.250%	3,341,250	4/1 & 10/1	(80,531)	$ (26,739.00)	8.257%
7.00% Senior Notes	7/15/1999	7/15/1999	300,000,000	66,305,000	7.000%	4,641,350	1/15 & 7/15	(284,477)	$ (1,343,312.00)	7.007%
4.80% Senior Notes	8/15/1994	9/30/2022	300,000,000	300,000,000	4.800%	14,400,000	2/15 & 8/15	(678,625)	$ (2,459,614.00)	4.811%
6.05% Senior Notes	8/18/2003	9/30/2022	250,000,000	250,000,000	6.050%	15,125,000	2/15 & 8/15	(323,564)	$ (2,238,934.00)	6.058%
Term Loan	12/21/2001	1/31/2007	290,000,000	269,589,500	4.464%	12,033,582	1/31,4/30,7/31,10/31	(10,937,822)	$ (8,203,366.50)	4.639%
Embedded Cost of long-term debt for Panhandle Eastern Pipe Line Company			1,840,000,000	1,185,532,500		66,559,909		(24,694,584)	(14,846,276)	5.698%
Total consolidated embedded cost of long-term debt for Southern Union Company			3,175,586,956	2,244,888,456		138,527,309		(44,346,466)	(43,666,964)	**6.383%**
Long-Term Debt Balance for Capital Structure in Schedule 9				**2,216,067,767**						

Source: Company Response to Data Request 0102.

Schedule 10

MISSOURI GAS ENERGY
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Embedded Cost of Preferred Stock as of December 31, 2003
for Southern Union Company

Preferred Stock	Issuance Date	Original Issue	(1) Outstanding as of 12/31/2003	(2) Annual Interest Rate		Unamortized Issuance Cost	Annualized Cost to Company (1 * 2)
7.55% Preferred Securities	10/1/03	230,000,000	$230,000,000	7.55%	$	(6,171,490.72)	$17,365,000
			$230,000,000				$17,365,000

Embedded Cost of Preferred Stock = $17,365,000 / $223,828,509

= **7.76%**

Notes:

Source: Southern Union Company's response to Staff's Data Request 0102

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Weighted Average Cost of Short-Term Debt as of December 31, 2003 for Southern Union Company

Month		Average STD Balance During Month		Interest Cost per Month
1/31/2003		$272,950,000.00		$472,152.00
2/28/2003		$255,179,030.00		$402,215.00
3/31/2003		$232,129,030.00		$388,815.00
4/30/2003		$217,550,000.00		$346,911.00
5/31/2003		$260,150,000.00		$433,367.00
6/30/2003		$272,250,000.00		$443,540.00
7/31/2003		$282,750,000.00		$463,353.00
8/30/2003		$314,250,000.00		$598,575.00
9/30/2003		$319,150,000.00		$510,053.00
10/31/2003		$272,950,000.00		$306,112.00
11/30/2003		$283,825,000.00		$386,934.00
12/31/2003		$295,175,000.00		$421,571.00
		$273,192,338.33		**5,173,598**
AVERAGE	$	273,192,338.33	$	431,133.17
			=	**1.89%**

Source: Southern Union's response to DR 0102

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Criteria for Selecting Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Natural Gas Distribution Companies	Stock Publicly Traded	Distribution Revenues to Total Revenue >90%	Information Printed In Value Line	Positive DPS Annualized Compound Growth Rate (1992 - 2002)	No Missouri Regulated Operations	10-Years of Data Available	Total Capitalization <5 Billion	**Comparable Company Met All Criteria**
AGL Resources, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Atmos Energy Corporation	Yes	Yes	Yes	Yes	No			
Cascade Natural Gas Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Delta Natural Gas Company, Inc.	Yes	Yes	No					
Energy West	Yes	Yes	No					
Energysouth, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	
Laclede Gas Company	Yes	Yes	Yes	Yes	No			
New Jersey Resources Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Northwest Natural Gas Company	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Peoples Energy Corporation	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Piedmont Natural Gas Company, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
RGC Resources, Inc.	Yes	Yes	Yes	Yes	Yes	No		
South Jersey Industries, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Southern Union Company	Yes	Yes	Yes	Yes	No			
WGL Holdings, Inc.	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Sources: Columns 1, 3, 4, and 6 = The Value Line Investment Survey: Ratings & Reports, December 19, 2003.

Column 2 and 7 = Edward Jones' Natural Gas Industry Summary, December 31, 2003.

SCHEDULE 13

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Eight Comparable Natural Gas Distribution Companies For Missouri Gas Energy

Number	Ticker Symbol	Company Name
1	ATG	AGL Resources, Inc.
2	CGC	Cascade Natural Gas
3	NJR	New Jersey Resources Corporation
4	NWN	Northwest Natural Gas
5	PGL	Peoples Energy Corporation
6	PNY	Piedmont Natural Gas Company, Inc.
7	SJI	South Jersey Industries, Inc.
8	WGL	WGL Holdings, Inc.

Note: Removed Energysouth, Inc. because of lack of projected information in Value Line.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Ten-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Natural Gas Distribution Industry Companies

	Dividends Per Share		Earnings Per Share		Book Value Per Share	
Company Name	1992	2002	1992	2002	1992	2002
AGL Resources, Inc.	$1.03	$1.08	$1.13	$1.82	$9.70	$12.52
Cascade Natural Gas	$0.93	$0.96	$0.63	$1.13	$9.09	$10.34
New Jersey Resources Corporation	$1.01	$1.20	$1.09	$2.09	$9.44	$13.06
Northwest Natural Gas	$1.15	$1.26	$0.74	$1.62	$12.41	$18.88
Peoples Energy Corporation	$1.76	$2.07	$2.06	$2.80	$17.72	$22.74
Piedmont Natural Gas Company, Inc.	$0.91	$1.60	$1.40	$1.89	$10.27	$17.82
South Jersey Industries, Inc.	$1.41	$1.51	$1.61	$2.43	$13.90	$19.34
WGL Holdings, Inc.	$1.07	$1.27	$1.27	$1.14	$10.66	$15.78

Annual Compound Growth Rates

	DPS	EPS	BVPS	
Company Name	1992 - 2002	1992 - 2002	1992 - 2002	Average
AGL Resources, Inc.	0.48%	4.88%	2.58%	2.65%
Cascade Natural Gas	0.32%	6.02%	1.30%	2.54%
New Jersey Resources Corporation	1.74%	6.73%	3.30%	3.92%
Northwest Natural Gas	0.92%	8.15%	4.29%	4.45%
Peoples Energy Corporation	1.64%	3.12%	2.53%	2.43%
Piedmont Natural Gas Company, Inc.	5.81%	3.05%	5.67%	4.84%
South Jersey Industries, Inc.	0.69%	4.20%	3.36%	2.75%
WGL Holdings, Inc.	1.73%	-1.07%	4.00%	1.55%
Average	**1.66%**	**4.38%**	**3.38%**	
Standard Deviation	1.65%	2.64%	1.23%	

Source: The Value Line Investment Survey: Ratings & Reports, December 19, 2003.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Natural Gas Distribution Industry Companies

	Dividends Per Share		Earnings Per Share		Book Value Per Share	
Company Name	1997	2002	1997	2002	1997	2002
AGL Resources, Inc.	$1.08	$1.08	$1.37	$1.82	$10.99	$12.52
Cascade Natural Gas	$0.96	$0.96	$0.93	$1.13	$10.16	$10.34
New Jersey Resources Corporation	$1.07	$1.20	$1.48	$2.09	$10.38	$13.06
Northwest Natural Gas	$1.21	$1.26	$1.76	$1.62	$16.02	$18.88
Peoples Energy Corporation	$1.87	$2.07	$2.81	$2.80	$20.43	$22.74
Piedmont Natural Gas Company, Inc.	$1.21	$1.60	$1.85	$1.89	$13.90	$17.82
South Jersey Industries, Inc.	$1.44	$1.51	$1.71	$2.43	$12.86	$19.34
WGL Holdings, Inc.	$1.17	$1.27	$1.85	$1.14	$13.48	$15.78

Annual Compound Growth Rates

	DPS	EPS	BVPS	
Company Name	1997 - 2002	1997 - 2002	1997 - 2002	Average
AGL Resources, Inc.	0.00%	5.84%	2.64%	2.83%
Cascade Natural Gas	0.00%	3.97%	0.35%	1.44%
New Jersey Resources Corporation	2.32%	7.15%	4.70%	4.72%
Northwest Natural Gas	0.81%	-1.64%	3.34%	0.84%
Peoples Energy Corporation	2.05%	-0.07%	2.17%	1.38%
Piedmont Natural Gas Company, Inc.	5.75%	0.43%	5.09%	3.76%
South Jersey Industries, Inc.	0.95%	7.28%	8.50%	5.58%
WGL Holdings, Inc.	1.65%	-9.23%	3.20%	-1.46%
Average	**1.69%**	**1.72%**	**3.75%**	
Standard Deviation	1.73%	5.23%	2.27%	

Source: The Value Line Investment Survey: Ratings & Reports, December 19, 2003.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average of Ten and Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Natural Gas Distribution Industry Companies

Company Name	10-Year Average DPS, EPS & BVPS	5-Year Average DPS, EPS & BVPS	Average of 5-Year & 10-Year Averages
AGL Resources, Inc.	2.65%	2.83%	2.74%
Cascade Natural Gas	2.54%	1.44%	1.99%
New Jersey Resources Corporation	3.92%	4.72%	4.32%
Northwest Natural Gas	4.45%	0.84%	2.64%
Peoples Energy Corporation	2.43%	1.38%	1.90%
Piedmont Natural Gas Company, Inc.	4.84%	3.76%	4.30%
South Jersey Industries, Inc.	2.75%	5.58%	4.16%
WGL Holdings, Inc.	1.55%	-1.46%	0.05%
Average	**3.14%**	**2.39%**	**2.76%**

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Historical and Projected Growth Rates for the Eight Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	Historical Growth Rate (DPS, EPS and BVPS)	Projected 5-Year Growth IBES (Median)	Projected 5-Year EPS Growth S&P	Projected 3-5 Year EPS Growth Value Line	Average Projected Growth	Average of Historical & Projected Growth
AGL Resources, Inc.	2.74%	5.00%	5.00%	6.50%	5.50%	4.12%
Cascade Natural Gas	1.99%	4.00%	4.00%	4.50%	4.17%	3.08%
New Jersey Resources Corporation	4.32%	6.50%	6.00%	8.00%	6.83%	5.58%
Northwest Natural Gas	2.64%	4.00%	4.00%	5.00%	4.33%	3.49%
Peoples Energy Corporation	1.90%	5.00%	5.00%	4.00%	4.67%	3.29%
Piedmont Natural Gas Company, Inc.	4.30%	5.00%	5.00%	7.50%	5.83%	5.07%
South Jersey Industries, Inc.	4.16%	5.00%	5.00%	6.50%	5.50%	4.83%
WGL Holdings, Inc.	0.05%	4.00%	4.00%	4.00%	4.00%	2.02%
	2.76%	4.81%	4.75%	5.75%	5.10%	3.93%

Proposed Range of Growth: 3.90%-4.90%

Column 5 = [(Column 2 + Column 3 + Column 4) / 3]

Column 6 = [(Column 1 + Column 5) / 2]

Sources: Column 1 = Average of 10-Year and 5-Year Annual Compound Growth Rates from Schedule 15-3.

Column 2 = I/B/E/S Inc.'s Institutional Brokers Estimate System, January 15, 2004.

Column 3 = Standard & Poor's Earnings Guide, February 2004.

Column 4 = The Value Line Investment Survey: Ratings and Reports, December 19, 2003.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average High / Low Stock Price for October 2003 through January 2004 for the Eight Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	-- October 2003 --		-- November 2003 --		-- December 2003 --		-- January 2004 --		**Average High/Low Stock Price (10/03 - 1/04)**
Company Name	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	High Stock Price	Low Stock Price	
AGL Resources, Inc.	29.040	27.240	28.720	27.500	29.350	28.250	30.630	28.600	**28.666**
Cascade Natural Gas	20.370	19.410	20.750	19.550	21.990	19.900	23.050	21.150	**20.771**
New Jersey Resources Corporation	38.000	35.760	39.250	36.450	39.540	37.550	39.490	37.750	**37.758**
Northwest Natural Gas	30.500	28.510	30.850	28.910	31.300	29.500	31.970	29.950	**29.928**
Peoples Energy Corporation	42.720	40.030	40.900	38.820	42.640	40.060	43.260	41.370	**40.862**
Piedmont Natural Gas Company, Inc.	40.000	38.850	41.130	39.410	43.950	40.710	43.750	41.270	**40.675**
South Jersey Industries, Inc.	39.610	37.770	39.400	37.850	40.700	39.000	41.490	40.210	**39.055**
WGL Holdings, Inc.	28.500	27.370	28.160	26.200	28.550	26.630	28.700	27.150	**27.568**

Notes:

Column 9 = [(Column 1 + Column 2 + Column 3 + Column 4 + Column 5 + Column 6 + Column 7 + Column 8) / 8].

Sources: Standard & Poor's Stock Guides: November 2003, December 2003, January 2004 and February 2004.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

DCF Estimated Costs of Common Equity for the Eight Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)
Company Name	Expected Annual Dividend	Average High/Low Stock Price	Projected Dividend Yield	Average of Historical & Projected Growth	Estimated Cost of Common Equity
AGL Resources, Inc.	$1.12	$28.666	3.91%	4.12%	8.03%
Cascade Natural Gas	$0.96	$20.771	4.62%	3.08%	7.70%
New Jersey Resources Corporation	$1.27	$37.758	3.36%	5.58%	8.94%
Northwest Natural Gas	$1.29	$29.928	4.31%	3.49%	7.80%
Peoples Energy Corporation	$2.14	$40.862	5.24%	3.29%	8.80%
Piedmont Natural Gas Company, Inc.	$1.69	$40.675	4.15%	5.07%	9.89%
South Jersey Industries, Inc.	$1.59	$39.055	4.07%	4.83%	8.90%
WGL Holdings, Inc.	$1.29	$27.568	4.68%	2.02%	6.70%
Average			4.29%	3.93%	8.35%

Proposed Dividend Yield:	**4.30%**
Proposed Range of Growth:	**3.90% - 4.90%**
Estimated Cost of Common Equity:	**8.20% - 9.20%**

Notes: Column 1 = Estimated Dividends Declared per share represents the average projected dividends for 2003 and 2004.

Column 3 = (Column 1 / Column 2).

Column 5 = (Column 3 + Column 4).

Sources: Column 1 = The Value Line Investment Survey: Ratings & Reports, December 19, 2003.

Column 2 = Schedule 17.

Column 4 = Schedule 16.

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Capital Asset Pricing Model (CAPM) Costs of Common Equity Estimates for the Eight Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	Risk Free Rate	Company's Value Line Beta	Market Risk Premium (1926-2002)	Market Risk Premium (1993-2002)	CAPM Cost of Common Equity (1926-2002)	CAPM Cost of Common Equity (1993-2002)
AGL Resources, Inc.	4.93%	0.75	6.40%	-0.34%	9.73%	4.68%
Cascade Natural Gas	4.93%	0.70	6.40%	-0.34%	9.41%	4.69%
New Jersey Resources Corporation	4.93%	0.70	6.40%	-0.34%	9.41%	4.69%
Northwest Natural Gas	4.93%	0.60	6.40%	-0.34%	8.77%	4.73%
Peoples Energy Corporation	4.93%	0.75	6.40%	-0.34%	9.73%	4.68%
Piedmont Natural Gas Company, Inc.	4.93%	0.70	6.40%	-0.34%	9.41%	4.69%
South Jersey Industries, Inc.	4.93%	0.55	6.40%	-0.34%	8.45%	4.74%
WGL Holdings, Inc.	4.93%	0.70	6.40%	-0.34%	9.41%	4.69%
Average		0.68			9.29%	4.70%

Sources:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for February 2004 which was obtained from Investopedia at:http://www.investopedia.com

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by the Value Line Investment Survey: Ratings & Reports, December 19, 2003.

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium was determined to be 6.40% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook for the period 1926 - 2002.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk free investment. The appropriate Market Risk Premium was determined to be -.40% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook for the period 1993 - 2002.

Column 5 = (Column 1 + (Column 2 * Column 3)).

Column 6 = (Column 1 + (Column 2 * Column 4)).

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for AGL Resources' Expected Returns on Common Equity

Mo/Year	AGL's Expected ROE	30-Year U.S. Treasury Bond Yields	AGL's Risk Premium
Jan 1994	11.00%	6.29%	4.71%
Feb	11.00%	6.49%	4.51%
Mar	11.00%	6.91%	4.09%
Apr	10.50%	7.27%	3.23%
May	10.50%	7.41%	3.09%
Jun	10.50%	7.40%	3.10%
Jul	11.00%	7.58%	3.42%
Aug	11.00%	7.49%	3.51%
Sep	11.00%	7.71%	3.29%
Oct	11.00%	7.94%	3.06%
Nov	11.00%	8.08%	2.92%
Dec	11.00%	7.87%	3.13%
Jan 1995	11.00%	7.85%	3.15%
Feb	11.00%	7.61%	3.39%
Mar	11.00%	7.45%	3.55%
Apr	12.00%	7.36%	4.64%
May	12.00%	6.95%	5.05%
Jun	12.00%	6.57%	5.43%
Jul	11.50%	6.72%	4.78%
Aug	11.50%	6.86%	4.64%
Sep	11.50%	6.55%	4.95%
Oct	12.50%	6.37%	6.13%
Nov	12.50%	6.26%	6.24%
Dec	12.50%	6.06%	6.44%
Jan 1996	13.00%	6.05%	6.95%
Feb	13.00%	6.24%	6.76%
Mar	13.00%	6.60%	6.40%
Apr	13.50%	6.79%	6.71%
May	13.50%	6.93%	6.57%
Jun	13.50%	7.06%	6.44%
Jul	14.00%	7.03%	6.97%
Aug	14.00%	6.84%	7.16%
Sep	14.00%	7.03%	6.97%
Oct	14.00%	6.81%	7.19%
Nov	14.00%	6.48%	7.52%
Dec	14.00%	6.55%	7.45%
Jan 1997	14.50%	6.83%	7.67%
Feb	14.50%	6.69%	7.81%
Mar	14.50%	6.93%	7.57%
Apr	14.00%	7.09%	6.91%
May	14.00%	6.94%	7.06%
Jun	14.00%	6.77%	7.23%
Jul	14.00%	6.51%	7.49%
Aug	14.00%	6.58%	7.42%
Sep	14.00%	6.50%	7.50%
Oct	13.50%	6.33%	7.17%
Nov	13.50%	6.11%	7.39%
Dec	13.50%	5.99%	7.51%
Jan 1998	11.50%	5.81%	5.69%
Feb	11.50%	5.89%	5.61%
Mar	11.50%	5.95%	5.55%
Apr	11.00%	5.92%	5.08%
May	11.00%	5.93%	5.07%
Jun	11.00%	5.70%	5.30%
Jul	10.50%	5.68%	4.82%
Aug	10.50%	5.54%	4.96%
Sep	10.50%	5.20%	5.30%
Oct	10.50%	5.01%	5.49%
Nov	10.50%	5.25%	5.25%
Dec	10.50%	5.06%	5.44%
Jan 1999	12.00%	5.16%	6.84%
Feb	12.00%	5.37%	6.63%
Mar	12.00%	5.58%	6.42%
Apr	12.00%	5.55%	6.45%
May	12.00%	5.81%	6.19%
Jun	12.00%	6.04%	5.96%
Jul	11.50%	5.98%	5.52%
Aug	11.50%	6.07%	5.43%
Sep	11.50%	6.07%	5.43%
Oct	9.50%	6.26%	3.24%
Nov	9.50%	6.15%	3.35%
Dec	9.50%	6.35%	3.15%
Jan 2000	9.50%	6.63%	2.87%
Feb	9.50%	6.23%	3.27%
Mar	9.50%	6.05%	3.45%
Apr	10.00%	5.85%	4.15%
May	10.00%	6.15%	3.85%
Jun	10.00%	5.93%	4.07%
Jul	10.50%	5.85%	4.65%
Aug	10.50%	5.72%	4.78%
Sep	10.50%	5.83%	4.67%
Oct	10.50%	5.80%	4.70%
Nov	10.50%	5.78%	4.72%
Dec	10.50%	5.49%	5.01%
Jan 2001	11.50%	5.54%	5.96%
Feb	11.50%	5.45%	6.05%
March	11.50%	5.34%	6.16%
Apr	12.00%	5.65%	6.35%
May	12.00%	5.78%	6.22%
June	12.00%	5.67%	6.33%
July	13.00%	5.61%	7.39%
Aug	13.00%	5.48%	7.52%
Sept	13.00%	5.48%	7.52%
Oct	12.50%	5.32%	7.18%
Nov	12.50%	5.12%	7.38%
Dec	12.50%	5.48%	7.02%
Jan 2002	13.00%	5.45%	7.55%
Feb	13.00%	5.40%	7.60%
Mar	13.00%	5.71%	7.29%
Apr	13.00%	5.67%	7.33%
May	13.00%	5.64%	7.36%
Jun	13.00%	5.52%	7.48%
Jul	12.50%	5.38%	7.12%
Aug	12.50%	5.08%	7.42%
Sep	12.50%	4.76%	7.74%
Oct	13.00%	4.93%	8.07%
Nov	13.00%	4.95%	8.05%
Dec	13.00%	4.92%	8.08%
Jan 2003	13.50%	4.94%	8.56%
Feb	13.50%	4.81%	8.69%
Mar	13.50%	4.80%	8.70%
Apr	14.00%	4.90%	9.10%
May	14.00%	4.53%	9.47%
Jun	14.00%	4.37%	9.63%
Jul	14.50%	4.93%	9.57%
Aug	14.50%	5.30%	9.20%
Sep	14.50%	5.14%	9.36%
Oct	13.50%	5.16%	8.34%
Nov	13.50%	5.13%	8.37%
Dec	13.50%	5.08%	8.42%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	6.09%
High Risk Premium: (June 2003)	9.63%
Low Risk Premium: (January 2000)	2.87%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-1

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for Cascade's Expected Returns on Common Equity

Mo/Year	Cascade's Expected ROE	30-Year U.S. Treasury Bond Yields	Cascade's Risk Premium
Jan 1994	11.50%	6.29%	5.21%
Feb	11.50%	6.49%	5.01%
Mar	11.50%	6.91%	4.59%
Apr	10.00%	7.27%	2.73%
May	10.00%	7.41%	2.59%
Jun	10.00%	7.40%	2.60%
Jul	9.00%	7.58%	1.42%
Aug	9.00%	7.49%	1.51%
Sep	9.00%	7.71%	1.29%
Oct	8.00%	7.94%	0.06%
Nov	8.00%	8.08%	-0.08%
Dec	8.00%	7.87%	0.13%
Jan 1995	10.50%	7.85%	2.65%
Feb	10.50%	7.61%	2.89%
Mar	10.50%	7.45%	3.05%
Apr	9.00%	7.36%	1.64%
May	9.00%	6.95%	2.05%
Jun	9.00%	6.57%	2.43%
Jul	10.50%	6.72%	3.78%
Aug	10.50%	6.86%	3.64%
Sep	10.50%	6.55%	3.95%
Oct	10.00%	6.37%	3.63%
Nov	10.00%	6.26%	3.74%
Dec	10.00%	6.06%	3.94%
Jan 1996	10.50%	6.05%	4.45%
Feb	10.50%	6.24%	4.26%
Mar	10.50%	6.60%	3.90%
Apr	8.50%	6.79%	1.71%
May	8.50%	6.93%	1.57%
Jun	8.50%	7.06%	1.44%
Jul	10.50%	7.03%	3.47%
Aug	10.50%	6.84%	3.66%
Sep	10.50%	7.03%	3.47%
Oct	8.50%	6.81%	1.69%
Nov	8.50%	6.48%	2.02%
Dec	8.50%	6.55%	1.95%
Jan 1997	14.50%	6.83%	7.67%
Feb	14.50%	6.69%	7.81%
Mar	14.50%	6.93%	7.57%
Apr	14.00%	7.09%	6.91%
May	14.00%	6.94%	7.06%
Jun	14.00%	6.77%	7.23%
Jul	10.50%	6.51%	3.99%
Aug	10.50%	6.58%	3.92%
Sep	10.50%	6.50%	4.00%
Oct	10.00%	6.33%	3.67%
Nov	10.00%	6.11%	3.89%
Dec	10.00%	5.99%	4.01%
Jan 1998	10.50%	5.81%	4.69%
Feb	10.50%	5.89%	4.61%
Mar	10.50%	5.95%	4.55%
Apr	9.50%	5.92%	3.58%
May	9.50%	5.93%	3.57%
Jun	9.50%	5.70%	3.80%
Jul	8.00%	5.68%	2.32%
Aug	8.00%	5.54%	2.46%
Sep	8.00%	5.20%	2.80%
Oct	8.00%	5.01%	2.99%
Nov	8.00%	5.25%	2.75%
Dec	8.00%	5.06%	2.94%

Mo/Year	Cascade's Expected ROE	30-Year U.S. Treasury Bond Yields	Cascade's Risk Premium
Jan 1999	10.50%	5.16%	5.34%
Feb	10.50%	5.37%	5.13%
Mar	10.50%	5.58%	4.92%
Apr	11.00%	5.55%	5.45%
May	11.00%	5.81%	5.19%
Jun	11.00%	6.04%	4.96%
Jul	11.00%	5.98%	5.02%
Aug	11.00%	6.07%	4.93%
Sep	11.00%	6.07%	4.93%
Oct	11.00%	6.26%	4.74%
Nov	11.00%	6.15%	4.85%
Dec	11.00%	6.35%	4.65%
Jan 2000	12.00%	6.63%	5.37%
Feb	12.00%	6.23%	5.77%
Mar	12.00%	6.05%	5.95%
Apr	12.50%	5.85%	6.65%
May	12.50%	6.15%	6.35%
Jun	12.50%	5.93%	6.57%
Jul	13.50%	5.85%	7.65%
Aug	13.50%	5.72%	7.78%
Sep	13.50%	5.83%	7.67%
Oct	13.00%	5.80%	7.20%
Nov	13.00%	5.78%	7.22%
Dec	13.00%	5.49%	7.51%
Jan 2001	14.00%	5.54%	8.46%
Feb	14.00%	5.45%	8.55%
March	14.00%	5.34%	8.66%
Apr	13.50%	5.65%	7.85%
May	13.50%	5.78%	7.72%
June	13.50%	5.67%	7.83%
July	13.00%	5.61%	7.39%
Aug	13.00%	5.48%	7.52%
Sept	13.00%	5.48%	7.52%
Oct	10.50%	5.32%	5.18%
Nov	10.50%	5.12%	5.38%
Dec	10.50%	5.48%	5.02%
Jan 2002	8.00%	5.45%	2.55%
Feb	8.00%	5.40%	2.60%
Mar	8.00%	5.71%	2.29%
Apr	8.00%	5.67%	2.33%
May	8.00%	5.64%	2.36%
Jun	8.00%	5.52%	2.48%
Jul	9.00%	5.38%	3.62%
Aug	9.00%	5.08%	3.92%
Sep	9.00%	4.76%	4.24%
Oct	10.50%	4.93%	5.57%
Nov	10.50%	4.95%	5.55%
Dec	10.50%	4.92%	5.58%
Jan 2003	11.50%	4.94%	6.56%
Feb	11.50%	4.81%	6.69%
Mar	11.50%	4.80%	6.70%
Apr	14.50%	4.90%	9.60%
May	14.50%	4.53%	9.97%
Jun	14.50%	4.37%	10.13%
Jul	13.00%	4.93%	8.07%
Aug	13.00%	5.30%	7.70%
Sep	13.00%	5.14%	7.86%
Oct	12.50%	5.16%	7.34%
Nov	12.50%	5.13%	7.37%
Dec	12.50%	5.08%	7.42%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	4.79%
High Risk Premium: (June 2003)	10.13%
Low Risk Premium: (November 1994)	-0.08%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-2

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for New Jersey's Expected Returns on Common Equity

Mo/Year	New Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	New Jersey's Risk Premium
Jan 1994	12.00%	6.29%	5.71%
Feb	12.00%	6.49%	5.51%
Mar	12.00%	6.91%	5.09%
Apr	12.00%	7.27%	4.73%
May	12.00%	7.41%	4.59%
Jun	12.00%	7.40%	4.60%
Jul	12.00%	7.58%	4.42%
Aug	12.00%	7.49%	4.51%
Sep	12.00%	7.71%	4.29%
Oct	12.00%	7.94%	4.06%
Nov	12.00%	8.08%	3.92%
Dec	12.00%	7.87%	4.13%
Jan 1995	11.50%	7.85%	3.65%
Feb	11.50%	7.61%	3.89%
Mar	11.50%	7.45%	4.05%
Apr	12.00%	7.36%	4.64%
May	12.00%	6.95%	5.05%
Jun	12.00%	6.57%	5.43%
Jul	12.50%	6.72%	5.78%
Aug	12.50%	6.86%	5.64%
Sep	12.50%	6.55%	5.95%
Oct	13.00%	6.37%	6.63%
Nov	13.00%	6.26%	6.74%
Dec	13.00%	6.06%	6.94%
Jan 1996	13.50%	6.05%	7.45%
Feb	13.50%	6.24%	7.26%
Mar	13.50%	6.60%	6.90%
Apr	13.50%	6.79%	6.71%
May	13.50%	6.93%	6.57%
Jun	13.50%	7.06%	6.44%
Jul	13.50%	7.03%	6.47%
Aug	13.50%	6.84%	6.66%
Sep	13.50%	7.03%	6.47%
Oct	13.50%	6.81%	6.69%
Nov	13.50%	6.48%	7.02%
Dec	13.50%	6.55%	6.95%
Jan 1997	14.50%	6.83%	7.67%
Feb	14.50%	6.69%	7.81%
Mar	14.50%	6.93%	7.57%
Apr	14.00%	7.09%	6.91%
May	14.00%	6.94%	7.06%
Jun	14.00%	6.77%	7.23%
Jul	14.50%	6.51%	7.99%
Aug	14.50%	6.58%	7.92%
Sep	14.50%	6.50%	8.00%
Oct	14.50%	6.33%	8.17%
Nov	14.50%	6.11%	8.39%
Dec	14.50%	5.99%	8.51%
Jan 1998	14.50%	5.81%	8.69%
Feb	14.50%	5.89%	8.61%
Mar	14.50%	5.95%	8.55%
Apr	14.50%	5.92%	8.58%
May	14.50%	5.93%	8.57%
Jun	14.50%	5.70%	8.80%
Jul	15.00%	5.68%	9.32%
Aug	15.00%	5.54%	9.46%
Sep	15.00%	5.20%	9.80%
Oct	15.00%	5.01%	9.99%
Nov	15.00%	5.25%	9.75%
Dec	15.00%	5.06%	9.94%

Mo/Year	New Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	New Jersey's Risk Premium
Jan 1999	14.50%	5.16%	9.34%
Feb	14.50%	5.37%	9.13%
Mar	14.50%	5.58%	8.92%
Apr	14.50%	5.55%	8.95%
May	14.50%	5.81%	8.69%
Jun	14.50%	6.04%	8.46%
Jul	14.50%	5.98%	8.52%
Aug	14.50%	6.07%	8.43%
Sep	14.50%	6.07%	8.43%
Oct	14.50%	6.26%	8.24%
Nov	14.50%	6.15%	8.35%
Dec	14.50%	6.35%	8.15%
Jan 2000	15.00%	6.63%	8.37%
Feb	15.00%	6.23%	8.77%
Mar	15.00%	6.05%	8.95%
Apr	15.00%	5.85%	9.15%
May	15.00%	6.15%	8.85%
Jun	15.00%	5.93%	9.07%
Jul	15.00%	5.85%	9.15%
Aug	15.00%	5.72%	9.28%
Sep	15.00%	5.83%	9.17%
Oct	15.00%	5.80%	9.20%
Nov	15.00%	5.78%	9.22%
Dec	15.00%	5.49%	9.51%
Jan 2001	14.50%	5.54%	8.96%
Feb	14.50%	5.45%	9.05%
March	14.50%	5.34%	9.16%
Apr	14.50%	5.65%	8.85%
May	14.50%	5.78%	8.72%
June	14.50%	5.67%	8.83%
July	12.50%	5.61%	6.89%
Aug	12.50%	5.48%	7.02%
Sept	12.50%	5.48%	7.02%
Oct	12.50%	5.32%	7.18%
Nov	12.50%	5.12%	7.38%
Dec	12.50%	5.48%	7.02%
Jan 2002	14.50%	5.45%	9.05%
Feb	14.50%	5.40%	9.10%
Mar	14.50%	5.71%	8.79%
Apr	14.00%	5.67%	8.33%
May	14.00%	5.64%	8.36%
Jun	14.00%	5.52%	8.48%
Jul	15.00%	5.38%	9.62%
Aug	15.00%	5.08%	9.92%
Sep	15.00%	4.76%	10.24%
Oct	14.50%	4.93%	9.57%
Nov	14.50%	4.95%	9.55%
Dec	14.50%	4.92%	9.58%
Jan 2003	14.50%	4.94%	9.56%
Feb	14.50%	4.81%	9.69%
Mar	14.50%	4.80%	9.70%
Apr	15.00%	4.90%	10.10%
May	15.00%	4.53%	10.47%
Jun	15.00%	4.37%	10.63%
Jul	15.00%	4.93%	10.07%
Aug	15.00%	5.30%	9.70%
Sep	15.00%	5.14%	9.86%
Oct	15.00%	5.16%	9.84%
Nov	15.00%	5.13%	9.87%
Dec	15.00%	5.08%	9.92%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	7.86%
High Risk Premium: (June 2003)	10.63%
Low Risk Premium: (January 1995)	3.65%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-3

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for Northwest Natural Gas' Expected Returns on Common Equity

Mo/Year	Northwest Natural Gas' Expected ROE	30-Year U.S. Treasury Bond Yields	Northwest Natural Gas' Risk Premium
Jan 1994	12.50%	6.29%	6.21%
Feb	12.50%	6.49%	6.01%
Mar	12.50%	6.91%	5.59%
Apr	11.50%	7.27%	4.23%
May	11.50%	7.41%	4.09%
Jun	11.50%	7.40%	4.10%
Jul	9.50%	7.58%	1.92%
Aug	9.50%	7.49%	2.01%
Sep	9.50%	7.71%	1.79%
Oct	10.50%	7.94%	2.56%
Nov	10.50%	8.08%	2.42%
Dec	10.50%	7.87%	2.63%
Jan 1995	11.50%	7.85%	3.65%
Feb	11.50%	7.61%	3.89%
Mar	11.50%	7.45%	4.05%
Apr	11.00%	7.36%	3.64%
May	11.00%	6.95%	4.05%
Jun	11.00%	6.57%	4.43%
Jul	10.50%	6.72%	3.78%
Aug	10.50%	6.86%	3.64%
Sep	10.50%	6.55%	3.95%
Oct	10.50%	6.37%	4.13%
Nov	10.50%	6.26%	4.24%
Dec	10.50%	6.06%	4.44%
Jan 1996	11.50%	6.05%	5.45%
Feb	11.50%	6.24%	5.26%
Mar	11.50%	6.60%	4.90%
Apr	11.50%	6.79%	4.71%
May	11.50%	6.93%	4.57%
Jun	11.50%	7.06%	4.44%
Jul	12.00%	7.03%	4.97%
Aug	12.00%	6.84%	5.16%
Sep	12.00%	7.03%	4.97%
Oct	11.50%	6.81%	4.69%
Nov	11.50%	6.48%	5.02%
Dec	11.50%	6.55%	4.95%
Jan 1997	12.50%	6.83%	5.67%
Feb	12.50%	6.69%	5.81%
Mar	12.50%	6.93%	5.57%
Apr	11.50%	7.09%	4.41%
May	11.50%	6.94%	4.56%
Jun	11.50%	6.77%	4.73%
Jul	12.00%	6.51%	5.49%
Aug	12.00%	6.58%	5.42%
Sep	12.00%	6.50%	5.50%
Oct	12.50%	6.33%	6.17%
Nov	12.50%	6.11%	6.39%
Dec	12.50%	5.99%	6.51%
Jan 1998	11.50%	5.81%	5.69%
Feb	11.50%	5.89%	5.61%
Mar	11.50%	5.95%	5.55%
Apr	11.50%	5.92%	5.58%
May	11.50%	5.93%	5.57%
Jun	11.50%	5.70%	5.80%
Jul	9.50%	5.68%	3.82%
Aug	9.50%	5.54%	3.96%
Sep	9.50%	5.20%	4.30%
Oct	9.50%	5.01%	4.49%
Nov	9.50%	5.25%	4.25%
Dec	9.50%	5.06%	4.44%

Mo/Year	Northwest Natural Gas' Expected ROE	30-Year U.S. Treasury Bond Yields	Northwest Natural Gas' Risk Premium
Jan 1999	11.00%	5.16%	5.84%
Feb	11.00%	5.37%	5.63%
Mar	11.00%	5.58%	5.42%
Apr	8.50%	5.55%	2.95%
May	8.50%	5.81%	2.69%
Jun	8.50%	6.04%	2.46%
Jul	9.50%	5.98%	3.52%
Aug	9.50%	6.07%	3.43%
Sep	9.50%	6.07%	3.43%
Oct	10.50%	6.26%	4.24%
Nov	10.50%	6.15%	4.35%
Dec	10.50%	6.35%	4.15%
Jan 2000	10.50%	6.63%	3.87%
Feb	10.50%	6.23%	4.27%
Mar	10.50%	6.05%	4.45%
Apr	10.00%	5.85%	4.15%
May	10.00%	6.15%	3.85%
Jun	10.00%	5.93%	4.07%
Jul	10.50%	5.85%	4.65%
Aug	10.50%	5.72%	4.78%
Sep	10.50%	5.83%	4.67%
Oct	10.00%	5.80%	4.20%
Nov	10.00%	5.78%	4.22%
Dec	10.00%	5.49%	4.51%
Jan 2001	10.50%	5.54%	4.96%
Feb	10.50%	5.45%	5.05%
March	10.50%	5.34%	5.16%
Apr	10.50%	5.65%	4.85%
May	10.50%	5.78%	4.72%
June	10.50%	5.67%	4.83%
July	9.50%	5.61%	3.89%
Aug	9.50%	5.48%	4.02%
Sept	9.50%	5.48%	4.02%
Oct	9.50%	5.32%	4.18%
Nov	9.50%	5.12%	4.38%
Dec	9.50%	5.48%	4.02%
Jan 2002	10.00%	5.45%	4.55%
Feb	10.00%	5.40%	4.60%
Mar	10.00%	5.71%	4.29%
Apr	10.50%	5.67%	4.83%
May	10.50%	5.64%	4.86%
Jun	10.50%	5.52%	4.98%
Jul	11.00%	5.38%	5.62%
Aug	11.00%	5.08%	5.92%
Sep	11.00%	4.76%	6.24%
Oct	9.50%	4.93%	4.57%
Nov	9.50%	4.95%	4.55%
Dec	9.50%	4.92%	4.58%
Jan 2003	11.00%	4.94%	6.06%
Feb	11.00%	4.81%	6.19%
Mar	11.00%	4.80%	6.20%
Apr	10.50%	4.90%	5.60%
May	10.50%	4.53%	5.97%
Jun	10.50%	4.37%	6.13%
Jul	8.50%	4.93%	3.57%
Aug	8.50%	5.30%	3.20%
Sep	8.50%	5.14%	3.36%
Oct	9.00%	5.16%	3.84%
Nov	9.00%	5.13%	3.87%
Dec	9.00%	5.08%	3.92%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	4.56%
High Risk Premium: (December 1997)	6.51%
Low Risk Premium: (September 1994)	1.79%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-4

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for People's Expected Returns on Common Equity

Mo/Year	People's Expected ROE	30-Year U.S. Treasury Bond Yields	People's Risk Premium
Jan 1994	12.00%	6.29%	5.71%
Feb	12.00%	6.49%	5.51%
Mar	12.00%	6.91%	5.09%
Apr	12.50%	7.27%	5.23%
May	12.50%	7.41%	5.09%
Jun	12.50%	7.40%	5.10%
Jul	11.50%	7.58%	3.92%
Aug	11.50%	7.49%	4.01%
Sep	11.50%	7.71%	3.79%
Oct	11.50%	7.94%	3.56%
Nov	11.50%	8.08%	3.42%
Dec	11.50%	7.87%	3.63%
Jan 1995	11.00%	7.85%	3.15%
Feb	11.00%	7.61%	3.39%
Mar	11.00%	7.45%	3.55%
Apr	10.00%	7.36%	2.64%
May	10.00%	6.95%	3.05%
Jun	10.00%	6.57%	3.43%
Jul	9.50%	6.72%	2.78%
Aug	9.50%	6.86%	2.64%
Sep	9.50%	6.55%	2.95%
Oct	9.50%	6.37%	3.13%
Nov	9.50%	6.26%	3.24%
Dec	9.50%	6.06%	3.44%
Jan 1996	12.00%	6.05%	5.95%
Feb	12.00%	6.24%	5.76%
Mar	12.00%	6.60%	5.40%
Apr	12.00%	6.79%	5.21%
May	12.00%	6.93%	5.07%
Jun	12.00%	7.06%	4.94%
Jul	13.50%	7.03%	6.47%
Aug	13.50%	6.84%	6.66%
Sep	13.50%	7.03%	6.47%
Oct	15.00%	6.81%	8.19%
Nov	15.00%	6.48%	8.52%
Dec	15.00%	6.55%	8.45%
Jan 1997	12.00%	6.83%	5.17%
Feb	12.00%	6.69%	5.31%
Mar	12.00%	6.93%	5.07%
Apr	12.00%	7.09%	4.91%
May	12.00%	6.94%	5.06%
Jun	12.00%	6.77%	5.23%
Jul	12.50%	6.51%	5.99%
Aug	12.50%	6.58%	5.92%
Sep	12.50%	6.50%	6.00%
Oct	14.00%	6.33%	7.67%
Nov	14.00%	6.11%	7.89%
Dec	14.00%	5.99%	8.01%
Jan 1998	12.50%	5.81%	6.69%
Feb	12.50%	5.89%	6.61%
Mar	12.50%	5.95%	6.55%
Apr	11.50%	5.92%	5.58%
May	11.50%	5.93%	5.57%
Jun	11.50%	5.70%	5.80%
Jul	11.00%	5.68%	5.32%
Aug	11.00%	5.54%	5.46%
Sep	11.00%	5.20%	5.80%
Oct	11.00%	5.01%	5.99%
Nov	11.00%	5.25%	5.75%
Dec	11.00%	5.06%	5.94%

Mo/Year	People's Expected ROE	30-Year U.S. Treasury Bond Yields	People's Risk Premium
Jan 1999	12.00%	5.16%	6.84%
Feb	12.00%	5.37%	6.63%
Mar	12.00%	5.58%	6.42%
Apr	10.50%	5.55%	4.95%
May	10.50%	5.81%	4.69%
Jun	10.50%	6.04%	4.46%
Jul	10.50%	5.98%	4.52%
Aug	10.50%	6.07%	4.43%
Sep	10.50%	6.07%	4.43%
Oct	10.50%	6.26%	4.24%
Nov	10.50%	6.15%	4.35%
Dec	10.50%	6.35%	4.15%
Jan 2000	12.00%	6.63%	5.37%
Feb	12.00%	6.23%	5.77%
Mar	12.00%	6.05%	5.95%
Apr	11.50%	5.85%	5.65%
May	11.50%	6.15%	5.35%
Jun	11.50%	5.93%	5.57%
Jul	12.00%	5.85%	6.15%
Aug	12.00%	5.72%	6.28%
Sep	12.00%	5.83%	6.17%
Oct	12.00%	5.80%	6.20%
Nov	12.00%	5.78%	6.22%
Dec	12.00%	5.49%	6.51%
Jan 2001	12.50%	5.81%	6.69%
Feb	12.50%	5.89%	6.61%
March	12.50%	5.95%	6.55%
Apr	13.50%	5.92%	7.58%
May	13.50%	5.93%	7.57%
June	13.50%	5.70%	7.80%
July	13.50%	5.68%	7.82%
Aug	13.50%	5.54%	7.96%
Sept	13.50%	5.20%	8.30%
Oct	13.50%	5.01%	8.49%
Nov	13.50%	5.25%	8.25%
Dec	13.50%	5.06%	8.44%
Jan 2002	12.00%	5.16%	6.84%
Feb	12.00%	5.37%	6.63%
Mar	12.00%	5.58%	6.42%
Apr	12.00%	5.55%	6.45%
May	12.00%	5.81%	6.19%
Jun	12.00%	6.04%	5.96%
Jul	11.50%	5.98%	5.52%
Aug	11.50%	6.07%	5.43%
Sep	11.50%	6.07%	5.43%
Oct	11.50%	6.26%	5.24%
Nov	11.50%	6.15%	5.35%
Dec	11.50%	6.35%	5.15%
Jan 2003	11.50%	6.63%	4.87%
Feb	11.50%	6.23%	5.27%
Mar	11.50%	6.05%	5.45%
Apr	12.00%	5.85%	6.15%
May	12.00%	6.15%	5.85%
Jun	12.00%	5.93%	6.07%
Jul	12.50%	5.85%	6.65%
Aug	12.50%	5.72%	6.78%
Sep	12.50%	5.83%	6.67%
Oct	12.00%	5.80%	6.20%
Nov	12.00%	5.78%	6.22%
Dec	12.00%	5.49%	6.51%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	5.65%
High Risk Premium: (November 1996)	8.52%
Low Risk Premium: (April 1995)	2.64%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-5

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for Piedmont's Expected Returns on Common Equity

Mo/Year	Piedmont's Expected ROE	30-Year U.S. Treasury Bond Yields	Piedmont's Risk Premium
Jan 1994	10.00%	6.29%	3.71%
Feb	10.00%	6.49%	3.51%
Mar	10.00%	6.91%	3.09%
Apr	10.00%	7.27%	2.73%
May	10.00%	7.41%	2.59%
Jun	10.00%	7.40%	2.60%
Jul	11.00%	7.58%	3.42%
Aug	11.00%	7.49%	3.51%
Sep	11.00%	7.71%	3.29%
Oct	11.50%	7.94%	3.56%
Nov	11.50%	8.08%	3.42%
Dec	11.50%	7.87%	3.63%
Jan 1995	11.50%	7.85%	3.65%
Feb	11.50%	7.61%	3.89%
Mar	11.50%	7.45%	4.05%
Apr	12.00%	7.36%	4.64%
May	12.00%	6.95%	5.05%
Jun	12.00%	6.57%	5.43%
Jul	11.50%	6.72%	4.78%
Aug	11.50%	6.86%	4.64%
Sep	11.50%	6.55%	4.95%
Oct	11.50%	6.37%	5.13%
Nov	11.50%	6.26%	5.24%
Dec	11.50%	6.06%	5.44%
Jan 1996	12.00%	6.05%	5.95%
Feb	12.00%	6.24%	5.76%
Mar	12.00%	6.60%	5.40%
Apr	12.00%	6.79%	5.21%
May	12.00%	6.93%	5.07%
Jun	12.00%	7.06%	4.94%
Jul	12.50%	7.03%	5.47%
Aug	12.50%	6.84%	5.66%
Sep	12.50%	7.03%	5.47%
Oct	12.50%	6.81%	5.69%
Nov	12.50%	6.48%	6.02%
Dec	12.50%	6.55%	5.95%
Jan 1997	12.00%	6.83%	5.17%
Feb	12.00%	6.69%	5.31%
Mar	12.00%	6.93%	5.07%
Apr	12.50%	7.09%	5.41%
May	12.50%	6.94%	5.56%
Jun	12.50%	6.77%	5.73%
Jul	12.50%	6.51%	5.99%
Aug	12.50%	6.58%	5.92%
Sep	12.50%	6.50%	6.00%
Oct	13.00%	6.33%	6.67%
Nov	13.00%	6.11%	6.89%
Dec	13.00%	5.99%	7.01%
Jan 1998	13.00%	5.81%	7.19%
Feb	13.00%	5.89%	7.11%
Mar	13.00%	5.95%	7.05%
Apr	13.00%	5.92%	7.08%
May	13.00%	5.93%	7.07%
Jun	13.00%	5.70%	7.30%
Jul	13.50%	5.68%	7.82%
Aug	13.50%	5.54%	7.96%
Sep	13.50%	5.20%	8.30%
Oct	13.50%	5.01%	8.49%
Nov	13.50%	5.25%	8.25%
Dec	13.50%	5.06%	8.44%

Mo/Year	Piedmont's Expected ROE	30-Year U.S. Treasury Bond Yields	Piedmont's Risk Premium
Jan 1999	13.50%	5.16%	8.34%
Feb	13.50%	5.37%	8.13%
Mar	13.50%	5.58%	7.92%
Apr	13.00%	5.55%	7.45%
May	13.00%	5.81%	7.19%
Jun	13.00%	6.04%	6.96%
Jul	12.50%	5.98%	6.52%
Aug	12.50%	6.07%	6.43%
Sep	12.50%	6.07%	6.43%
Oct	12.00%	6.26%	5.74%
Nov	12.00%	6.15%	5.85%
Dec	12.00%	6.35%	5.65%
Jan 2000	13.00%	6.63%	6.37%
Feb	13.00%	6.23%	6.77%
Mar	13.00%	6.05%	6.95%
Apr	12.50%	5.85%	6.65%
May	12.50%	6.15%	6.35%
Jun	12.50%	5.93%	6.57%
Jul	12.50%	5.85%	6.65%
Aug	12.50%	5.72%	6.78%
Sep	12.50%	5.83%	6.67%
Oct	12.50%	5.80%	6.70%
Nov	12.50%	5.78%	6.72%
Dec	12.50%	5.49%	7.01%
Jan 2001	12.50%	5.81%	6.69%
Feb	12.50%	5.89%	6.61%
March	12.50%	5.95%	6.55%
Apr	12.50%	5.92%	6.58%
May	12.50%	5.93%	6.57%
June	12.50%	5.70%	6.80%
July	12.00%	5.68%	6.32%
Aug	12.00%	5.54%	6.46%
Sept	12.00%	5.20%	6.80%
Oct	10.50%	5.01%	5.49%
Nov	10.50%	5.25%	5.25%
Dec	10.50%	5.06%	5.44%
Jan 2002	11.00%	5.16%	5.84%
Feb	11.00%	5.37%	5.63%
Mar	11.00%	5.58%	5.42%
Apr	11.00%	5.55%	5.45%
May	11.00%	5.81%	5.19%
Jun	11.00%	6.04%	4.96%
Jul	10.50%	5.98%	4.52%
Aug	10.50%	6.07%	4.43%
Sep	10.50%	6.07%	4.43%
Oct	10.00%	6.26%	3.74%
Nov	10.00%	6.15%	3.85%
Dec	10.00%	6.35%	3.65%
Jan 2003	10.50%	6.63%	3.87%
Feb	10.50%	6.23%	4.27%
Mar	10.50%	6.05%	4.45%
Apr	11.00%	5.85%	5.15%
May	11.00%	6.15%	4.85%
Jun	11.00%	5.93%	5.07%
Jul	11.00%	5.85%	5.15%
Aug	11.00%	5.72%	5.28%
Sep	11.00%	5.83%	5.17%
Oct	10.50%	5.80%	4.70%
Nov	10.50%	5.78%	4.72%
Dec	10.50%	5.49%	5.01%

Summary Information	**(1994 - 2003)**
Average Risk Premium: (Jan 1994 - Dec 2003)	**5.65%**
High Risk Premium: (October 1998)	**8.49%**
Low Risk Premium: (May 1994)	**2.59%**

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

MISSOURI GAS ENERGY
CASE NO. GR-2004-0209

Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for South Jersey's Expected Returns on Common Equity

Mo/Year	South Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	South Jersey's Risk Premium
Jan 1994	NA	6.29%	NA
Feb	NA	6.49%	NA
Mar	NA	6.91%	NA
Apr	NA	7.27%	NA
May	NA	7.41%	NA
Jun	NA	7.40%	NA
Jul	NA	7.58%	NA
Aug	NA	7.49%	NA
Sep	NA	7.71%	NA
Oct	NA	7.94%	NA
Nov	NA	8.08%	NA
Dec	NA	7.87%	NA
Jan 1995	NA	7.85%	NA
Feb	NA	7.61%	NA
Mar	NA	7.45%	NA
Apr	NA	7.36%	NA
May	NA	6.95%	NA
Jun	NA	6.57%	NA
Jul	NA	6.72%	NA
Aug	NA	6.86%	NA
Sep	NA	6.55%	NA
Oct	NA	6.37%	NA
Nov	NA	6.26%	NA
Dec	NA	6.06%	NA
Jan 1996	NA	6.05%	NA
Feb	NA	6.24%	NA
Mar	NA	6.60%	NA
Apr	NA	6.79%	NA
May	NA	6.93%	NA
Jun	NA	7.06%	NA
Jul	10.50%	7.03%	3.47%
Aug	10.50%	6.84%	3.66%
Sep	10.50%	7.03%	3.47%
Oct	11.00%	6.81%	4.19%
Nov	11.00%	6.48%	4.52%
Dec	11.00%	6.55%	4.45%
Jan 1997	NA	6.83%	NA
Feb	NA	6.69%	NA
Mar	NA	6.93%	NA
Apr	NA	7.09%	NA
May	NA	6.94%	NA
Jun	NA	6.77%	NA
Jul	10.50%	6.51%	3.99%
Aug	10.50%	6.58%	3.92%
Sep	10.50%	6.50%	4.00%
Oct	10.50%	6.33%	4.17%
Nov	10.50%	6.11%	4.39%
Dec	10.50%	5.99%	4.51%
Jan 1998	11.50%	5.81%	5.69%
Feb	11.50%	5.89%	5.61%
Mar	11.50%	5.95%	5.55%
Apr	11.00%	5.92%	5.08%
May	11.00%	5.93%	5.07%
Jun	11.00%	5.70%	5.30%
Jul	9.50%	5.68%	3.82%
Aug	9.50%	5.54%	3.96%
Sep	9.50%	5.20%	4.30%
Oct	9.00%	5.01%	3.99%
Nov	9.00%	5.25%	3.75%
Dec	9.00%	5.06%	3.94%

Mo/Year	South Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	South Jersey's Risk Premium
Jan 1999	10.50%	5.16%	5.34%
Feb	10.50%	5.37%	5.13%
Mar	10.50%	5.58%	4.92%
Apr	11.00%	5.55%	5.45%
May	11.00%	5.81%	5.19%
Jun	11.00%	6.04%	4.96%
Jul	12.00%	5.98%	6.02%
Aug	12.00%	6.07%	5.93%
Sep	12.00%	6.07%	5.93%
Oct	12.00%	6.26%	5.74%
Nov	12.00%	6.15%	5.85%
Dec	12.00%	6.35%	5.65%
Jan 2000	11.50%	6.63%	4.87%
Feb	11.50%	6.23%	5.27%
Mar	11.50%	6.05%	5.45%
Apr	11.50%	5.85%	5.65%
May	11.50%	6.15%	5.35%
Jun	11.50%	5.93%	5.57%
Jul	11.50%	5.85%	5.65%
Aug	11.50%	5.72%	5.78%
Sep	11.50%	5.83%	5.67%
Oct	11.50%	5.80%	5.70%
Nov	11.50%	5.78%	5.72%
Dec	11.50%	6.10%	5.40%
Jan 2001	12.00%	5.81%	6.19%
Feb	12.00%	5.89%	6.11%
March	12.00%	5.95%	6.05%
Apr	12.00%	5.92%	6.08%
May	12.00%	5.93%	6.07%
June	12.00%	5.70%	6.30%
July	12.00%	5.68%	6.32%
Aug	12.00%	5.54%	6.46%
Sept	12.00%	5.20%	6.80%
Oct	12.00%	5.01%	6.99%
Nov	12.00%	5.25%	6.75%
Dec	12.00%	5.06%	6.94%
Jan 2002	12.00%	5.16%	6.84%
Feb	12.00%	5.37%	6.63%
Mar	12.00%	5.58%	6.42%
Apr	12.50%	5.55%	6.95%
May	12.50%	5.81%	6.69%
Jun	12.50%	6.04%	6.46%
Jul	12.50%	5.98%	6.52%
Aug	12.50%	6.07%	6.43%
Sep	12.50%	6.07%	6.43%
Oct	12.50%	6.26%	6.24%
Nov	12.50%	6.15%	6.35%
Dec	12.50%	6.35%	6.15%
Jan 2003	12.50%	6.63%	5.87%
Feb	12.50%	6.23%	6.27%
Mar	12.50%	6.05%	6.45%
Apr	12.50%	5.85%	6.65%
May	12.50%	6.15%	6.35%
Jun	12.50%	5.93%	6.57%
Jul	12.50%	5.85%	6.65%
Aug	12.50%	5.72%	6.78%
Sep	12.50%	5.83%	6.67%
Oct	12.50%	5.80%	6.70%
Nov	12.50%	5.78%	6.72%
Dec	12.50%	6.10%	6.40%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	**3.91%**
High Risk Premium: (October 2001)	**6.99%**
Low Risk Premium: (July and September 1996)	**3.47%**

Sources: The Value Line Investment Survey: Ratings & Reports
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

Note: Expected ROE's were not available to the Missouri Public Service Commission before June 1996 and between January 1997 and June 1997

SCHEDULE 20-7

MISSOURI GAS ENERGY
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Average Risk Premium above the Yields of 30-Year U.S. Treasury Bonds for WGL Holding's Expected Returns on Common Equity

Mo/Year	WGL's Expected ROE	30-Year U.S. Treasury Bond Yields	WGL's Risk Premium
Jan 1994	11.50%	6.29%	5.21%
Feb	11.50%	6.49%	5.01%
Mar	11.50%	6.91%	4.59%
Apr	12.00%	7.27%	4.73%
May	12.00%	7.41%	4.59%
Jun	12.00%	7.40%	4.60%
Jul	12.50%	7.58%	4.92%
Aug	12.50%	7.49%	5.01%
Sep	12.50%	7.71%	4.79%
Oct	12.00%	7.94%	4.06%
Nov	12.00%	8.08%	3.92%
Dec	12.00%	7.87%	4.13%
Jan 1995	11.00%	7.85%	3.15%
Feb	11.00%	7.61%	3.39%
Mar	11.00%	7.45%	3.55%
Apr	11.00%	7.36%	3.64%
May	11.00%	6.95%	4.05%
Jun	11.00%	6.57%	4.43%
Jul	11.50%	6.72%	4.78%
Aug	11.50%	6.86%	4.64%
Sep	11.50%	6.55%	4.95%
Oct	11.50%	6.37%	5.13%
Nov	11.50%	6.26%	5.24%
Dec	11.50%	6.06%	5.44%
Jan 1996	12.00%	6.05%	5.95%
Feb	12.00%	6.24%	5.76%
Mar	12.00%	6.60%	5.40%
Apr	13.00%	6.79%	6.21%
May	13.00%	6.93%	6.07%
Jun	13.00%	7.06%	5.94%
Jul	14.00%	7.03%	6.97%
Aug	14.00%	6.84%	7.16%
Sep	14.00%	7.03%	6.97%
Oct	14.50%	6.81%	7.69%
Nov	14.50%	6.48%	8.02%
Dec	14.50%	6.55%	7.95%
Jan 1997	14.50%	6.83%	7.67%
Feb	14.50%	6.69%	7.81%
Mar	14.50%	6.93%	7.57%
Apr	12.50%	7.09%	5.41%
May	12.50%	6.94%	5.56%
Jun	12.50%	6.77%	5.73%
Jul	13.00%	6.51%	6.49%
Aug	13.00%	6.58%	6.42%
Sep	13.00%	6.50%	6.50%
Oct	13.50%	6.33%	7.17%
Nov	13.50%	6.11%	7.39%
Dec	13.50%	5.99%	7.51%
Jan 1998	13.50%	5.81%	7.69%
Feb	13.50%	5.89%	7.61%
Mar	13.50%	5.95%	7.55%
Apr	12.00%	5.92%	6.08%
May	12.00%	5.93%	6.07%
Jun	12.00%	5.70%	6.30%
Jul	12.00%	5.68%	6.32%
Aug	12.00%	5.54%	6.46%
Sep	12.00%	5.20%	6.80%
Oct	11.50%	5.01%	6.49%
Nov	11.50%	5.25%	6.25%
Dec	11.50%	5.06%	6.44%
Jan 1999	10.50%	5.16%	5.34%
Feb	10.50%	5.37%	5.13%
Mar	10.50%	5.58%	4.92%
Apr	9.00%	5.55%	3.45%
May	9.00%	5.81%	3.19%
Jun	9.00%	6.04%	2.96%
Jul	9.50%	5.98%	3.52%
Aug	9.50%	6.07%	3.43%
Sep	9.50%	6.07%	3.43%
Oct	10.00%	6.26%	3.74%
Nov	10.00%	6.15%	3.85%
Dec	10.00%	6.35%	3.65%
Jan 2000	12.00%	6.63%	5.37%
Feb	12.00%	6.23%	5.77%
Mar	12.00%	6.05%	5.95%
Apr	12.00%	5.85%	6.15%
May	12.00%	6.15%	5.85%
Jun	12.00%	5.93%	6.07%
Jul	12.00%	5.85%	6.15%
Aug	12.00%	5.72%	6.28%
Sep	12.00%	5.83%	6.17%
Oct	12.00%	5.80%	6.20%
Nov	12.00%	5.78%	6.22%
Dec	12.00%	5.49%	6.51%
Jan 2001	12.50%	5.81%	6.69%
Feb	12.50%	5.89%	6.61%
March	12.50%	5.95%	6.55%
Apr	13.50%	5.92%	7.58%
May	13.50%	5.93%	7.57%
June	13.50%	5.70%	7.80%
July	12.50%	5.68%	6.82%
Aug	12.50%	5.54%	6.96%
Sept	12.50%	5.20%	7.30%
Oct	11.00%	5.01%	5.99%
Nov	11.00%	5.25%	5.75%
Dec	11.00%	5.06%	5.94%
Jan 2002	10.50%	5.16%	5.34%
Feb	10.50%	5.37%	5.13%
Mar	10.50%	5.58%	4.92%
Apr	8.50%	5.55%	2.95%
May	8.50%	5.81%	2.69%
Jun	8.50%	6.04%	2.46%
Jul	7.00%	5.98%	1.02%
Aug	7.00%	6.07%	0.93%
Sep	7.00%	6.07%	0.93%
Oct	7.00%	6.26%	0.74%
Nov	7.00%	6.15%	0.85%
Dec	7.00%	6.35%	0.65%
Jan 2003	10.50%	6.63%	3.87%
Feb	10.50%	6.23%	4.27%
Mar	10.50%	6.05%	4.45%
Apr	12.00%	5.85%	6.15%
May	12.00%	6.15%	5.85%
Jun	12.00%	5.93%	6.07%
Jul	10.50%	5.85%	4.65%
Aug	10.50%	5.72%	4.78%
Sep	10.50%	5.83%	4.67%
Oct	12.00%	5.80%	6.20%
Nov	12.00%	5.78%	6.22%
Dec	12.00%	5.49%	6.51%

Summary Information	(1994 - 2003)
Average Risk Premium: (Jan 1994 - Dec 2003)	5.35%
High Risk Premium: (November 1996)	8.02%
Low Risk Premium: (December 2002)	0.65%

Sources: The Value Line Investment Survey: Ratings & Reports.
Yahoo's Financial Website: www.investopedia.com
St. Louis Federal Reserve website: http://research.stlouisfed.org/fred2/data/GS30.txt

SCHEDULE 20-8

MISSOURI GAS ENERGY
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Risk Premium Cost of Equity Estimates for the Eight Comparable Natural Gas Distribution Companies

Company Name	(1) Appropriate Yield	(2) Equity Premium	(3) Cost of Common Equity
AGL Resources, Inc.	4.93%	6.09%	11.02%
Cascade Natural Gas	4.93%	4.79%	9.72%
New Jersey Resources Corporation	4.93%	7.86%	12.79%
Northwest Natural Gas	4.93%	4.56%	9.49%
Peoples Energy Corporation	4.93%	5.65%	10.58%
Piedmont Natural Gas Company, Inc.	4.93%	5.65%	10.58%
South Jersey Industries, Inc.	4.93%	3.91%	8.84%
WGL Holdings, Inc.	4.93%	5.35%	10.28%
Average (all companies)			10.41%
Average (excluding South Jersey Industries, Inc. because of incomplete information)			10.64%

NOTES:

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for February 2004 which was obtained from Investopedia at:http://www.investopedia.com

Column 2 = The equity premium represents the average positive difference between the Company's expected return on common equity as reported in The Value Line Investment Survey: Ratings & Report and the yield on 30-year U.S. Treasury Bonds January 1994 through December 2003.
See Schedules 20-1 through 20-8.

Column 3 = Column 1 + Column 2.

Selected Financial Ratios for the Eight Comparable Natural Gas Distribution Companies

Company Name	(1) 2002 Common Equity to Total Capital Ratio	(2) Year 2002 Long-Term Debt Ratio	(3) Pre-Tax Interest Coverage Ratio	(4) Market-to-Book Value	(5) 2003 Projected Return on Common Equity	(6) Bond Rating
AGL Resources, Inc.	41.70%	58.30%	2.42 x	2.06 x	13.50%	A-
Cascade Natural Gas	40.90%	59.10%	2.07 x	2.09 x	8.00%	BBB+
New Jersey Resources Corporation	49.40%	50.60%	8.67 x	2.50 x	15.00%	A+
Northwest Natural Gas	51.50%	47.60%	3.41 x	1.63 x	9.00%	A
Peoples Energy Corporation	59.30%	40.70%	3.88 x	1.82 x	12.30%	A-
Piedmont Natural Gas Company, Inc.	56.10%	43.90%	3.56 x	2.26 x	10.50%	A
South Jersey Industries, Inc.	46.10%	53.60%	3.91 x	2.06 x	13.50%	BBB+
WGL Holdings, Inc.	52.40%	45.70%	5.79 x	1.65 x	13.70%	AA-
Average	49.68%	49.94%	4.21 x	2.01 x	11.94%	A
Southern Union Company	**36.70%**	**63.30%**	**1.53 x**	**1.46 x**	**4.70%**	**BBB**

Sources: The Value Line Investment Survey: Ratings and Reports, December 19, 2003 for columns (1), (2) and (5).
Edward Jones, Natural Gas Industry Summary, December 31, 2003 for columns (3) and (4).
Standard & Poor's Utilities & Perspectives, March 1, 2004 for column (6)

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Pro Forma Pre-Tax Interest Coverage Ratios for Southern Union Company

	8.52%	9.02%	9.52%
1. Common Equity (Schedule 10)	$920,418,000	$920,418,000	$920,418,000
2. Earnings Allowed (ROE * [1])	$78,419,614	$83,021,704	$87,623,794
3. Tax Multiplier (1 / (1 - Tax Rate))	1.6231	1.6231	1.6231
4. Pre-Tax Earnings ([2] * [3])	$127,282,875	$134,752,527	$142,222,179
5. Preferred Dividends	$17,365,000	$17,365,000	$17,365,000
6. Annual Interest Costs (Schedule 10 & Schedule 12)*	$143,700,907	$143,700,907	$143,700,907
7. Avail. for Coverage ([4] + [5] + [6])	$288,348,782	$295,818,434	$303,288,086
8. **Pro Forma Pre-Tax Interest Coverage** ([7] / [6])	**2.01 x**	**2.06 x**	**2.11 x**

Natural Gas Distribution Financial Medians - Pretax Interest Coverage (x)

	Lower Quartile	Median	Upper Quartile
Standard & Poor's Corporation's Utility Rating Service as of July 7, 2000	**BBB**	**BBB**	**BBB**
	1.98	**2.85**	**3.01**

Note: * Long-term debt interest expense plus short-term debt interest expense.

Public Utility Revenue Requirement

or

Cost of Service

The formula for the revenue requirement of a public utility may be stated as follows :

Equation 1 : **Revenue Requirement = Cost of Service**

or

Equation 2 : $RR = O + (V - D)R$

The symbols in the second equation are represented by the following factors :

R R	=	Revenue Requirement
O	=	Prudent Operating Costs, including Depreciation and Taxes
V	=	Gross Valuation of the Property Serving the Public
D	=	Accumulated Depreciation
(V - D)	=	Rate Base (Net Valuation)
(V - D) R	=	Return Amount ($$) or Earnings Allowed on Rate Base
R	=	$iL + dP + kE$ or Overall Rate of Return (%)
i	=	Embedded Cost of Debt
L	=	Proportion of Debt in the Capital Structure
d	=	Embedded Cost of Preferred Stock
P	=	Proportion of Preferred Stock in the Capital Structure
k	=	Required Return on Common Equity (ROE)
E	=	Proportion of Common Equity in the Capital Structure

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Weighted Cost of Capital as of December 31, 2003 for Missouri Gas Energy

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of: 8.52%	9.02%	9.52%
Common Stock Equity	25.38%	----	2.16%	2.29%	2.42%
Preferred Stock	6.17%	7.76%	0.48%	0.48%	0.48%
Long-Term Debt	61.10%	6.38%	3.90%	3.90%	3.90%
Short-Term Debt	7.35%	1.89%	0.14%	0.14%	0.14%
	100.00%		6.68%	6.81%	6.94%

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10 for the Embedded Cost of Long-Term Debt.

See Schedule 11 for the Embedded Cost of Preferred Stock.

See Schedule 12 for Weighted Average Cost of Short-Term Debt.