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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

DAVID MURRAY

MISSOURI GAS ENERGY,
A DIVISION OF SOUTHERN UNION COMPANY

CASE NO. GR-2001-292

Jefferson City, Missouri
April 2001

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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 Financial Analyst for the Missouri Public Service Commission (Commission). I accepted this position in June 2000.

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.

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 Missouri Gas Energy Division's rate base.

Q. Have you prepared any schedules to your analysis of the cost of capital for Missouri Gas Energy?

A. Yes. I am sponsoring a study entitled "An Analysis of the Cost of Capital for Missouri Gas Energy, a division of Southern Union Company, Case No. GR-2001-292" 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 Missouri Gas Energy?

A. The cost of capital for Missouri Gas Energy (MGE) is in the range of 8.70 to 8.95 percent.

Economic and Legal Rationale for Regulation

Q. Why are the prices charged to customers by utilities such as Missouri Gas Energy 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 duplicate natural gas 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 distribution utility companies such as MGE provide natural gas distribution 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 legal 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 legal 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 Case (1877),
2. Bluefield Water Works and Improvement Company Case (1923),
3. Natural Gas Pipeline Company of America Case (1942), and
4. Hope Natural Gas Company Case (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 extends the Hope Case decision beyond 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).

The Pennsylvania Electric Company Case is included in my testimony to illustrate a point which is simply this: captive ratepayers of public utilities should not be forced to bear the brunt of management decisions which result in unnecessarily higher costs. 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.

The courts today still believe that a fair return on common equity should be similar to the return for a business with similar risks, but not as high as a highly profitable or speculative venture requires. 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 the courts have determined that a reasonable return may vary over time as economic 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.

Historical Economic Conditions

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 (the 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 Fed Funds Rate (the overnight lending rate between banks). 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 Schedule 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 Schedule 3).

In 1993, President Clinton implemented a plan to raise additional revenues by increasing certain corporate and personal income tax rates, but perhaps the most important factor for the U.S. economy in 1993 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 3.5 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 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 percent.

The actions of the Federal Reserve over the last five years have been primarily focused on keeping the level of inflation under control, and they have been 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 3.3 percent for the period ending December 31, 2000 (see Schedule 4-1). What is significant about the low inflation rate is that while inflation has been at historically low levels, the unemployment rate has also dropped to historically low levels. In January 1993, the unemployment rate stood at 7.3 percent and gradually dropped to its current level of 4.2 percent for the period ending February 28, 2001 (see Schedule 6).

The combination of low inflation and low unemployment has led to a prosperous economy, as evidenced by the real gross domestic product of the United States. Over the time period of 1993 through the present, real GDP has increased every quarter, although at a slower level as of recently. The stock market, as measured by the Dow Jones Composite Index, has increased by 81.23 percent between August 1, 1996 and February 22, 2001, while the Dow Jones Industrial Index has increased by 88.16 percent over that same time frame. The stock market has increased 18.36 percent as measured by The Value Line Geometric Averages Composite Index from August 1, 1996 through February 22, 2001. It should be noted that the Value Line Composite Index is an equally weighted geometric average of 1594 companies as compared to the Dow Jones Composite Index, which is a price-weighted arithmetic average of 65 companies. Although the stock market has increased significantly since August 1, 1996, it should be noted that the stock market suffered set backs last year when looking at calendar year returns for the major indexes.

In both August and September 2000, energy movements dominated the CPI. After falling by 2.9 percent in August, energy prices shot up 3.8 percent in September, the biggest advance since a 5.6 percent surge in June 2000. The big rise in energy prices, which consumers felt in sharply rising gasoline prices and home heating oil costs, prompted President Clinton to order a release of oil from the government's Strategic Petroleum Reserve. While steep price increases have been contained in the energy sector, economists worried about a spillover effect that could send overall inflation higher, thus setting off alarms at the Federal Reserve.

After raising the federal 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 federal funds rate by 50 basis points to 6 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 federal funds rate by 50 basis points to 5.5 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 percent (see Schedule 2-1). In cutting its benchmark rate by a full point in the first month of 2001, the Federal Reserve has 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 claims it does not make interest rate decisions based on stock market activity. However, it is important to reflect on the results of the major indexes in the past year. Based on opening and closing quotes from *Wall Street City* for the calendar year 2000, the Dow Jones Industrial Average suffered a 6.22 percent decline, the S&P 500 suffered a 10.26 percent decline and the NASDAQ suffered a 40.98 percent decline. Therefore, although, as mentioned earlier, the stock market has faired well since 1996, it has suffered some set backs when compared to more recent levels.

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 Schedule 5-1 and 5-2). Schedule 5-3 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 1985 to the present. The average spread for this time period between these two composite indices has been 131 basis points, with the spread ranging from a low of 80 basis points to a high of 241 basis points (see 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 expectations for the remainder of 2001 through 2003?

A. The latest inflation rate, as measured by the *Consumer Price Index-All Urban Consumers* (CPI), was 3.3 percent for the 12-months ended December 31, 2000. *The Value Line Investment Survey: Selection & Opinion*, March 2, 2001, predicts inflation to be 2.6 percent for 2001, 2.5 percent for 2002 and 2.6 percent for 2003.

Q. What are interest rate forecasts for 2001, 2002 and 2003?

A. Short-term interest rates, those measured by Three-Month U.S. Treasury Bills, were approximately 5.8 percent in 2000 and are expected to be 4.8 percent in 2001, 5.1 percent in 2002 and 5.2 percent in 2003 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 5.5 percent in 2001, 5.8 percent in 2002 and 6.0 percent in 2003.

The current rates for the period ending February 28, 2001 are 4.88 percent for 3-month T-Bills and 5.45 percent for 30-year T-Bonds, as noted on the Federal Reserve website.

Q. What are the growth expectations for real Gross Domestic Product (GDP) in the future?

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 increased by 5.0 percent in 2000, and expects real GDP to increase by 1.9 percent in 2001, 3.4 percent in 2002 and by 3.5 percent in 2003. The Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2002-2011*, stated that real GDP is expected to increase by 2.4 percent in 2001, 3.4 percent in 2002 and 3.3 percent in 2003 (see 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 2.5 to 2.8 percent, increase in real GDP in the range of 1.9 to 3.5 percent and long-term interest rates are expected to range from 5.5 to 6.0 percent. *The Value Line Investment Survey: Selection & Opinion*, March 2, 2001, states that:

> **A lot has happened in the three months since we last published the "Quarterly Economic Review."** For starters, the most controversial election since the 1876 Hayes-Tilden contest finally has been installed. Second, the Federal Reserve Board has shifted from a monetary ease, with the nation's central bank having voted to reduce interest rates twice, for a total of one full percentage point, since the start of this year. Third, the U.S. economy, which appeared to be slowing just modestly three months ago, is now decelerating much more quickly, with the risk of a recession currently greater than at any time since the early 1990s, in our opinion. Finally, the stock market, which went into a sudden tailspin while the recent election drama was being played out, then rallied in January on optimism about further interest rate cuts, has faltered anew, as optimism on rates now has been more than offset by pessimism about corporate profits in a weakening economy.
>
> At the same time, several basic themes have remained in place. For example, oil prices have stayed in a fairly tight range in the past three months, after having surges for much of last year; inflation has largely remained under control, although January's larger-than-expected rise in both the Producer and the Consumer Price Indexes raises concerns for the first time in months; productivity (or worker efficiency) has remained high; the global situation has continued to be relatively calm with a large part of the developed world experiencing weaker growth in line with the United States; and there has been a further absence of the kinds of exogenous shocks that could bring about upheavals, not only in the world's financial markets, but with regard to the military balance overseas as well.

> Overall, our sense is that the U.S. economy is not in a recession as the first quarter draws to a close. Indeed, the underpinnings in the consumer and industrial sectors now look to be sufficiently sound for a recovery to take hold after midyear, following a first half in which GDP growth may be negligible at best.
>
> Our cautious optimism that we will suffer, at worst, a brief and relatively mild recession, reflects not only the expectation that the Fed will continue to lower interest rates, but also the realization that still-high real estate prices, large imbedded gains in the stock market (much of which remain even after the market's recent string of reversals), and low unemployment will give consumers the wherewithal to spend the sums needed to prevent an extended recession from evolving.

Standard & Poor's (S&P) states the following in the February 7, 2001, issue of *The Outlook*:

> We expect the Fed to lower rates a good deal further, and an accommodative Fed is generally a major market plus. S&P economist David Wyss believes that, with the help of an additional half- to full-percentage point cut in the fed funds rate, the economy will skirt a recession. While looking for little GDP growth in the first half and worried that corporate profits may come in below current expectations, Wyss points out that the market tends to anticipate improvement in the economy by an average of four to six months. He feels, therefore, that the present is a good time to be accumulating stocks.

S&P also states in the February 14, 2001 issue of *The Outlook*:

> Bad weather was more of a factor than thought in the dramatic economic slowdown in December, with January looking less dire. Some now assume the Fed will not have to ease as much as earlier expected. Doubts in this regard will persist at least until the release of February data.
>
> S&P economist David Wyss is still looking for GDP growth of less than 1% in the first quarter, followed by a fairly strong recovery. As heavy lay-offs came so quickly, he feels a V-shaped cycle is likely. With inflation not a problem, Wyss believes the fed funds target will be lowered from the current 5 ½% to 5% in March and to a low of 4 ¾% or 4 ½% soon after.

Business Operations of Southern Union Company

Q. Please describe Southern Union's business operations.

A. In its 2000 Stockholders' Annual Report, Southern Union states:

> Southern Union Company's core business is the distribution of natural gas as a public utility through: Southern Union Gas; Missouri Gas Energy; Atlantic Utilities, doing business as South Florida Natural Gas (SFNG); PG Energy, acquired on November 4, 1999; and, effective with the acquisitions subsequent to year-end of Providence Energy Corporation, Valley Resources, Inc. and Fall River Gas Company, its New England Division. Southern Union Gas serves 523,000 customers in Texas (including Austin, Brownsville, El Paso, Galveston, Harlingen, McAllen and Port Arthur). Missouri Gas Energy serves 491,000 customers in central and western Missouri (including Kansas City, St. Joseph, Joplin and Monett). PG Energy serves 154,000 customers in northeastern and central Pennsylvania (including Wilkes-Barre, Scranton and Williamsport). SFNG serves 5,000 customers in portions of central Florida (including New Smyrna Beach, Edgewater and areas of Volusia County, Florida). The New England Division serves approximately 286,000 customers in Rhode Island and Massachusetts (including Providence, Newport and Cumberland, Rhode Island, and Fall River, North Attleboro and Somerset, Massachusetts).

Southern Union's total operating revenues were $1,257,131,340 for the 12 months ended December 31, 2000. These total operating revenues resulted in an overall net income of $20,248,540. These revenues and net incomes were generated from a net utility plant in service with a book value of $2,179,794,280 at December 31, 2000. These figures were taken from MGE's response to Data Request No. 3801.

Q. Please describe the credit ratings of Southern Union.

A. Currently, Standard & Poor's Corporation rates the senior unsecured debt of Southern Union as "BBB+." Also, Mergent's Bond Record, February 2001, rates Southern Union's senior notes as "Baa2". Both of these ratings are considered to be of "investment grade." It should be noted that in the financial community Standard & Poor's

Corporation's "BBB" credit rating is comparable to Mergent Bond Record's "Baa2" credit rating.

Q. What is Standard & Poor's Corporation's credit rating methodology?

A. Standard & Poor's Corporation's Global Utilities Rating Service, *Utility Credit Report* for Southern Union Company, 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.

Standard & Poor's 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. 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 Standard & Poor's 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 Company?

A. The business profile of Southern Union Company was three as of March 12, 2001, according to Standard & Poor's Utilities and Perspectives.

Q. Please provide Standard & Poor's Corporation's most recent outlook concerning the credit rating assigned to Southern Union.

A. Standard & Poor's Corporation's Ratings Direct, August 2000, provides a summary explaining the outlook. Specifically the report states:

> **OUTLOOK: STABLE**
> **RATIONALE**
> The ratings on Southern Union Co. reflect the relatively low-risk nature of the company's gas distribution business, management's ability to cut and control costs, strong growth prospects, and a financial profile that is adequate for the current ratings. However, upside rating potential is limited by an aggressive growth strategy of acquiring additional gas distribution companies. It is expected that such acquisitions will be financed with a mix of debt and equity sufficient to support the ratings, but initial financing is likely to be a greater proportion of debt.
>
> The acquisition of three New England gas distributors, Fall River Gas in Massachusetts and Providence Energy and Valley Resources in Rhode Island, will cost about $600 million, including the assumption of debt. However, management has demonstrated its commitment to strong investment-grade ratings by issuing preferred stock subsequent to the highly leveraged acquisition of Missouri Gas Energy, an acquisition that doubled the company's size. Cash flow from gains in efficiencies and a rate increase was used to reduce debt, improving debtholder protection measures to levels appropriate for the ratings. As the company grows, Southern Union will be challenged in managing a portfolio of properties, all regulated by state authorities, in an increasingly competitive market.

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

A. Schedules 7 and 8 present historical capital structures and selected financial ratios from 1996 to 2000 for Southern Union. Southern Union and its subsidiaries' consolidated common equity ratio has ranged from a high of 46.82 percent to a low of 33.60 percent from 1996 through 2000. The wide swing in Southern Union's common equity ratio is likely due to Southern Union's positioning itself for the acquisitions of Providence Energy Corporation, Valley Resources, Inc. and Fall River Gas Company, collectively referred to as the New England Division. This would explain why the equity ratio dropped from 46.82 percent as of June 30, 2000, to 31.20 percent as of December 31, 2000 (Schedule 9). Edward Jones Natural Gas Industry Summary, December 31, 2000, reported that the average common equity ratio for the natural gas distribution industry for 2000 was 50.0 percent. Southern Union's common equity ratio of 31.20 percent, as of December 31, 2000, is significantly lower than the industry average. This low common equity ratio appears to be the result of Southern Union's aggressive acquisition strategy. According to The Value Line Investment Survey: Ratings & Reports, December 22, 2000, "The company plans to sell some investments to reduce its debt load. Southern Union currently holds securities of Capstone Turbine Corporation, a company that makes microturbines. Capstone's share price has fallen drastically over the past quarter, but SUG's stake is still valued at over $100 million. The company plans to monetize this investment as soon as practicable, and use the proceeds to reduce debt."

Southern Union's consolidated return on year-end common equity (ROE) has been extremely low during this time period ranging from a high of 8.47 percent in 1996 to a low of 1.50 percent in 2000. Southern Union's 2000 ROE of 1.50 percent was below the average earned by other natural gas distribution utilities of 10.50 percent according to Edward Jones Natural Gas Investment Survey, December 31, 2000. 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.

Determination of the Cost of Capital

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, 2000. Schedule 9 presents Southern Union's capital structure and associated capital ratios. The resulting capital structure consists of

31.20 percent common stock equity, 4.33 percent preferred stock, 58.23 percent long-term debt and 6.25 percent short-term debt.

The amount of long-term debt outstanding on December 31, 2000, includes current maturities due within one year and was reduced by $17,186,534 (see Schedule 10-1) for the net balance associated with the unamortized debt issuance expense and discounts and $13,249,200 for unamortized losses on reacquired debt.

The amount of preferred stock outstanding on December 31, 2000, includes current maturities due within one year and was reduced by $3,230,450 (see Schedule 11) for the net balance associated with the unamortized issuance expense.

Q. Why didn't you use Missouri Gas Energy's Capital Structure?

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

Q. What was the embedded cost of long-term debt for Southern Union on December 31, 2000?

A. I determined the embedded cost of long-term debt on December 31, 2000, for Southern Union to be 8.36 percent (see Schedule 10-1).

Q. What was the embedded cost of preferred stock for Southern Union on December 31, 2000?

A. I determined the embedded cost of preferred stock on December 31, 2000, for Southern Union to be 9.93 percent (see Schedule 11). It should be noted that the preferred stock Southern Union has issued is a hybrid between debt and equity. It has the tax deductibility of interest like debt and the option of deferring the dividends like preferred stock. Consequently, the interest payments do not need to be factored up for taxes, and the Staff is recommending that all the benefits of this tax deductibility go to the ratepayer.

Q. What was the weighted average cost of short-term debt for Southern Union as of December 31, 2000?

A. Using information provided by Southern Union in response to my data request 3811, I determined the weighted average cost of short-term debt to be 7.31 percent (see Schedule 12).

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 had to look to the parent company, Southern Union Company. I have selected the discounted cash flow (DCF) model as the primary tool to determine the cost of equity for Southern Union, but I also used the risk premium model and the Capital Asset Pricing Model to check the reasonableness of the DCF results.

The 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:

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

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 Southern Union?

A. No. In order to arrive at a company-specific DCF result, a company must have common stock that is market-traded and pay cash dividends. Southern Union does not pay cash dividends; therefore, I cannot directly analyze Southern Union Company's cost of equity.

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

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 seventeen market-traded natural gas distribution companies monitored by Edward Jones, of which Southern Union is one. 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 three companies;
4. Positive dividend per share annualized compound growth rate from 1990 through 2000: This criterion eliminated two additional companies;
5. No Missouri Operations: This criterion eliminated three additional companies;
6. Ten years of data available: This criterion eliminated one additional company.

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 Southern Union Company. 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 periods 1990 through 2000 (1989 through 1999 for Energysouth, Inc.). Schedule 15-2 lists the annual compound growth rates for DPS, EPS, and BVPS for the periods of 1995-2000 (1994-1999 for Energysouth, Inc.). 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 four outside sources; I/B/E/S Inc.'s Institutional Brokers Estimate System, Standard & Poor's Corporation's Earnings Guide, Zack's website http://www.zacks.com and The Value Line Investment Survey: Ratings and Reports. The four projected growth rates were averaged to develop an average projected growth rate of 5.61 percent which was averaged with the historical growth rates to produce an average historical and projected growth rate of 4.79 percent. All the growth rates were then analyzed to arrive at a growth rate range for the comparables of 4.80 percent to 5.60 percent. I chose this range based on the average of the historical and projected growth rates (column 7 of Schedule 16) and the average of the projected growth rates (column 6 of Schedule 16).

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 November 1, 2000 through February 28, 2001 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 22, 2000. 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 4.65 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 9.43 percent. However, to allow for more weight for projected growth rates, the range of growth rates developed in Schedule 16 was added to the average projected dividend yield to reach an estimated DCF cost of equity range of 9.45 percent to 10.25 percent (see Schedule 18).

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 capital asset pricing model (CAPM) cost of equity analysis for the comparables.

Q. Please describe the capital asset pricing model.

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 yield on the 30-Year U.S. Treasury Bond of 5.49 percent quoted in the April 5, 2001, issue of The Wall Street Journal.

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, the appropriate market risk premium was determined to be 7.80 percent as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2000 Yearbook.

Schedule 19 presents the CAPM analysis with regard to the comparables. The CAPM analysis produces an estimated cost of equity of 9.93 percent for the comparables. Although the CAPM supports the midpoint of 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 because debate has somewhat diminished the reliability of CAPM as a cost of equity evaluation tool. It is strictly used as a test of reasonableness to provide some comfort with the results of the DCF, and in this case the CAPM supports the DCF results.

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 with the exception of Energysouth, Inc. for which actual returns on equity were used because expected returns were not available. Additionally, the necessary information, both actual returns and projected returns, for South Jersey was not readily available. Therefore, this company was not included in the risk premium analysis. This analysis shows, on average, that the expected return on equity as reported by The Value Line Investment Survey: Ratings & Reports ranges from 488 basis points to 717 basis points higher than the average yields on the Thirty-Year U.S. Treasury Bonds for the period of January 1991 through December 2000 (see Schedule 21). The risk premium is then added to the current yield on the Thirty-Year U.S. Treasury Bond. Column 3 of Schedule 21 shows that the risk premium cost of equity estimate for each of the comparables ranged from 10.34 percent to 12.66 percent, with an average of 11.01 percent.

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	9.45% - 10.25%	9.93%	11.01%

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 9.45 percent to 10.25 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 9.45 percent to 10.25 percent would yield a pre-tax interest coverage ratio in the range of

2.10 times to 2.18 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 1.13 interest coverage ratio at the end of December 31, 2000, shown in Edward Jones Natural Gas Industry Summary, December 31, 2000. Additionally, because Southern Union is rated a business profile of three by Standard & Poor's, the average interest coverage ratio at the low end of the range is 1.8. Analysts may use this number as a benchmark when assessing the relative financial strength of a company. It does not necessarily mean that a company with an interest coverage ratio below 1.8 will be rated below investment grade (BB+ or lower). Additionally, it does not mean that a company with an interest coverage ratio greater than 1.8 will be rated investment grade or better (BBB- or higher).

Rate of Return for Southern Union

Q. Please explain how the returns developed for each capital component are used in the rate making approach you have adopted for Missouri Gas Energy (Southern Union's Missouri natural gas distribution operations).

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 8.70 to 8.95 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 8.36 percent, an embedded cost of preferred stock of 9.93 percent, a weighted average cost of short-term debt of 7.31 percent and a return on common equity range of 9.45 percent to 10.25 percent to a capital structure consisting of 58.22 percent long-term debt, 4.33 percent preferred stock, 6.25 percent short-term debt and 31.20 percent common equity. Therefore, from a financial risk / return prospective, as I suggested earlier, I am recommending that Southern Union Company's MGE natural gas distribution operations be allowed to earn a return on its original cost rate base in the range of 8.70 to 8.95 percent.

Through my analysis, I believe that I have developed a fair and reasonable return and, when applied to Southern Union Company'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 June 30, 2001.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In The Matter of Missouri Gas Energy's Tariff	)	
Filing For General Rate Increase	)	Case No. GR-2001-292

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

David Murray, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 31 pages to be presented in the above case; that the answers in the foregoing 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 18th day of April 2001.

Rosemarie Riedl

ROSEMARIE RIEDL
NOTARY PUBLIC STATE OF MISSOURI
COLE COUNTY
MY COMMISSION EXPIRES JUNE 1, 2001

AN ANALYSIS OF THE COST OF CAPITAL

FOR

MISSOURI GAS ENERGY A DIVISION
OF SOUTHERN UNION COMPANY

CASE NO. GR-2001-292

SCHEDULES

BY

DAVID MURRAY

UTILITY SERVICES DIVISION

MISSOURI PUBLIC SERVICE COMMISSION

APRIL 2001

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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2-2	Graph of Federal Reserve Discount Rates
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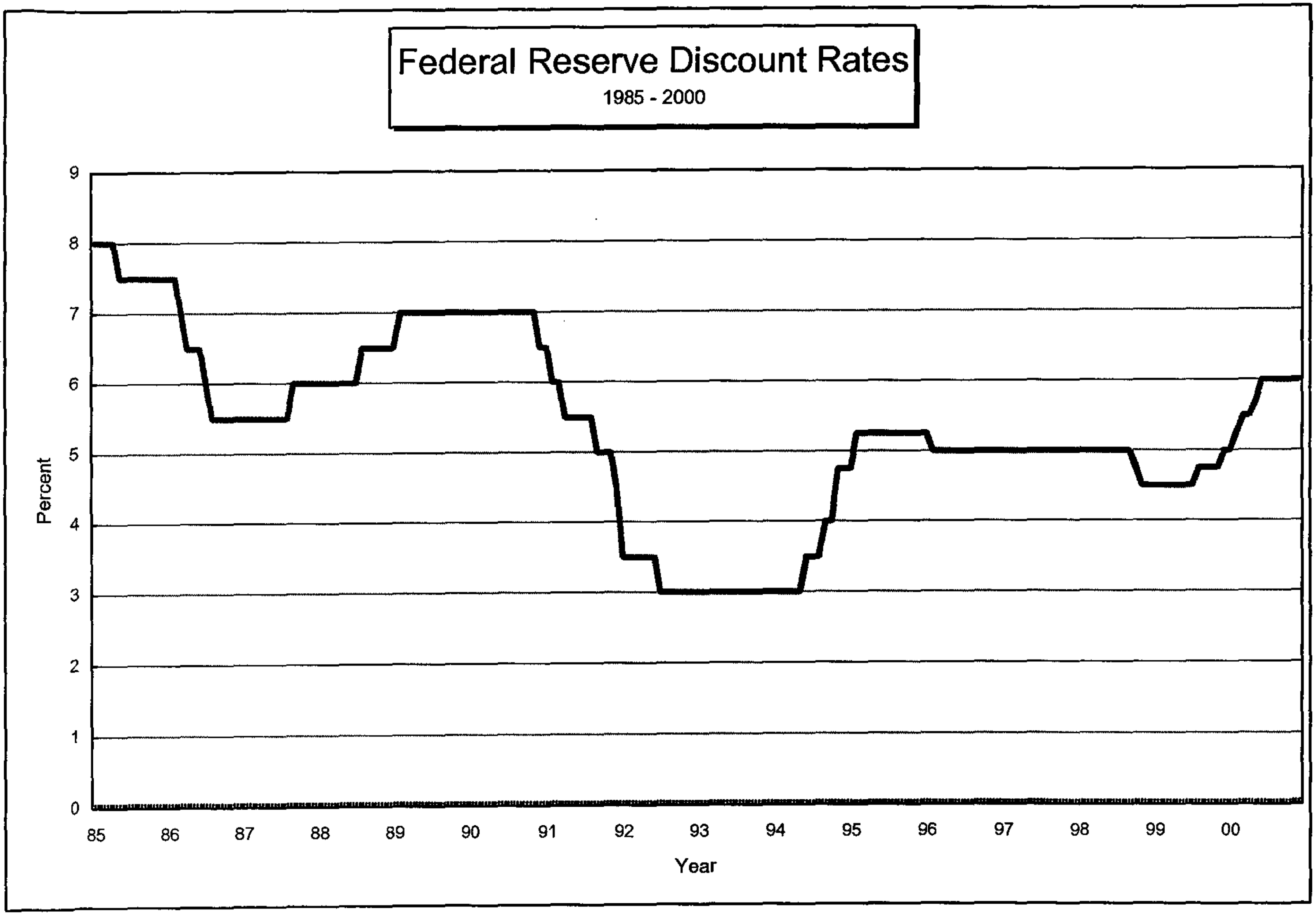
SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Federal Reserve Discount Rate Changes

Date	Discount 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%
12/19/90	6.50%
02/01/91	6.00%
04/30/91	5.50%
09/13/91	5.00%
11/06/91	4.50%
12/20/91	3.50%
07/02/92	3.00%
01/01/93	3.00%
12/31/93	3.00%
05/17/94	3.50%
08/16/94	4.00%
11/15/94	4.75%
02/01/95	5.25%
01/31/96	5.00%
12/12/97	5.00%
01/09/98	5.00%
03/06/98	5.00%
10/15/98	4.75%
11/17/98	4.50%
06/30/99	4.50%
08/24/99	4.75%
11/16/99	5.00%
02/02/00	5.25%
03/21/00	5.50%
05/16/00	5.50%
05/19/00	6.00%
01/03/01	5.75%
01/04/01	5.50%
01/05/01	5.50%
01/31/01	5.00%

Sources: Federal Reserve Bulletin & The Wall Street Journal.

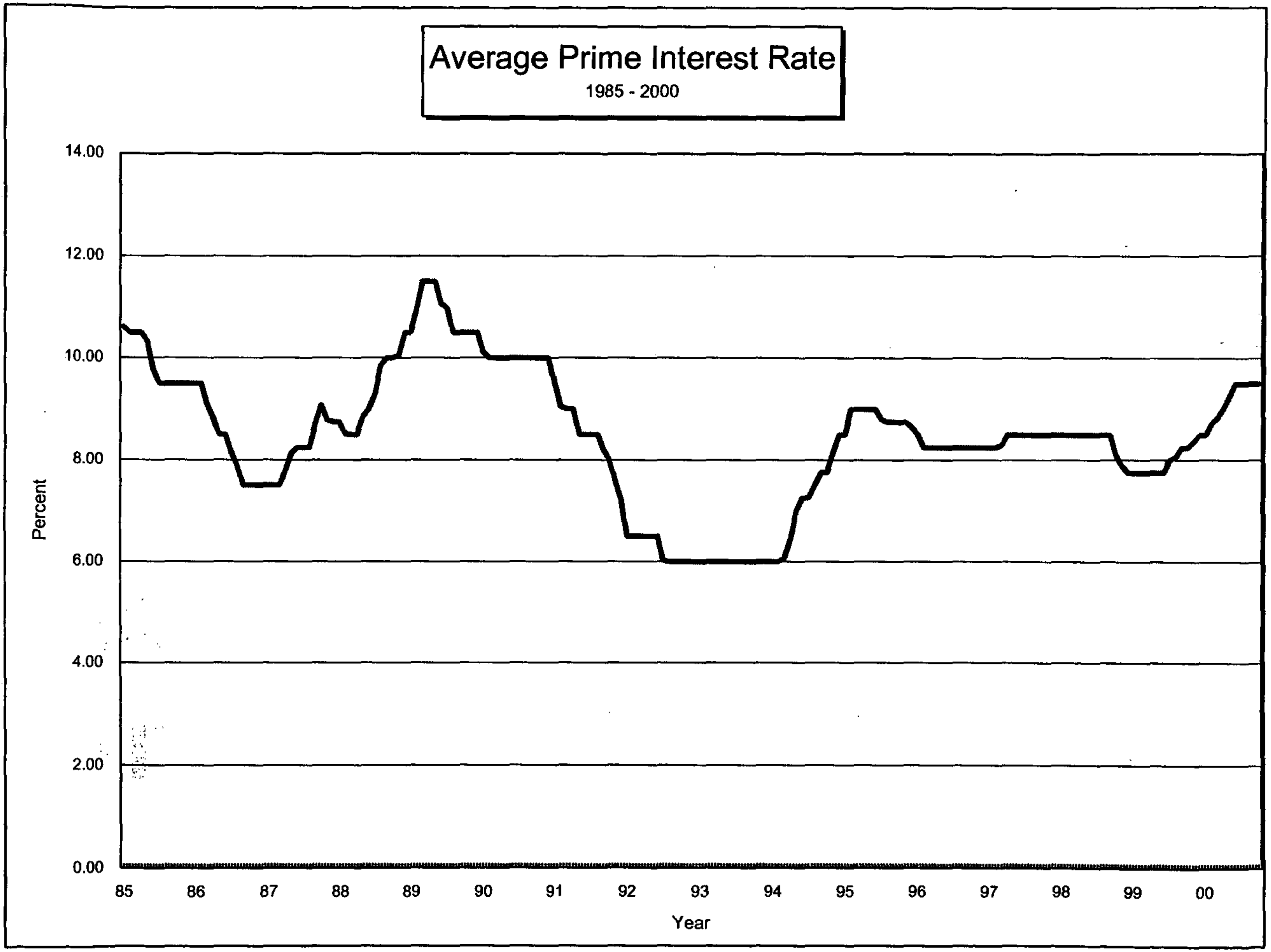

Federal Reserve Discount Rates
1985 - 2000
9
8
7
6
5
4
3
2
1
0
Percent
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
Year

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Average Prime Interest Rates

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1985	10.61	Jan 1989	10.50	Jan 1993	6.00	Jan 1997	8.26
Feb	10.50	Feb	10.93	Feb	6.00	Feb	8.25
Mar	10.50	Mar	11.50	Mar	6.00	Mar	8.30
Apr	10.50	Apr	11.50	Apr	6.00	Apr	8.50
May	10.31	May	11.50	May	6.00	May	8.50
Jun	9.78	Jun	11.07	Jun	6.00	Jun	8.50
Jul	9.50	Jul	10.98	Jul	6.00	Jul	8.50
Aug	9.50	Aug	10.50	Aug	6.00	Aug	8.50
Sep	9.50	Sep	10.50	Sep	6.00	Sep	8.50
Oct	9.50	Oct	10.50	Oct	6.00	Oct	8.50
Nov	9.50	Nov	10.50	Nov	6.00	Nov	8.50
Dec	9.50	Dec	10.50	Dec	6.00	Dec	8.50
Jan 1986	9.50	Jan 1990	10.11	Jan 1994	6.00	Jan 1998	8.50
Feb	9.50	Feb	10.00	Feb	6.00	Feb	8.50
Mar	9.10	Mar	10.00	Mar	6.06	Mar	8.50
Apr	8.83	Apr	10.00	Apr	6.45	Apr	8.50
May	8.50	May	10.00	May	6.99	May	8.50
Jun	8.50	Jun	10.00	Jun	7.25	Jun	8.50
Jul	8.16	Jul	10.00	Jul	7.25	Jul	8.50
Aug	7.90	Aug	10.00	Aug	7.51	Aug	8.50
Sep	7.50	Sep	10.00	Sep	7.75	Sep	8.49
Oct	7.50	Oct	10.00	Oct	7.75	Oct	8.12
Nov	7.50	Nov	10.00	Nov	8.15	Nov	7.89
Dec	7.50	Dec	10.00	Dec	8.50	Dec	7.75
Jan 1987	7.50	Jan 1991	9.52	Jan 1995	8.50	Jan 1999	7.75
Feb	7.50	Feb	9.05	Feb	9.00	Feb	7.75
Mar	7.50	Mar	9.00	Mar	9.00	Mar	7.75
Apr	7.75	Apr	9.00	Apr	9.00	Apr	7.75
May	8.14	May	8.50	May	9.00	May	7.75
Jun	8.25	Jun	8.50	Jun	9.00	Jun	7.75
Jul	8.25	Jul	8.50	Jul	8.80	Jul	8.00
Aug	8.25	Aug	8.50	Aug	8.75	Aug	8.06
Sep	8.70	Sep	8.20	Sep	8.75	Sep	8.25
Oct	9.07	Oct	8.00	Oct	8.75	Oct	8.25
Nov	8.78	Nov	7.58	Nov	8.75	Nov	8.37
Dec	8.75	Dec	7.21	Dec	8.65	Dec	8.50
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

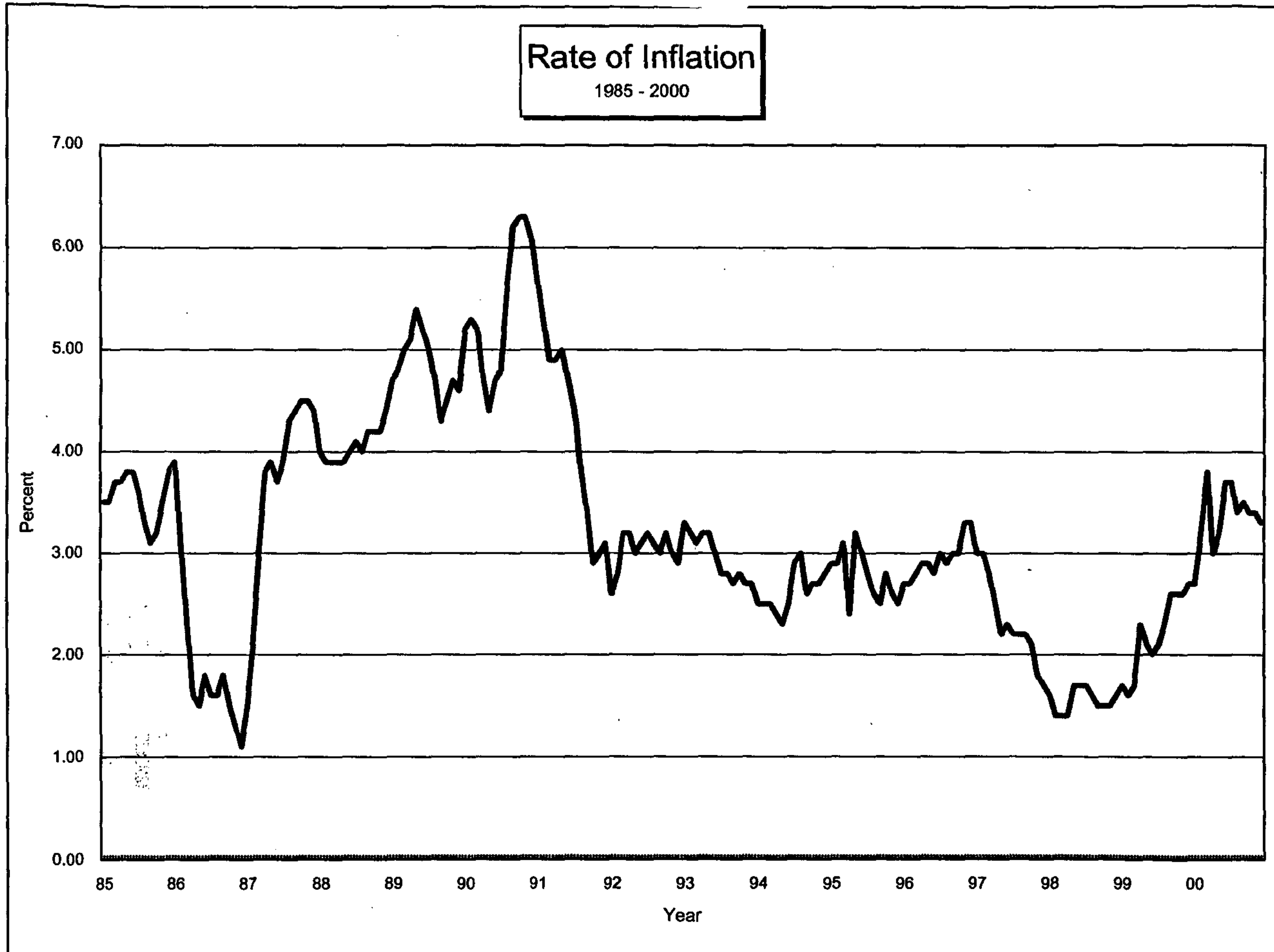
Sources: Federal Reserve Bulletin & The Wall Street Journal.


Average Prime Interest Rate
1985 - 2000
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Percent
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
Year

Rate of Inflation

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1985	3.50	Jan 1989	4.70	Jan 1993	3.30	Jan 1997	3.00
Feb	3.50	Feb	4.80	Feb	3.20	Feb	3.00
Mar	3.70	Mar	5.00	Mar	3.10	Mar	2.80
Apr	3.70	Apr	5.10	Apr	3.20	Apr	2.50
May	3.80	May	5.40	May	3.20	May	2.20
Jun	3.80	Jun	5.20	Jun	3.00	Jun	2.30
Jul	3.60	Jul	5.00	Jul	2.80	Jul	2.20
Aug	3.30	Aug	4.70	Aug	2.80	Aug	2.20
Sep	3.10	Sep	4.30	Sep	2.70	Sep	2.20
Oct	3.20	Oct	4.50	Oct	2.80	Oct	2.10
Nov	3.50	Nov	4.70	Nov	2.70	Nov	1.80
Dec	3.80	Dec	4.60	Dec	2.70	Dec	1.70
Jan 1986	3.90	Jan 1990	5.20	Jan 1994	2.50	Jan 1998	1.60
Feb	3.10	Feb	5.30	Feb	2.50	Feb	1.40
Mar	2.30	Mar	5.20	Mar	2.50	Mar	1.40
Apr	1.60	Apr	4.70	Apr	2.40	Apr	1.40
May	1.50	May	4.40	May	2.30	May	1.70
Jun	1.80	Jun	4.70	Jun	2.50	Jun	1.70
Jul	1.60	Jul	4.80	Jul	2.90	Jul	1.70
Aug	1.60	Aug	5.60	Aug	3.00	Aug	1.60
Sep	1.80	Sep	6.20	Sep	2.60	Sep	1.50
Oct	1.50	Oct	6.30	Oct	2.70	Oct	1.50
Nov	1.30	Nov	6.30	Nov	2.70	Nov	1.50
Dec	1.10	Dec	6.10	Dec	2.80	Dec	1.60
Jan 1987	1.50	Jan 1991	5.70	Jan 1995	2.90	Jan 1999	1.70
Feb	2.10	Feb	5.30	Feb	2.90	Feb	1.60
Mar	3.00	Mar	4.90	Mar	3.10	Mar	1.70
Apr	3.80	Apr	4.90	Apr	2.40	Apr	2.30
May	3.90	May	5.00	May	3.20	May	2.10
Jun	3.70	Jun	4.70	Jun	3.00	Jun	2.00
Jul	3.90	Jul	4.40	Jul	2.80	Jul	2.10
Aug	4.30	Aug	3.80	Aug	2.60	Aug	2.30
Sep	4.40	Sep	3.40	Sep	2.50	Sep	2.60
Oct	4.50	Oct	2.90	Oct	2.80	Oct	2.60
Nov	4.50	Nov	3.00	Nov	2.60	Nov	2.60
Dec	4.40	Dec	3.10	Dec	2.50	Dec	2.70
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	3.30

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, Change for 12-Month Period, Bureau of Labor Statistics Website and Wall Street Journal.


Rate of Inflation
1985 - 2000
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Percent
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
Year

Schedule 4-2

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Average Yields on Mergent's Public Utility Bonds

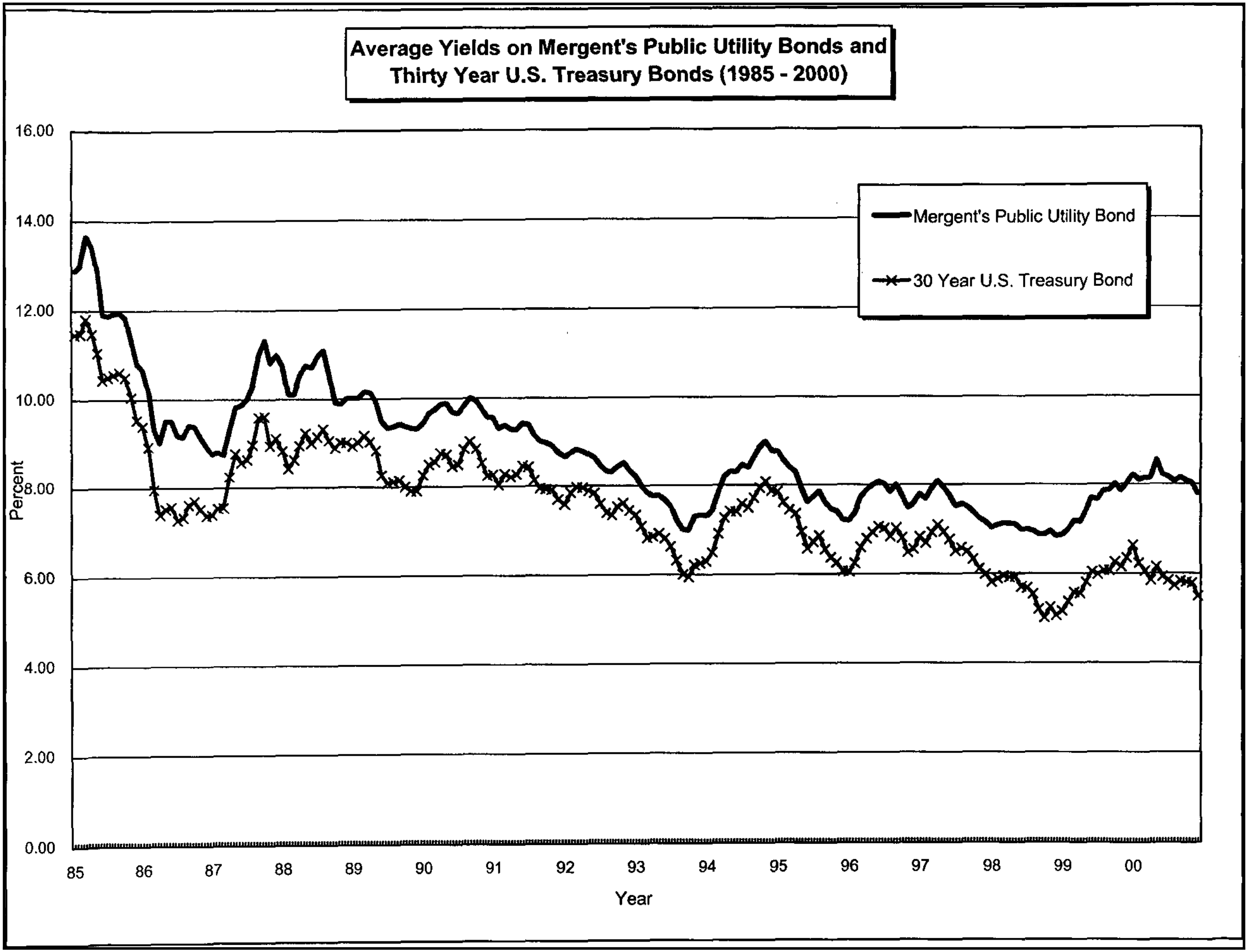
Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1985	12.88	Jan 1989	10.02	Jan 1993	8.23	Jan 1997	7.79
Feb	13.00	Feb	10.02	Feb	8.00	Feb	7.68
Mar	13.66	Mar	10.16	Mar	7.85	Mar	7.92
Apr	13.42	Apr	10.14	Apr	7.76	Apr	8.08
May	12.89	May	9.92	May	7.78	May	7.94
Jun	11.91	Jun	9.49	Jun	7.68	Jun	7.77
Jul	11.88	Jul	9.34	Jul	7.53	Jul	7.52
Aug	11.93	Aug	9.37	Aug	7.21	Aug	7.57
Sep	11.95	Sep	9.43	Sep	7.01	Sep	7.50
Oct	11.84	Oct	9.37	Oct	6.99	Oct	7.37
Nov	11.33	Nov	9.33	Nov	7.30	Nov	7.24
Dec	10.82	Dec	9.31	Dec	7.33	Dec	7.16
Jan 1986	10.66	Jan 1990	9.44	Jan 1994	7.31	Jan 1998	7.03
Feb	10.16	Feb	9.66	Feb	7.44	Feb	7.09
Mar	9.33	Mar	9.75	Mar	7.83	Mar	7.13
Apr	9.02	Apr	9.87	Apr	8.20	Apr	7.12
May	9.52	May	9.89	May	8.32	May	7.11
Jun	9.51	Jun	9.69	Jun	8.31	Jun	6.99
Jul	9.19	Jul	9.66	Jul	8.47	Jul	6.99
Aug	9.15	Aug	9.84	Aug	8.41	Aug	6.96
Sep	9.42	Sep	10.01	Sep	8.65	Sep	6.88
Oct	9.39	Oct	9.94	Oct	8.88	Oct	6.88
Nov	9.15	Nov	9.76	Nov	9.00	Nov	6.96
Dec	8.96	Dec	9.57	Dec	8.79	Dec	6.84
Jan 1987	8.77	Jan 1991	9.56	Jan 1995	8.77	Jan 1999	6.87
Feb	8.81	Feb	9.31	Feb	8.56	Feb	7.00
Mar	8.75	Mar	9.39	Mar	8.41	Mar	7.18
Apr	9.30	Apr	9.30	Apr	8.30	Apr	7.16
May	9.82	May	9.29	May	7.93	May	7.42
Jun	9.87	Jun	9.44	Jun	7.62	Jun	7.70
Jul	10.01	Jul	9.40	Jul	7.73	Jul	7.66
Aug	10.33	Aug	9.16	Aug	7.86	Aug	7.86
Sep	11.00	Sep	9.03	Sep	7.62	Sep	7.87
Oct	11.32	Oct	8.99	Oct	7.46	Oct	8.02
Nov	10.82	Nov	8.93	Nov	7.40	Nov	7.86
Dec	10.99	Dec	8.76	Dec	7.21	Dec	8.04
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	8.56
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	8.06
Sep	10.56	Sep	8.32	Sep	8.01	Sep	8.15
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

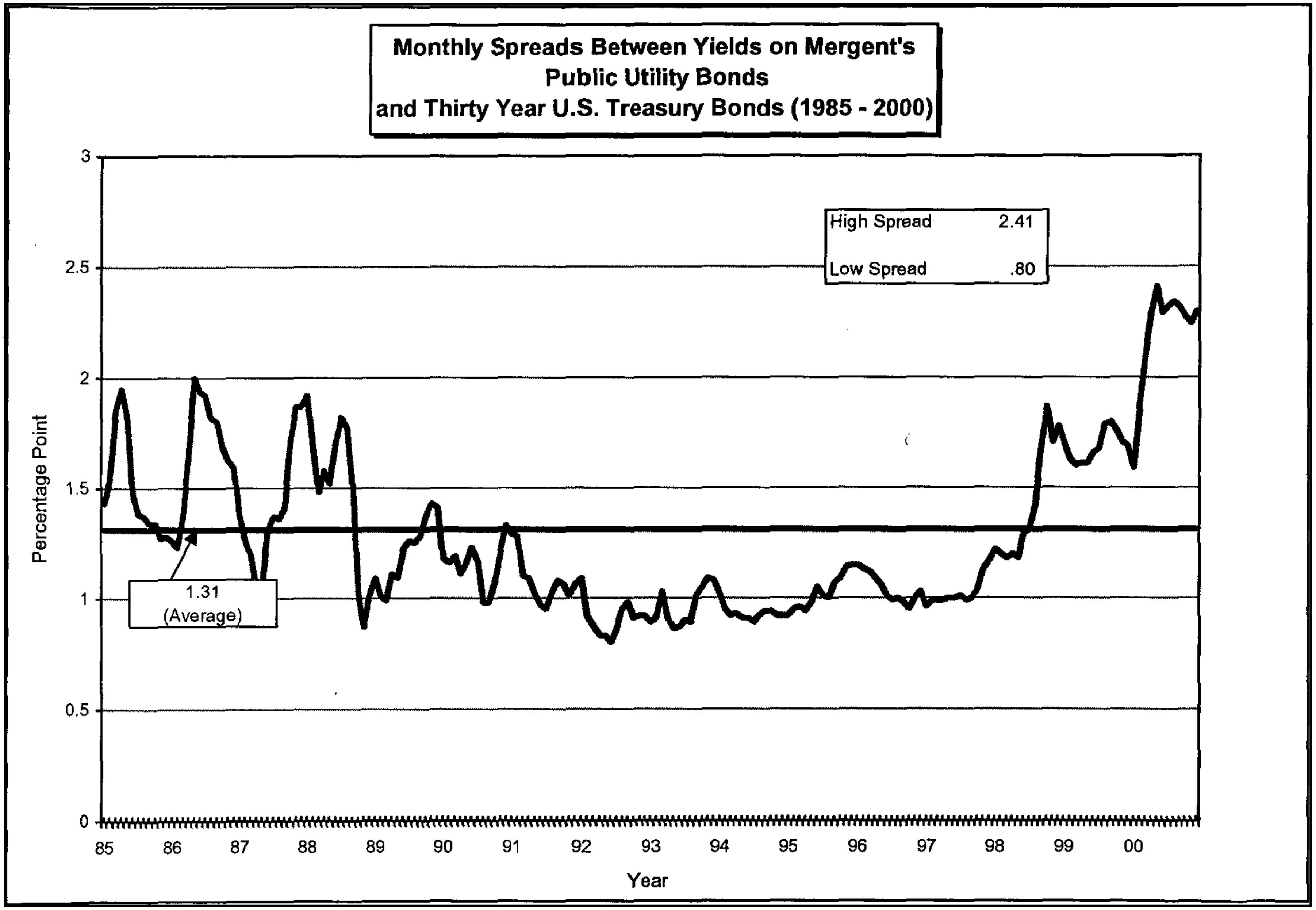
Source: Mergent Bond Record.

Average Yields on Thirty Year U.S. Treasury Bonds

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1985	11.45	Jan 1989	8.93	Jan 1993	7.34	Jan 1997	6.83
Feb	11.47	Feb	9.01	Feb	7.09	Feb	6.69
Mar	11.81	Mar	9.17	Mar	6.82	Mar	6.93
Apr	11.47	Apr	9.03	Apr	6.85	Apr	7.09
May	11.05	May	8.83	May	6.92	May	6.94
Jun	10.44	Jun	8.27	Jun	6.81	Jun	6.77
Jul	10.50	Jul	8.08	Jul	6.63	Jul	6.51
Aug	10.56	Aug	8.12	Aug	6.32	Aug	6.58
Sep	10.61	Sep	8.15	Sep	6.00	Sep	6.50
Oct	10.50	Oct	8.00	Oct	5.94	Oct	6.33
Nov	10.06	Nov	7.90	Nov	6.21	Nov	6.11
Dec	9.54	Dec	7.90	Dec	6.25	Dec	5.99
Jan 1986	9.40	Jan 1990	8.26	Jan 1994	6.29	Jan 1998	5.81
Feb	8.93	Feb	8.50	Feb	6.49	Feb	5.89
Mar	7.96	Mar	8.56	Mar	6.91	Mar	5.95
Apr	7.39	Apr	8.76	Apr	7.27	Apr	5.92
May	7.52	May	8.73	May	7.41	May	5.93
Jun	7.57	Jun	8.46	Jun	7.40	Jun	5.70
Jul	7.27	Jul	8.50	Jul	7.58	Jul	5.68
Aug	7.33	Aug	8.86	Aug	7.49	Aug	5.54
Sep	7.62	Sep	9.03	Sep	7.71	Sep	5.20
Oct	7.70	Oct	8.86	Oct	7.94	Oct	5.01
Nov	7.52	Nov	8.54	Nov	8.08	Nov	5.25
Dec	7.37	Dec	8.24	Dec	7.87	Dec	5.06
Jan 1987	7.39	Jan 1991	8.27	Jan 1995	7.85	Jan 1999	5.16
Feb	7.54	Feb	8.03	Feb	7.61	Feb	5.37
Mar	7.55	Mar	8.29	Mar	7.45	Mar	5.58
Apr	8.25	Apr	8.21	Apr	7.36	Apr	5.55
May	8.78	May	8.27	May	6.95	May	5.81
Jun	8.57	Jun	8.47	Jun	6.57	Jun	6.04
Jul	8.64	Jul	8.45	Jul	6.72	Jul	5.98
Aug	8.97	Aug	8.14	Aug	6.86	Aug	6.07
Sep	9.59	Sep	7.95	Sep	6.55	Sep	6.07
Oct	9.61	Oct	7.93	Oct	6.37	Oct	6.26
Nov	8.95	Nov	7.92	Nov	6.26	Nov	6.15
Dec	9.12	Dec	7.70	Dec	6.06	Dec	6.35
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

Source: Federal Reserve Bulletin and Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30


Average Yields on Mergent's Public Utility Bonds and Thirty Year U.S. Treasury Bonds (1985 - 2000)
Mergent's Public Utility Bond
30 Year U.S. Treasury Bond
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Percent
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
Year


Monthly Spreads Between Yields on Mergent's Public Utility Bonds and Thirty Year U.S. Treasury Bonds (1985 - 2000)
High Spread 2.41
Low Spread .80
1.31 (Average)
Percentage Point
3
2.5
2
1.5
1
0.5
0
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
00
Year

Economic Estimates and Projections, 2001 - 2003

	Inflation Rate			Real GDP			Unemployment			3-Mo. T-Bill Rate			30-Yr. T-Bond Rate		
Source	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
Value Line Investment Survey (3/2/01)	2.60%	2.50%	2.60%	1.90%	3.40%	3.50%	4.50%	4.40%	4.60%	4.80%	5.10%	5.20%	5.50%	5.80%	6.00%
The Budget and Economic Outlook FY2002-2011 (01/31/01)	2.80%	2.80%	2.70%	2.40%	3.40%	3.30%	4.40%	4.50%	4.50%	4.80%	4.90%	5.00%	N.A.	N.A.	N.A.
Current rate	3.73%			5.00% *			4.20% **			4.88%			5.45%		

Notes: N.A. = Not Available.
* Reflects annual increase from 1999 to 2000
**Rate reported by Bureau of Labor Statisitics for the period ending February 2001

Sources of Current Rates:
The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending January 31, 2001
Federal Reserve website, http://www.stls.frb.org/fred/data/irates.html, February 2001
U.S. Department of Commerce, Bureau of Economic Analysis, for the 12-month period ending December 31, 2000.
The Bureau of Labor Statistics, Economy at a Glance - Unemployment Rate, February 2001

Other Sources:
The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2002-2011, January 2001,
http://www.cbo.gov/showdoc.cfm?index=2727&sequence=11

Schedule 6

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

Capital Components	1996	1997	1998	1999	2000
Common Equity	$245,915	$267,462	$296,834	$301,058	$735,854
Preferred Stock	$100,000	$100,000	$100,000	$100,000	$100,000
Long-Term Debt	$386,009	$386,844	$408,184	$392,457	$735,967
Short-Term Debt	$0	$0	$1,600	$21,003	$3
Total	$731,924	$754,306	$806,618	$814,518	$1,571,824

Capital Structure	1996	1997	1998	1999	2000
Common Equity	33.60%	35.46%	36.80%	36.96%	46.82%
Preferred Stock	13.66%	13.26%	12.40%	12.28%	6.36%
Long-Term Debt	52.74%	51.28%	50.60%	48.18%	46.82%
Short-Term Debt	0.00%	0.00%	0.20%	2.58%	0.00%
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 June 30 Annual Reports

Selected Financial Ratios for Southern Union Company
Consolidated Basis

Financial Ratios	1996	1997	1998	1999	2000
Return on Year-End Common Equity	8.47%	7.12%	4.10%	3.50%	1.50%
Earnings Per Common Share	$0.65	$0.59	$0.37	$0.31	$0.24
Cash Dividends Per Common Share	NA	NA	NA	NA	NA
Common Dividend Payout Ratio	0.00%	0.00%	0.00%	0.00%	0.00%
Year-End Market Price Per Common Share	$22.00	$22.88	$19.50	$20.71	$15.81
Year-End Book Value Per Common Share	$14.70	$15.06	$9.55	$9.83	$15.17
Year-End Market to Book Ratio	1.50 x	1.52 x	2.04 x	2.11 x	1.04 x
Senior Debt Rating	BBB	BBB	BBB+	BBB+	BBB+

Notes: Return on Year-End Common Equity = Net Income Applicable to Common Stock / Year-End Common Stockholders' Equity.

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

Year-End Market to Book Ratio = Year-End Market Price Per Common Share / Year-End 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 Corporation's Utilities Rating Service, Value Line Investment Survey: Ratings and Reports, December 22, 2000 and and Southern Union's 10K filing with the Securities and Exchange Commission.

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Capital Structure as of December 31, 2000
for Southern Union Company

Capital Component	Amount in Dollars		Percentage of Capital
Common Stock Equity	$720,664,676		31.20%
Preferred Stock	100,000,000		4.33%
Long-Term Debt	1,345,097,661	*	58.22%
Short-Term Debt	144,388,920	**	6.25%
Total Capitalization	**$2,310,151,257**		**100.00%**

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

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

Note: * See Schedule 10-1 for the amount of Long-Term Debt at 12/31/00.
**Short-term debt balance equals short-term debt as of December 31, 2000 less Construction Work in Progress (CWIP)

Source: Southern Union Company's response to Staff's Data Request No. 3801.

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Embedded Cost of Long-Term Debt as of December 31, 2000 for Southern Union Company

Long-Term Debt	(1) Interest Rate	(2) Prinicipal Amount Outstanding (12/31/00)	(3) Annualized Cost to Company (1 * 2)
General Mortgage Bonds:			
7.60% Senior Notes due February 1, 2024	7.60%	$364,515,000	$27,703,140
Capital Lease	7.115% (LIBOR + 55bp)	24,166,395	1,719,439
8.25% Senior Notes due November 15, 2029	8.25%	300,000,000	24,750,000
PGE MTG Notes due December 1, 2002	8.375%	30,000,000	2,512,500
PGE MTG Notes due September 1, 2019	9.34%	15,000,000	1,401,000
Providence Series M due July 31, 2008	10.25%	2,182,000	223,655
Providence Series N due May 30, 2000	9.63%	10,000,000	963,000
Providence Series O due September 30, 2022	8.46%	12,500,000	1,057,500
Providence Series P due September 30, 2022	8.09%	12,500,000	1,011,250
Providence Series Q due November 30, 2003	5.62%	4,800,000	269,760
Providence Series R due December 15, 2025	7.50%	15,000,000	1,125,000
Providence Series S due April 1, 2018	6.82%	15,000,000	1,023,000
Providence Series T due April 1, 2018	6.50%	14,531,000	944,515
Valley Resources due September 1, 2027	7.70%	6,839,000	526,603
Fall River due February 15, 2000	9.44%	6,500,000	613,600
Fall River due December 15, 2026	7.96%	7,000,000	557,200
Fall River due December 15, 2027	7.24%	6,000,000	434,400
Term Loan due August 27, 2001	7.44% (LIBOR + 87.5bp)	529,000,000	39,357,600
Less: Unamortized Debt Issuance Expense		(17,186,534)	
Less: Unamortized Losses on Reacquired Debt		(13,249,200)	
Add: Annual Amortized Debt Issuance Expense			5,057,041
Add: Annual Amortized Losses on Reacquired Debt Expense			1,187,382
Total		$1,345,097,661	$112,437,585

Embedded Cost of Long-Term Debt $= \dfrac{\$112,437,585}{\$1,345,097,661}$

$=$ **8.36%**

Notes:

See Schedule 10-2 for the amounts of the Unamortized Debt Issuance Expense, the Annual Amortized Debt Issuance Expense and the Annual Amortized Losses on Reacquired Debt Expense.
December 31, 2000, One Month LIBOR Rate from http://www.hsh.com/indices/libor.html
Sources: Southern Union Company's response to Staff's Data Information Requests Nos. 3802 and 3804.

Annual Amortization of Net Premium or Discount Expense and Debt Issuance Expense as of December 31, 2000 for Southern Union Company

Long-Term Debt	Maturity Date	(1) Number of Months to Maturity (12/31/00)	(2) Unamortized Net Premium or Discount Expense and Debt Issuance Expense (12/31/00)	(3) Annual Amortization of Net Premium or Discount Expense and Debt Issuance Expense
General Mortgage Bonds:				
7.60% Senior Notes due February 1, 2024	(02/01/24)	281.1	$3,180,145	$135,775
Capital Lease	(03/31/03)	27.3	6,384,507	2,802,954
8.25% Senior Notes due November 15, 2029	(11/15/29)	351.5	56,692	1,935
PGE MTG Notes due December 1, 2002	(12/01/02)	23.3	377,669	194,230
PGE MTG Notes due September 1, 2019	(09/01/19)	227.3	322,702	17,039
Providence Series M due July 31, 2008	(07/31/08)	92.3	77,942	10,133
Providence Series N due May 30, 2000	(05/30/20)	236.3	280,861	14,261
Providence Series O due September 30, 2022	(09/30/22)	264.8	670,902	30,407
Providence Series P due September 30, 2022	(09/30/22)	264.8	319,890	14,498
Providence Series Q due November 30, 2003	(11/30/03)	35.5	609,575	206,247
Providence Series R due December 15, 2025	(12/15/25)	303.8	364,333	14,389
Providence Series S due April 1, 2018	(04/01/18)	210.0	386,338	22,076
Providence Series T due April 1, 2018	(02/01/29)	342.0	2,427,014	85,167
Valley Resources due September 1, 2027	(09/01/27)	324.7	280,945	10,384
Fall River due February 15, 2000	(02/15/20)	232.8	223,421	11,515
Fall River due December 15, 2026	(12/15/26)	316.0	134,105	5,093
Fall River due December 15, 2027	(12/15/27)	328.2	108,961	3,984
Term Loan due August 27, 2001	(08/27/01)	8.0	980,532	1,476,952
Subtotal			**17,186,534**	**5,057,041**
Losses on Reacquired Debt*	(12/31/11)	133.9	13,249,200	1,187,382
Total			**$30,435,734**	**$6,244,422**

Notes:

(1) Column 3 = [(Column 2 / Column 1) * 12].
* Used an average maturity of 11 years based on MGE's response to Data Request No. 3804

Source: Southern Union Company's response to Staff's Data Request No. 3802 and 3804

Embedded Cost of Preferred Stock as of December 31, 2000 for Southern Union Company

	(1)	(2)	(3)
Preferred Stock	Dividend Rate	Prinicipal Amount Outstanding 12/31/00	Annualized Cost to Company (1 * 2)
Redeemable Preferred Stock: Stated Value of $25 Per Share			
9.48% Preferred Securities	9.480%	$100,000,000	$9,480,000
Less: Net Unamortized Issuance Expense		($3,230,450)	
Add: Annual Amortization of Issuance Expense			132,305
		$96,769,550	$9,612,305

$$\text{Embedded Cost of Preferred Stock} = \frac{\$9,612,305}{\$96,769,550}$$

$$= 9.93\%$$

Notes:
(1) The amount of Preferred Stock includes the amount redeemable within one year.

Source: Southern Union Company's response to Staff's Data Request 3802.

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Weighted Average Cost of Short-Term Debt as of December 31, 2000 for Southern Union Company

Month	EOM STD	Average STD Balance During Month	Interest Cost per Month
1/31/00	$0.00	$3,429,000.00	$18,402.00
2/29/00	$0.00	$0.00	$0.00
3/31/00	$0.00	$0.00	$0.00
4/30/00	$0.00	$0.00	$0.00
5/31/00	$0.00	$0.00	$0.00
6/30/00	$0.00	$0.00	$0.00
7/31/00	$5,200,000.00	$690,000.00	$4,151.00
8/31/00	$58,320,000.00	$27,468,000.00	$162,849.00
9/30/00	$135,450,000.00	$72,543,000.00	$440,430.00
10/31/00	$132,900,000.00	$151,805,000.00	$931,795.00
11/30/00	$172,850,000.00	$131,058,000.00	$792,973.00
12/31/00	$175,000,000.00	$160,627,000.00	$985,862.00
		$45,635,000.00	**3,336,462**

Weighted Average Cost of STD	$3,336,462 / $45,635,000	=	**7.31%**

Source: MGE's response to DR 3811

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Criteria for Selecting Comparable Natural Gas Distribution Companies

Natural Gas Distribution Companies	(1) Stock Publicly Traded	(2) Distribution Revenues to Total Revenue >90%	(3) Information Printed In Value Line	(4) Positive DPS Annuallized Compound Growth Rate (1990 - 2000)	(5) No Missouri Regulated Operations	(6) 10-Years of Data Available	(7) **Comparable Company Met All Criteria**
AGL Resources, Inc.	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
Corning Natural Gas Corporation	Yes	Yes	No				
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
Northwest Natural Gas Company	Yes	Yes	Yes	No			
NUI Corporation	Yes	Yes	Yes	No			
Peoples Energy Corporation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Piedmont Natural Gas Company, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RGC Resources, Inc.	Yes	Yes	Yes	Yes	Yes	No	
Southern Union Company	Yes	Yes	Yes	Yes	No		
South Jersey Industries, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WGL Holdings, Inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Columns 1, 3, 4, and 6 = The Value Line Investment Survey: Ratings & Reports, December 22, 2000.

Column 2 = Edward Jones' Natural Gas Industry Summary, December 31, 2000

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Eight Comparable Natural Gas Distribution Companies For Southern Union Company, Inc.

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

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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	1990	2000	1990	2000	1990	2000
AGL Resources, Inc.	$0.98	$1.08	$1.01	$1.24	$8.97	$11.50
Cascade Natural Gas	$0.87	$0.96	$1.26	$1.39	$8.33	$10.80
Energysouth, Inc.*	$0.52	$0.91	$0.81	$1.75	$6.15	$13.11
New Jersey Resources Corporation	$1.44	$1.72	$0.97	$2.69	$13.27	$18.10
Peoples Energy Corporation	$1.65	$2.00	$2.07	$2.71	$16.61	$22.00
Piedmont Natural Gas Company, Inc.	$0.83	$1.44	$1.22	$1.87	$9.15	$16.35
South Jersey Industries, Inc.	$1.40	$1.46	$1.33	$2.10	$13.58	$17.40
WGL Holdings, Inc.	$1.01	$1.24	$1.26	$1.79	$10.17	$15.25

Annual Compound Growth Rates

	DPS	EPS	BVPS	
Company Name	1990 - 2000	1990 - 2000	1990 - 2000	Average
AGL Resources, Inc.	0.98%	2.07%	2.52%	1.85%
Cascade Natural Gas	0.99%	0.99%	2.63%	1.54%
Energysouth, Inc.*	5.76%	8.01%	7.86%	7.21%
New Jersey Resources Corporation	1.79%	10.74%	3.15%	5.23%
Peoples Energy Corporation	1.94%	2.73%	2.85%	2.51%
Piedmont Natural Gas Company, Inc.	5.66%	4.36%	5.98%	5.33%
South Jersey Industries, Inc.	0.42%	4.67%	2.51%	2.53%
WGL Holdings, Inc.	2.07%	3.57%	4.13%	3.26%
Average	**2.45%**	**4.64%**	**3.95%**	
Standard Deviation	1.95%	3.03%	1.84%	

Source: The Value Line Investment Survey: Ratings & Reports, December 22, 2000.

Note: *Energysouth, Inc.'s 10-year period was 1989-1999 due to lack of recent information.

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

	Dividends Per Share		Earnings Per Share		Book Value Per Share	
Company Name	1995	2000	1995	2000	1995	2000
AGL Resources, Inc.	$1.04	$1.08	$1.33	$1.24	$10.12	$11.50
Cascade Natural Gas	$0.96	$0.96	$0.80	$1.39	$9.76	$10.80
Energysouth, Inc.*	$0.69	$0.91	$1.19	$1.75	$9.21	$13.11
New Jersey Resources Corporation	$1.52	$1.72	$1.93	$2.69	$14.55	$18.10
Peoples Energy Corporation	$1.80	$2.00	$1.78	$2.71	$18.38	$22.00
Piedmont Natural Gas Company, Inc.	$1.09	$1.44	$1.45	$1.87	$12.31	$16.35
South Jersey Industries, Inc.	$1.44	$1.46	$1.65	$2.10	$14.67	$17.40
WGL Holdings, Inc.	$1.12	$1.24	$1.45	$1.79	$11.95	$15.25

Annual Compound Growth Rates

	DPS	EPS	BVPS	
Company Name	1995 - 2000	1995 - 2000	1995 - 2000	Average
AGL Resources, Inc.	0.76%	-1.39%	2.59%	0.65%
Cascade Natural Gas	0.00%	11.68%	2.05%	4.58%
Energysouth, Inc.*	5.69%	8.02%	7.32%	7.01%
New Jersey Resources Corporation	2.50%	6.87%	4.46%	4.61%
Peoples Energy Corporation	2.13%	8.77%	3.66%	4.85%
Piedmont Natural Gas Company, Inc.	5.73%	5.22%	5.84%	5.60%
South Jersey Industries, Inc.	0.22%	4.94%	3.47%	2.88%
WGL Holdings, Inc.	2.06%	4.30%	5.00%	3.79%
Average	**2.39%**	**6.05%**	**4.30%**	
Standard Deviation	2.10%	3.61%	1.62%	

Source: The Value Line Investment Survey: Ratings & Reports, December 22, 2000.

Note: *Energysouth, Inc.'s 5-year period was 1994-1999 due to lack of recent information.

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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.	1.85%	0.65%	1.25%
Cascade Natural Gas	1.54%	4.58%	3.06%
Energysouth, Inc.	7.21%	7.01%	7.11%
New Jersey Resources Corporation	5.23%	4.61%	4.92%
Peoples Energy Corporation	2.51%	4.85%	3.68%
Piedmont Natural Gas Company, Inc.	5.33%	5.60%	5.47%
South Jersey Industries, Inc.	2.53%	2.88%	2.71%
WGL Holdings, Inc.	3.26%	3.79%	3.52%
Average	**3.68%**	**4.25%**	**3.96%**

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

Company Name	(1) Historical Growth Rate (DPS, EPS and BVPS)	(2) Projected 5 Year Growth IBES (Mean)	(3) Projected 5 Year Growth Zacks (Mean)	(4) Projected 5-Year EPS Growth S&P	(5) Projected 3-5 Year EPS Growth Value Line	(6) Average Projected Growth	(7) Average of Historical & Projected Growth
AGL Resources, Inc.	1.25%	5.30%	5.67%	N.A.	5.50%	5.49%	3.37%
Cascade Natural Gas	3.06%	5.00%	3.83%	13.00%	6.50%	7.08%	5.07%
Energysouth, Inc.	7.11%	6.00%	6.00%	N.A.	7.00%	6.33%	6.72%
New Jersey Resources Corporation	4.92%	6.50%	6.43%	7.00%	7.50%	6.86%	5.89%
Peoples Energy Corporation	3.68%	6.00%	5.93%	-2.00%	7.00%	4.23%	3.96%
Piedmont Natural Gas Company, Inc.	5.47%	5.00%	6.00%	5.00%	7.00%	5.75%	5.61%
South Jersey Industries, Inc.	2.71%	5.00%	5.00%	-1.00%	8.50%	4.38%	3.54%
WGL Holdings, Inc.	3.52%	4.50%	6.17%	1.00%	7.50%	4.79%	4.16%
	3.96%	**5.41%**	**5.63%**	**3.83%**	**7.06%**	**5.61%**	**4.79%**

Proposed Range of Growth:

4.80%-5.6%

Column 6 = [(Column 2 + Column 3 + Column 4 + Column 5) / 4]

Column 7 = [(Column 1 + Column 6) / 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, February 15, 2001.

Column 3 = Zacks, http://www.zacks.com, March 12, 2001.

Column 4 = Standard & Poor's Earnings Guide, March 2001.

Column 5 = The Value Line Investment Survey: Ratings and Reports, December 22, 2000.

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Average High / Low Stock Price for November 2000 through February 2001 for the Eight Comparable Natural Gas Distribution Companies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	-- November 2000 --		-- December 2000 --		-- January 2001 --		-- February 2001 --		**Average High/Low Stock Price (11/00 - 2/01)**
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.	23.000	19.870	23.180	21.430	22.310	19.500	21.940	20.000	**21.404**
Cascade Natural Gas	20.500	17.310	20.870	17.370	20.680	17.370	19.210	17.850	**18.895**
Energysouth, Inc.	23.000	20.375	22.000	20.500	21.937	20.500	21.750	20.625	**21.385**
New Jersey Resources Corporation	41.620	37.500	44.620	40.120	43.250	37.260	39.090	37.260	**40.728**
Peoples Energy Corporation	43.000	34.000	46.930	41.120	44.620	35.870	40.400	36.740	**40.923**
Piedmont Natural Gas Company, Inc.	34.370	29.180	39.430	32.500	38.000	33.000	34.190	31.750	**34.413**
South Jersey Industries, Inc.	29.750	28.560	29.810	29.000	32.250	29.180	32.000	29.000	**29.758**
WGL Holdings, Inc.	28.500	25.370	31.500	27.430	30.500	27.060	28.700	26.370	**28.393**

Notes:

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

Sources: Telescan's Wall Street City, March 12, 2001 and S & P Stock Guides: March 2001, February 2001, January 2001 and December 2000.

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

Company Name	(1) Expected Annual Dividend		(2) Average High/Low Stock Price	(3) Projected Dividend Yield	(4) Average of Historical & Projected Growth	(5) Estimated Cost of Common Equity
AGL Resources, Inc.	$1.08		$21.404	5.05%	,3.37%	8.42%
Cascade Natural Gas	$0.96		$18.895	5.08%	5.07%	10.15%
Energysouth, Inc.	$0.91	*	$21.385	4.26%	6.72%	10.98%
New Jersey Resources Corporation	$1.74		$40.728	4.27%	5.89%	10.16%
Peoples Energy Corporation	$2.02		$40.923	4.94%	3.96%	8.80%
Piedmont Natural Gas Company, Inc.	$1.48		$34.413	4.30%	5.61%	9.89%
South Jersey Industries, Inc.	$1.47		$29.758	4.92%	3.54%	8.46%
WGL Holdings, Inc.	$1.25		$28.393	4.40%	4.16%	8.56%
Average				4.65%	4.79%	9.43%

Proposed Dividend Yield:	**4.65%**
Proposed Range of Growth:	**4.80% - 5.6%**
Estimated Cost of Common Equity:	**9.45% - 10.25%**

Notes: Column 1 = Estimated Dividends Declared per share represents the average projected dividends for 2000 and 2001.

* Used actual 1999 dividend for Energysouth because no projections were available.

Column 3 = (Column 1 / Column 2).

Column 5 = (Column 3 + Column 4).

Sources: Column 1 = The Value Line Investment Survey: Ratings & Reports, December 22, 2000.

Column 2 = Schedule 17.

Column 4 = Schedule 16.

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

	(1)	(2)	(3)	(4)
Company Name	Risk Free Rate	Company's Value Line Beta	Market Risk Premium (1926-1999)	CAPM Cost of Common Equity
AGL Resources, Inc.	5.49%	0.60	7.80%	10.17%
Cascade Natural Gas	5.49%	0.55	7.80%	9.78%
Energysouth, Inc.	5.49%	0.50	7.80%	9.39%
New Jersey Resources Corporation	5.49%	0.55	7.80%	9.78%
Peoples Energy Corporation	5.49%	0.70	7.80%	10.95%
Piedmont Natural Gas Company, Inc.	5.49%	0.60	7.80%	10.17%
South Jersey Industries, Inc.	5.49%	0.45	7.80%	9.00%
WGL Holdings, Inc.	5.49%	0.60	7.80%	10.17%
Average		**0.57**		**9.93%**

Sources:

Column 1 = The Risk Free Rate of Interest reflects the level of return which can be achieved without accepting any risk. The Risk Free Rate is represented by the yield on 30-Year U.S. Treasury Bonds quoted from the April 5, 2001 Wall Street Journal.

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 22, 2000.

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 7.80% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2000 Yearbook. for the period 1926 - 1999.

Column 4 = (Column 1 + (Column 2 * Column 3)).

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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 1991	11.50%	8.27%	3.23%
Feb	11.50%	8.03%	3.47%
Mar	11.50%	8.29%	3.21%
Apr	11.50%	8.21%	3.29%
May	11.50%	8.27%	3.23%
Jun	11.50%	8.47%	3.03%
Jul	11.50%	8.45%	3.05%
Aug	11.50%	8.14%	3.36%
Sep	11.50%	7.95%	3.55%
Oct	10.50%	7.93%	2.57%
Nov	10.50%	7.92%	2.58%
Dec	10.50%	7.70%	2.80%
Jan 1992	11.50%	7.58%	3.92%
Feb	11.50%	7.85%	3.65%
Mar	11.50%	7.97%	3.53%
Apr	11.00%	7.96%	3.04%
May	11.00%	7.89%	3.11%
Jun	11.00%	7.84%	3.16%
Jul	11.00%	7.60%	3.40%
Aug	11.00%	7.39%	3.61%
Sep	11.00%	7.34%	3.66%
Oct	11.00%	7.53%	3.47%
Nov	11.00%	7.61%	3.39%
Dec	11.00%	7.44%	3.56%
Jan 1993	11.50%	7.34%	4.16%
Feb	11.50%	7.09%	4.41%
Mar	11.50%	6.82%	4.68%
Apr	11.50%	6.85%	4.65%
May	11.50%	6.92%	4.58%
Jun	11.50%	6.81%	4.69%
Jul	11.50%	6.63%	4.87%
Aug	11.50%	6.32%	5.18%
Sep	11.50%	6.00%	5.50%
Oct	10.50%	5.94%	4.56%
Nov	10.50%	6.21%	4.29%
Dec	10.50%	6.25%	4.25%
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%

Mo/Year	AGL's Expected ROE	30-Year U.S. Treasury Bond Yields	AGL's Risk Premium
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	4.88%
High Risk Premium: (February 1997)	7.81%
Low Risk Premium: (October 1991)	2.57%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Schedule 20-1

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	14.50%	8.27%	6.23%
Feb	14.50%	8.03%	6.47%
Mar	14.50%	8.29%	6.21%
Apr	15.50%	8.21%	7.29%
May	15.50%	8.27%	7.23%
Jun	15.50%	8.47%	7.03%
Jul	15.50%	8.45%	7.05%
Aug	15.50%	8.14%	7.36%
Sep	15.50%	7.95%	7.55%
Oct	15.50%	7.93%	7.57%
Nov	15.50%	7.92%	7.58%
Dec	15.50%	7.70%	7.80%
Jan 1992	14.50%	7.58%	6.92%
Feb	14.50%	7.85%	6.65%
Mar	14.50%	7.97%	6.53%
Apr	14.50%	7.96%	6.54%
May	14.50%	7.89%	6.61%
Jun	14.50%	7.84%	6.66%
Jul	14.50%	7.60%	6.90%
Aug	14.50%	7.39%	7.11%
Sep	14.50%	7.34%	7.16%
Oct	14.50%	7.53%	6.97%
Nov	14.50%	7.61%	6.89%
Dec	14.50%	7.44%	7.06%
Jan 1993	15.00%	7.34%	7.66%
Feb	15.00%	7.09%	7.91%
Mar	15.00%	6.82%	8.18%
Apr	12.00%	6.85%	5.15%
May	12.00%	6.92%	5.08%
Jun	12.00%	6.81%	5.19%
Jul	10.50%	6.63%	3.87%
Aug	10.50%	6.32%	4.18%
Sep	10.50%	6.00%	4.50%
Oct	11.00%	5.94%	5.06%
Nov	11.00%	6.21%	4.79%
Dec	11.00%	6.25%	4.75%
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%

Mo/Year	Cascade's Expected ROE	30-Year U.S. Treasury Bond Yields	Cascade's Risk Premium
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%
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	4.85%
High Risk Premium: (March 1993)	8.18%
Low Risk Premium: (November 1994)	-0.08%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Schedule 20-2

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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

Mo/Year	Energysouth's Actual ROE	30-Year U.S. Treasury Bond Yields	Energysouth's Risk Premium
Jan 1991	14.50%	8.27%	6.23%
Feb	14.50%	8.03%	6.47%
Mar	14.50%	8.29%	6.21%
Apr	14.50%	8.21%	6.29%
May	14.50%	8.27%	6.23%
Jun	14.50%	8.47%	6.03%
Jul	14.50%	8.45%	6.05%
Aug	14.50%	8.14%	6.36%
Sep	14.50%	7.95%	6.55%
Oct	14.50%	7.93%	6.57%
Nov	14.50%	7.92%	6.58%
Dec	14.50%	7.70%	6.80%
Jan 1992	17.30%	7.58%	9.72%
Feb	17.30%	7.85%	9.45%
Mar	17.30%	7.97%	9.33%
Apr	17.30%	7.96%	9.34%
May	17.30%	7.89%	9.41%
Jun	17.30%	7.84%	9.46%
Jul	17.30%	7.60%	9.70%
Aug	17.30%	7.39%	9.91%
Sep	17.30%	7.34%	9.96%
Oct	17.30%	7.53%	9.77%
Nov	17.30%	7.61%	9.69%
Dec	17.30%	7.44%	9.86%
Jan 1993	14.70%	7.34%	7.36%
Feb	14.70%	7.09%	7.61%
Mar	14.70%	6.82%	7.88%
Apr	14.70%	6.85%	7.85%
May	14.70%	6.92%	7.78%
Jun	14.70%	6.81%	7.89%
Jul	14.70%	6.63%	8.07%
Aug	14.70%	6.32%	8.38%
Sep	14.70%	6.00%	8.70%
Oct	14.70%	5.94%	8.76%
Nov	14.70%	6.21%	8.49%
Dec	14.70%	6.25%	8.45%
Jan 1994	11.10%	6.29%	4.81%
Feb	11.10%	6.49%	4.61%
Mar	11.10%	6.91%	4.19%
Apr	11.10%	7.27%	3.83%
May	11.10%	7.41%	3.69%
Jun	11.10%	7.40%	3.70%
Jul	11.10%	7.58%	3.52%
Aug	11.10%	7.49%	3.61%
Sep	11.10%	7.71%	3.39%
Oct	11.10%	7.94%	3.16%
Nov	11.10%	8.08%	3.02%
Dec	11.10%	7.87%	3.23%
Jan 1995	8.90%	7.85%	1.05%
Feb	8.90%	7.61%	1.29%
Mar	8.90%	7.45%	1.45%
Apr	8.90%	7.36%	1.54%
May	8.90%	6.95%	1.95%
Jun	8.90%	6.57%	2.33%
Jul	8.90%	6.72%	2.18%
Aug	8.90%	6.86%	2.04%
Sep	8.90%	6.55%	2.35%
Oct	8.90%	6.37%	2.53%
Nov	8.90%	6.26%	2.64%
Dec	8.90%	6.06%	2.84%

Mo/Year	Energysouth's Actual ROE	30-Year U.S. Treasury Bond Yields	Energysouth's Risk Premium
Jan 1996	17.10%	6.05%	11.05%
Feb	17.10%	6.24%	10.86%
Mar	17.10%	6.60%	10.50%
Apr	17.10%	6.79%	10.31%
May	17.10%	6.93%	10.17%
Jun	17.10%	7.06%	10.04%
Jul	17.10%	7.03%	10.07%
Aug	17.10%	6.84%	10.26%
Sep	17.10%	7.03%	10.07%
Oct	17.10%	6.81%	10.29%
Nov	17.10%	6.48%	10.62%
Dec	17.10%	6.55%	10.55%
Jan 1997	14.70%	6.83%	7.87%
Feb	14.70%	6.69%	8.01%
Mar	14.70%	6.93%	7.77%
Apr	14.70%	7.09%	7.61%
May	14.70%	6.94%	7.76%
Jun	14.70%	6.77%	7.93%
Jul	14.70%	6.51%	8.19%
Aug	14.70%	6.58%	8.12%
Sep	14.70%	6.50%	8.20%
Oct	14.70%	6.33%	8.37%
Nov	14.70%	6.11%	8.59%
Dec	14.70%	5.99%	8.71%
Jan 1998	14.10%	5.81%	8.29%
Feb	14.10%	5.89%	8.21%
Mar	14.10%	5.95%	8.15%
Apr	14.10%	5.92%	8.18%
May	14.10%	5.93%	8.17%
Jun	14.10%	5.70%	8.40%
Jul	14.10%	5.68%	8.42%
Aug	14.10%	5.54%	8.56%
Sep	14.10%	5.20%	8.90%
Oct	14.10%	5.01%	9.09%
Nov	14.10%	5.25%	8.85%
Dec	14.10%	5.06%	9.04%
Jan 1999	13.50%	5.16%	8.34%
Feb	13.50%	5.37%	8.13%
Mar	13.50%	5.58%	7.92%
Apr	13.50%	5.55%	7.95%
May	13.50%	5.81%	7.69%
Jun	13.50%	6.04%	7.46%
Jul	13.50%	5.98%	7.52%
Aug	13.50%	6.07%	7.43%
Sep	13.50%	6.07%	7.43%
Oct	13.50%	6.26%	7.24%
Nov	13.50%	6.15%	7.35%
Dec	13.50%	6.35%	7.15%

Summary Information	(1991 - 1999)
Average Risk Premium: (Jan 1991 - Dec 1999)	7.17%
High Risk Premium: (January 1996)	11.05%
Low Risk Premium: (January 1995)	1.05%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Note: Used actual yearly ROE's because projected quarterly ROE's were unavailable. Only data up to 1999 was available.

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	9.00%	8.27%	0.73%
Feb	9.00%	8.03%	0.97%
Mar	9.00%	8.29%	0.71%
Apr	7.50%	8.21%	-0.71%
May	7.50%	8.27%	-0.77%
Jun	7.50%	8.47%	-0.97%
Jul	8.00%	8.45%	-0.45%
Aug	8.00%	8.14%	-0.14%
Sep	8.00%	7.95%	0.05%
Oct	7.50%	7.93%	-0.43%
Nov	7.50%	7.92%	-0.42%
Dec	7.50%	7.70%	-0.20%
Jan 1992	10.50%	7.58%	2.92%
Feb	10.50%	7.85%	2.65%
Mar	10.50%	7.97%	2.53%
Apr	9.00%	7.96%	1.04%
May	9.00%	7.89%	1.11%
Jun	9.00%	7.84%	1.16%
Jul	10.50%	7.60%	2.90%
Aug	10.50%	7.39%	3.11%
Sep	10.50%	7.34%	3.16%
Oct	11.50%	7.53%	3.97%
Nov	11.50%	7.61%	3.89%
Dec	11.50%	7.44%	4.06%
Jan 1993	11.50%	7.34%	4.16%
Feb	11.50%	7.09%	4.41%
Mar	11.50%	6.82%	4.68%
Apr	12.00%	6.85%	5.15%
May	12.00%	6.92%	5.08%
Jun	12.00%	6.81%	5.19%
Jul	11.50%	6.63%	4.87%
Aug	11.50%	6.32%	5.18%
Sep	11.50%	6.00%	5.50%
Oct	11.50%	5.94%	5.56%
Nov	11.50%	6.21%	5.29%
Dec	11.50%	6.25%	5.25%
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%

Mo/Year	New Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	New Jersey's Risk Premium
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%
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	5.90%
High Risk Premium: (October 1998)	9.99%
Low Risk Premium: (June 1991)	-0.97%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Schedule 20-4

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	14.00%	8.27%	5.73%
Feb	14.00%	8.03%	5.97%
Mar	14.00%	8.29%	5.71%
Apr	12.00%	8.21%	3.79%
May	12.00%	8.27%	3.73%
Jun	12.00%	8.47%	3.53%
Jul	12.00%	8.45%	3.55%
Aug	12.00%	8.14%	3.86%
Sep	12.00%	7.95%	4.05%
Oct	11.50%	7.93%	3.57%
Nov	11.50%	7.92%	3.58%
Dec	11.50%	7.70%	3.80%
Jan 1992	12.00%	7.58%	4.42%
Feb	12.00%	7.85%	4.15%
Mar	12.00%	7.97%	4.03%
Apr	11.50%	7.96%	3.54%
May	11.50%	7.89%	3.61%
Jun	11.50%	7.84%	3.66%
Jul	11.50%	7.60%	3.90%
Aug	11.50%	7.39%	4.11%
Sep	11.50%	7.34%	4.16%
Oct	11.50%	7.53%	3.97%
Nov	11.50%	7.61%	3.89%
Dec	11.50%	7.44%	4.06%
Jan 1993	12.50%	7.34%	5.16%
Feb	12.50%	7.09%	5.41%
Mar	12.50%	6.82%	5.68%
Apr	12.50%	6.85%	5.65%
May	12.50%	6.92%	5.58%
Jun	12.50%	6.81%	5.69%
Jul	12.50%	6.63%	5.87%
Aug	12.50%	6.32%	6.18%
Sep	12.50%	6.00%	6.50%
Oct	11.50%	5.94%	5.56%
Nov	11.50%	6.21%	5.29%
Dec	11.50%	6.25%	5.25%
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%

Mo/Year	People's Expected ROE	30-Year U.S. Treasury Bond Yields	People's Risk Premium
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%
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	5.08%
High Risk Premium: (November 1996)	8.52%
Low Risk Premium: (April 1995)	2.64%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/rates/gs30

Schedule 20-5

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	13.50%	8.27%	5.23%
Feb	13.50%	8.03%	5.47%
Mar	13.50%	8.29%	5.21%
Apr	10.00%	8.21%	1.79%
May	10.00%	8.27%	1.73%
Jun	10.00%	8.47%	1.53%
Jul	9.50%	8.45%	1.05%
Aug	9.50%	8.14%	1.36%
Sep	9.50%	7.95%	1.55%
Oct	8.50%	7.93%	0.57%
Nov	8.50%	7.92%	0.58%
Dec	8.50%	7.70%	0.80%
Jan 1992	11.50%	7.58%	3.92%
Feb	11.50%	7.85%	3.65%
Mar	11.50%	7.97%	3.53%
Apr	13.00%	7.96%	5.04%
May	13.00%	7.89%	5.11%
Jun	13.00%	7.84%	5.16%
Jul	13.00%	7.60%	5.40%
Aug	13.00%	7.39%	5.61%
Sep	13.00%	7.34%	5.66%
Oct	13.00%	7.53%	5.47%
Nov	13.00%	7.61%	5.39%
Dec	13.00%	7.44%	5.56%
Jan 1993	13.50%	7.34%	6.16%
Feb	13.50%	7.09%	6.41%
Mar	13.50%	6.82%	6.68%
Apr	13.50%	6.85%	6.65%
May	13.50%	6.92%	6.58%
Jun	13.35%	6.81%	6.54%
Jul	14.00%	6.63%	7.37%
Aug	14.00%	6.32%	7.68%
Sep	14.00%	6.00%	8.00%
Oct	13.00%	5.94%	7.06%
Nov	13.00%	6.21%	6.79%
Dec	13.00%	6.25%	6.75%
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%

Mo/Year	Piedmont's Expected ROE	30-Year U.S. Treasury Bond Yields	Piedmont's Risk Premium
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%
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	5.48%
High Risk Premium: (October 1998)	8.49%
Low Risk Premium: (October 1991)	0.57%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Schedule 20-6

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	NA	8.27%	NA
Feb	NA	8.03%	NA
Mar	NA	8.29%	NA
Apr	NA	8.21%	NA
May	NA	8.27%	NA
Jun	NA	8.47%	NA
Jul	NA	8.45%	NA
Aug	NA	8.14%	NA
Sep	NA	7.95%	NA
Oct	NA	7.93%	NA
Nov	NA	7.92%	NA
Dec	NA	7.70%	NA
Jan 1992	NA	7.58%	NA
Feb	NA	7.85%	NA
Mar	NA	7.97%	NA
Apr	NA	7.96%	NA
May	NA	7.89%	NA
Jun	NA	7.84%	NA
Jul	NA	7.60%	NA
Aug	NA	7.39%	NA
Sep	NA	7.34%	NA
Oct	NA	7.53%	NA
Nov	NA	7.61%	NA
Dec	NA	7.44%	NA
Jan 1993	NA	7.34%	NA
Feb	NA	7.09%	NA
Mar	NA	6.82%	NA
Apr	NA	6.85%	NA
May	NA	6.92%	NA
Jun	NA	6.81%	NA
Jul	NA	6.63%	NA
Aug	NA	6.32%	NA
Sep	NA	6.00%	NA
Oct	NA	5.94%	NA
Nov	NA	6.21%	NA
Dec	NA	6.25%	NA
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

Mo/Year	South Jersey's Expected ROE	30-Year U.S. Treasury Bond Yields	South Jersey's Risk Premium
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%
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%	5.49%	6.01%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	NA
High Risk Premium:	NA
Low Risk Premium:	NA

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

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

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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 1991	13.00%	8.27%	4.73%
Feb	13.00%	8.03%	4.97%
Mar	13.00%	8.29%	4.71%
Apr	11.50%	8.21%	3.29%
May	11.50%	8.27%	3.23%
Jun	11.50%	8.47%	3.03%
Jul	11.50%	8.45%	3.05%
Aug	11.50%	8.14%	3.36%
Sep	11.50%	7.95%	3.55%
Oct	11.00%	7.93%	3.07%
Nov	11.00%	7.92%	3.08%
Dec	11.00%	7.70%	3.30%
Jan 1992	12.50%	7.58%	4.92%
Feb	12.50%	7.85%	4.65%
Mar	12.50%	7.97%	4.53%
Apr	12.00%	7.96%	4.04%
May	12.00%	7.89%	4.11%
Jun	12.00%	7.84%	4.16%
Jul	12.00%	7.60%	4.40%
Aug	12.00%	7.39%	4.61%
Sep	12.00%	7.34%	4.66%
Oct	12.00%	7.53%	4.47%
Nov	12.00%	7.61%	4.39%
Dec	12.00%	7.44%	4.56%
Jan 1993	12.00%	7.34%	4.66%
Feb	12.00%	7.09%	4.91%
Mar	12.00%	6.82%	5.18%
Apr	12.50%	6.85%	5.65%
May	12.50%	6.92%	5.58%
Jun	12.50%	6.81%	5.69%
Jul	13.00%	6.63%	6.37%
Aug	13.00%	6.32%	6.68%
Sep	13.00%	6.00%	7.00%
Oct	12.50%	5.94%	6.56%
Nov	12.50%	6.21%	6.29%
Dec	12.50%	6.25%	6.25%
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%

Mo/Year	WGL's Expected ROE	30-Year U.S. Treasury Bond Yields	WGL's Risk Premium
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%

Summary Information	(1991 - 2000)
Average Risk Premium: (Jan 1991 - Dec 2000)	5.30%
High Risk Premium: (November 1996)	8.02%
Low Risk Premium: (June 1999)	2.96%

Sources: The Value Line Investment Survey: Ratings & Reports.
St. Louis Federal Reserve Website: http://www.stls.frb.org/fred/data/irates/gs30

Schedule 20-8

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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.	5.49%	4.88%		10.37%
Cascade Natural Gas	5.49%	4.85%		10.34%
Energysouth, Inc.	5.49%	7.17%	*	12.66%
New Jersey Resources Corporation	5.49%	5.90%		11.39%
Peoples Energy Corporation	5.49%	5.08%		10.57%
Piedmont Natural Gas Company, Inc.	5.49%	5.48%		10.97%
South Jersey Industries, Inc.	5.49%	N.A.		N.A.
WGL Holdings, Inc.	5.49%	5.30%		10.79%
Average				11.01%

NOTES:

Column 1 = The 30-year treasury bond yield is that which was quoted in the Wall Street Journal on April 5, 2001.

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 1991 through December 2000.
* Energysouth's equity premium is based on actual return on common equity.
See Schedules 20-1 through 20-8.

Column 3 = Column 1 + Column 2.

N.A. = Not Available

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Selected Financial Ratios for the Eight Comparable Natural Gas Distribution Companies

Company Name	(1) Year 2000 Common Equity to Total Capital Ratio	(2) Year 2000 Preferred Stock Ratio	(3) Year 2000 Long-Term Debt Ratio	(4) Pre-Tax Interest Coverage Ratio (as of 12/31/00)	(5) Market-to-Book Value (as of 12/31/00)	(6) 2001 Projected Return on Common Equity	(7) Bond Rating
AGL Resources, Inc.	47.50%	6.00%	46.50%	3.10 x	1.92 x	11.50%	A-
Cascade Natural Gas	50.00%	0.00%	50.00%	3.23 x	2.37 x	14.00%	BBB+
Energysouth, Inc.	56.00% *	0.00% *	44.00% *	3.85 x	1.50 x	13.50% **	N.A.
New Jersey Resources Corporation	53.00%	0.00%	47.00%	5.01 x	2.28 x	14.50%	A
Peoples Energy Corporation	64.90%	0.00%	35.10%	3.98 x	1.95 x	12.50%	A+
Piedmont Natural Gas Company, Inc.	57.00%	0.00%	43.00%	3.72 x	2.24 x	12.50%	A
South Jersey Industries, Inc.	45.00%	1.50%	46.50%	2.92 x	1.74 x	12.00%	BBB+
WGL Holdings, Inc.	56.50%	2.50%	41.00%	4.27 x	1.91 x	12.50%	AA-
Average	53.74%	1.25%	44.14%	3.76 x	1.99 x	12.88%	
Southern Union Company	**31.20%**	**4.33%**	**58.23%**	**1.13 x**	**1.66 x**	**3.00%**	

Notes: * Actual June 30, 2000 data was used for Energysouth, Inc.
** Return on Equity for Energysouth, Inc. is actual for December 31, 1999.

N.A. - Not Available

Sources: The Value Line Investment Survey: Ratings and Reports, December 22, 2000 for columns (1), (2), (3) and (6).
Edward Jones, Natural Gas Industry Summary, December 31, 2000 for columns (4) and (5).
Standard & Poor's Utilities & Perspectives, March 12, 2001 for column (7)

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

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

	9.45%	9.85%	10.25%
1. Common Equity (Schedule 10)	$720,664,676	$720,664,676	$720,664,676
2. Earnings Allowed (ROE * [1])	$68,102,812	$70,985,471	$73,868,129
3. Tax Multiplier (1 / { 1 - Tax Rate })	1.6231	1.6231	1.6231
4. Pre-Tax Earnings ([2] * [3])	$110,537,674	$115,216,517	$119,895,361
5. Preferred Dividends	$9,480,000	$9,480,000	$9,480,000
6. Annual Interest Costs (Schedule 10-1 & Schedule 12)*	$109,529,624	$109,529,624	$109,529,624
7. Avail. for Coverage ([4] + [5] + [6])	$229,547,298	$234,226,141	$238,904,985
8. **Pro Forma Pre-Tax Interest Coverage** ([7] / [6])	**2.10 x**	**2.14 x**	**2.18 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 :

RR	=	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

SOUTHERN UNION COMPANY
CASE NO. GR-2001-292

Weighted Cost of Capital as of December 31, 2000 for Missouri Gas Energy

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of: 9.45%	9.85%	10.25%
Common Stock Equity	31.20%	-----	2.95%	3.07%	3.20%
Preferred Stock	4.33%	9.93%	0.43%	0.43%	0.43%
Long-Term Debt	58.22%	8.36%	4.86%	4.86%	4.86%
Short-Term Debt	6.25%	7.31%	0.46%	0.46%	0.46%
	100.00%		8.70%	8.82%	8.95%

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10-1 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.