Exhibit No.:
Witness: Michael Gorman
Type of Exhibit: Direct Testimony
Issue: Revenue Requirement
Sponsoring Parties: Missouri Industrial Energy Consumers
Case No.: WR-2007-0216

**BEFORE THE PUBLIC SERVICE COMMISSION**
**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| **In the Matter of Missouri-American Water Company's Request for Authority to Implement a General Rate Increase for Water Service Provided in Missouri Service Areas** | ) ) ) ) ) | **Case No. WR-2007-0216** |

Direct Testimony of

**Michael Gorman**
**on Revenue Requirement Issues**

On Behalf of

**Missouri Industrial Energy Consumers**

June 5, 2007

Project 8751

BRUBAKER & ASSOCIATES, INC.
ST. LOUIS, MO 63141-2000

MIEC Exhibit No. 1
Case No(s). WR-2007-0216
Date 8-14-07 Rptr RE

MIEC-1

**BEFORE THE PUBLIC SERVICE COMMISSION**
**OF THE STATE OF MISSOURI**

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**STATE OF MISSOURI** )
) **SS**
**COUNTY OF ST. LOUIS** )

## Affidavit of Michael Gorman

Michael Gorman, being first duly sworn, on his oath states:

1. My name is Michael Gorman. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141. We have been retained by the Missouri Industrial Energy Consumers in this proceeding on their behalf.

2. Attached hereto and made a part hereof for all purposes are my direct testimony and schedules on revenue requirement issues, which were prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. WR-2007-0216.

3. I hereby swear and affirm that the testimony and schedules are true and correct and that they show the matters and things they purport to show.

Michael Gorman

Subscribed and sworn to before me this 4th day of June, 2007.

MICHELLE C. LOREAUX
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Mar. 12, 2011
Commission # 07023901

Notary Public

**BEFORE THE PUBLIC SERVICE COMMISSION**
**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| **In the Matter of Missouri-American Water Company's Request for Authority to Implement a General Rate Increase for Water Service Provided in Missouri Service Areas** | ) ) ) ) ) | **Case No. WR-2007-0216** |

# Direct Testimony of Michael Gorman

**Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A My name is Michael Gorman and my business address is 1215 Fern Ridge Parkway, Suite 208, St. Louis, MO 63141-2000.

**Q WHAT IS YOUR OCCUPATION?**

A I am an energy advisor and a consultant in the field of public utility regulation and a managing principal in the firm of BAI (Brubaker & Associates, Inc.).

**Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

A These are set forth in Appendix A to my testimony.

**Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

A I am appearing on behalf of the Missouri Industrial Energy Consumers (MIEC). Member companies purchase substantial amounts of water from Missouri-American Water Company (Missouri-American or Company).

**Q PLEASE SUMMARIZE THE ISSUES YOU WILL ADDRESS IN YOUR TESTIMONY.**

A In this testimony I will address the following issues concerning the Company's proposed revenue requirement and revenue deficiency for the St. Louis Operating District:

1. Appropriate return on equity and overall rate of return.
2. Proposal to increase the depreciation rates and expense.
3. Proposal to increase rates in the St. Louis District above the St. Louis District's cost of service.

**Q PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING A FAIR RATE OF RETURN FOR MISSOURI-AMERICAN.**

A I recommend the Commission award Missouri-American a return on common equity of 9.7% and overall rate of return of 7.77% as set forth on my Appendix B. My recommended return on equity for Missouri-American is based on discounted cash flow (DCF), equity risk premium (RP) and capital asset pricing model (CAPM) analyses. These analyses estimate a fair return on equity based on observable market information for a group of publicly traded risk proxy companies comparable in risk to Missouri-American.

I also demonstrate that my proposed return on equity and overall rate of return for Missouri-American provide adequate earnings and cash flow coverage to support an "A" bond rating from Standard & Poor's (S&P) which reflects American Water Capital Corp.'s current bond rating. American Water Capital Corp. is the affiliate entity which issues debt on behalf of all American Water Works water utility affiliates including Missouri-American.

**Q HOW DID YOU DETERMINE THAT A FAIR RETURN ON EQUITY FOR MISSOURI-AMERICAN IS 9.7%?**

A This analysis is set forth in my Appendix B. In my Appendix, I discuss my development of two risk proxy groups to Missouri-American and the estimate of a 9.7% return on equity using a DCF analysis, RP study and CAPM. I use these models to estimate the current market cost of equity for a utility company with the investment risk characteristics of Missouri-American. Based on this analysis, I conclude that a 9.7% return on equity represents fair compensation for the investment risk of Missouri-American's common stock.

**Q HOW DID YOU DETERMINE THAT A 9.7% COMMON EQUITY RETURN WILL SUPPORT MISSOURI-AMERICAN'S CREDIT AND FINANCIAL INTEGRITY?**

A In Appendix B I demonstrate that a 9.7% return on equity, Missouri-American's capital structure and embedded cost of debt and preferred equity, will support credit rating financial metrics that meet S&P's guidelines to maintain an investment grade bond rating of "A," the bond rating for Missouri-American's affiliate, American Water Capital Corp. (AWC). AWC issues bonds on behalf of Missouri-American and other American Water Works operating utility affiliates. Hence, my recommended return on equity is both fair compensation for Missouri-American investment risk, and is also sufficient to maintain Missouri-American's financial integrity and ability to attract capital to fund needed infrastructure improvements.

## Allocation of Total System Revenue Deficiency Between Districts

**Q PLEASE DESCRIBE HOW MISSOURI-AMERICAN IS PROPOSING TO ADJUST EACH OF ITS DISTRICTS' RATES IN THIS PROCEEDING.**

A Missouri-American witness Mr. James Jenkins' Direct Testimony at 19, states that the Company is proposing an equal percent change to all customers' rates across all districts. The rate increase applicable to each district is 24.9%.

**Q IS A 24.9% INCREASE TO ST. LOUIS DISTRICT RATES COST JUSTIFIED?**

A No. Based on the Company's own cost of service study, St. Louis District rates are much closer to cost of service than are Missouri-American's other operating districts, as illustrated on my Schedule MPG-1. As shown on this schedule, the St. Louis District's rates need to be increased by 18.7% in order to increase the St. Louis District's rates to produce the Company's claimed cost of service. Of course, to the extent the Company's claimed cost of service for the St. Louis is overstated, the amount of rate increase necessary to adjust St. Louis rates to cost of service would be adjusted accordingly.

**Q WHAT WOULD HAPPEN TO THE ST. LOUIS DISTRICT IF THE COMPANY'S PROPOSED EQUAL PERCENT CHANGE ACROSS ALL DISTRICTS IS APPROVED?**

A The St. Louis District's rates would be increased significantly above its cost of service. Indeed, as shown on Schedule MPG-1, under the Company's proposal the St. Louis District would pay a subsidy to other districts of $7.5 million. As such, the Company's proposed rate adjustment in this proceeding would create an unnecessarily and unjustified cost burden on the St. Louis District in order to reduce

the rate increase necessary for other districts which are not paying rates that are in line with the Company's cost of providing service to those districts.

**Q WHY IS THE SUBSIDY PROVIDED BY THE ST. LOUIS DISTRICT TO THE OTHER COMPANY DISTRICTS INAPPROPRIATE?**

A The subsidy is discriminatory and ignores the principles of cost of service. Further, the Company's proposal that the St. Louis District subsidize other districts restricts businesses' in the St. Louis area ability to remain competitive in their own markets and remain viable ongoing entities. As competition increases on a global basis, it is important that businesses are provided with utility services at cost of service that reasonably reflects prudent and efficient utility management.

**Q IS THERE A MATERIAL DIFFERENTIAL IN THE COST OF UTILITY SERVICE BETWEEN DISTRICTS THAT WOULD WARRANT INCREASING THE ST. LOUIS DISTRICT RATES ABOVE COST OF SERVICE TO MITIGATE RATE IMPACTS ON OTHER DISTRICTS?**

A No. The Company estimated the monthly cost increase and typical monthly bill under its proposed rate proceedings in various news announcements of its proposed rate increases. I have summarized these estimates of typical residential monthly bills and monthly increases under the Company's proposals as reflected in its news releases. As shown on my Schedule MPG-2, the average and median monthly proposed residential bill for the 10 Missouri-American districts is $28.37 and $27.01 per month, respectively. The St. Louis District is $25.50, about the median of the current cost of service for a typical residential customer.

In contrast, other customers that take service in districts which are priced well below cost, for example the Joplin District, have abnormally low cost rates for

residential service. As shown on my Schedule MPG-1, the Joplin District's proposed rates would pay $20.40 per month, well below the total district average. Since Joplin's rates are so far out of line with the rates of other districts, and Missouri-American's Joplin rates do not cover its cost of service, it would be appropriate to increase Joplin rates by a percentage that is above the system average increase. A similar argument is applicable to the other districts that are priced below cost of service.

**Q SHOULD THE COMPANY'S PROPOSAL TO INCREASE THE ST. LOUIS DISTRICT'S RATES ABOVE ITS COST OF SERVICE BE APPROVED BY THE COMMISSION?**

A No. Increasing some districts' rates to cost of service would create undue rate shock in this proceeding and undue hardships on the St. Louis District. Therefore, I propose a gradual movement of all districts' rates to cost of service starting in this proceeding.

In order to accomplish this, I propose districts that are paying less than their cost of service receive an above system average increase, and districts which are paying more than their cost of service receive less than a system average increase.

This would result in St. Louis receiving a below-average percentage increase and all other districts receiving an above-average percentage increase. However, I propose limiting the percentage increase for districts whose rates are significantly below their cost of service in this proceeding.

**Q HOW SHOULD EACH DISTRICT PERCENTAGE INCREASE BE DETERMINED?**

A In order to gradually move all districts to cost of service, I recommend each district's rate increase be limited to no more than 150% of the system average rate increase approved in this proceeding. At the Company's proposed revenue deficiency,

keeping each district's rates to 150% cost of service is illustrated on my Schedule MPG-3.

As shown on this schedule, the district that will receive the highest system average increase because its rates are furthest below costs would be the Joplin District. Under the Company's proposed 24.9% increase, the Joplin District would receive approximately a 37.3% increase in this proceeding. Note, that even at that increase, Joplin's rates would still be significantly below its cost of service. In contrast, the St. Louis District rates are closest to its cost of service and would receive a below system average of 22.3%. However, even with a below system average percentage increase, the St. Louis District will still pay a subsidy of $4.4 million, to other Missouri-American districts. I recommend further movements to cost of service in future rate cases.

**Q ARE THERE ADDITIONAL REASONS TO BEGIN MOVING DISTRICTS TO REFLECT THEIR COST OF SERVICE?**

A Yes. The current rates for many districts are already way out of line with the Company's cost of providing service to those districts. However, based on the Company's evidence, costs outside of St. Louis are increasing, much faster than the costs of providing service in St. Louis. Hence, the problem with cost rates outside of the St. Louis District is going to be compounded by significant investments in Joplin and other districts. Hence, in order to begin effectively eliminating the rate discrimination to the St. Louis District proposed by the Company, an aggressive but gradual movement to cost of service should be started in this proceeding.

**Q WHAT IS THE RESULT OF YOUR PROPOSAL ON THE SUBSIDY PROVIDED BY THE ST. LOUIS DISTRICT?**

A Under my proposal, the subsidy provided by the St. Louis District is reduced to $4.4 million, resulting in a 22.3% increase for the St. Louis District.

## Depreciation Expense

**Q HAS THE COMPANY PROPOSED TO CHANGE ITS DEPRECIATION RATES IN THIS CASE?**

A Yes. The current depreciation rates were the result of a stipulation and were approved by the Commission in WR-2003-0500. The approved depreciation rates reflected adjustments to the service lives and the elimination of a component related to net negative salvage.

Based on a study prepared by Mr. John J. Spanos of Gannett Fleming, Inc., the Company proposes to transition to the rates recommended by Mr. Spanos. In this case, Company witness Mr. Edward Grubb recommends to move one-half of the difference between current depreciation rates and the recommended depreciation rates of Mr. Spanos. (Grubb Direct at 15). The Company's recommended depreciation rates are included in Mr. Grubb's Schedule EJG-2.

**Q DO THE COMPANY'S PROPOSED DEPRECIATION RATES INCLUDED IN SCHEDULE EJG-2 CONTAIN UPDATED SERVICE LIVES AND A COMPONENT FOR NET NEGATIVE SALVAGE?**

A Yes. The proposed depreciation rates are very different than the depreciation rates the Company agreed to in its last rate case settlement.

**Q WHAT IS THE CHANGE IN DEPRECIATION EXPENSE FOR THE ST. LOUIS DISTRICT AS A RESULT OF THE CHANGE IN DEPRECIATION RATES?**

A As shown on my Schedule MPG-4, I have applied both the current depreciation rates approved in WR-2003-0500 and the proposed depreciation rates in Schedule EJG-2 to the Company's true-up Utility Plant in Service (UPIS) through May 31, 2007. This allows an isolation of the effect on depreciation expense resulting from the change in depreciation rates from the impact on expense resulting from changes in plant investment that have occurred since the last rate case.

Based on the Company's proposed depreciation rates in this case, there is an increase in depreciation expense of $3.26 million for the St. Louis District.

**Q WHAT ARE THE MAIN DRIVERS OF THE PROPOSED INCREASE IN DEPRECIATION EXPENSE FOR THE ST. LOUIS DISTRICT?**

A The change in depreciation rates for two accounts make up approximately 61.9% of the increase in depreciation expense for the St. Louis District. These accounts are: Account 340.2 (Computer & Peripheral Equipment) and Account 340.3 (Computer Software). The change in depreciation expense for these two accounts comprise $2.02 million of the $3.26 million increase in depreciation expense for the St. Louis District.

**Q PLEASE DESCRIBE THE INCREASE IN INVESTMENT FOR ACCOUNT 340.2 AND ACCOUNT 340.3.**

A The change in depreciation expense comprises almost two-thirds of the Company's proposed increase in depreciation expense for the St. Louis District, created by a combination of a significant increase in investment in these two accounts totaling over $7.0 million, and a proposal to reduce the recovery period from 23 years for both

accounts to five years for Account 340.3 and six years for Account 340.2. Specifically, the Company is increasing Account 340.3 and Account 340.2 investment by $4.5 million and $2.5 million, respectively, above their June 2006 ending plant balances. The combined total Pro Forma UPIS plant balance as of May 31, 2007 for these accounts is $11.4 million vs. $4.4 million at the end of June 2006.

**Q CONSIDERING SUCH A LARGE INVESTMENT IN COMPUTER SOFTWARE AND HARDWARE EQUIPMENT, DO YOU BELIEVE IT REASONABLE TO EXPECT THE COMPANY TO CAREFULLY SUPPORT AN INCREASE IN DEPRECIATION RATES FOR THESE ACCOUNTS?**

A Yes. Such a significant increase in computer equipment should be justified as prudent and reasonable. At the very minimum, the Company should provide a reasonable demonstration that its proposed recovery period is justifiable since it represents such a dramatic change from the current recovery period.

**Q HAS THE COMPANY JUSTIFIED ITS PROPOSAL TO ACCELERATE THE RECOVERY OF THESE SIGNIFICANT INCREASED INVESTMENTS?**

A No. The Company has provided no justification whatsoever of its proposal to accelerate the recovery of this cost over five years for Account 340.3 and six years for Account 340.2 relative to the current 23-year recovery period for both accounts. Indeed, in Mr. Spanos' testimony, he simply offers an opinion of a six-year recovery period for this type of computer equipment and a five-year recovery period for this type of computer software. This recovery period seems highly questionable considering the significant investment the Company is making in software and hardware equipment to be included in rates in this proceeding. It seems highly problematic whether or not the Company would have invested so much money in

software and hardware equipment that would only have a service life of five years and six years, respectively.

**Q HAS MR. SPANOS OFFERED ANY LIFE EXPECTANCY EVALUATION IN SUPPORT OF THE FIVE-YEAR RECOVERY PERIOD FOR ACCOUNT 340.3 AND THE SIX-YEAR RECOVERY PERIOD FOR ACCOUNT 340.2?**

A No.

**Q HAS MR. SPANOS OFFERED LIFE EXPECTANCY EVIDENCE IN OTHER RATE PROCEEDINGS FOR THESE TWO COMPUTER EQUIPMENT ACCOUNTS?**

A Yes. In a Southwest Public Service Company case before the Public Utility Commission of Texas, SOAH Docket 473-06-2043, Mr. Spanos offered life expectancy duration curves which were included in his depreciation study for that electric utility. In that case, his life expectancy duration curves indicated an appropriate life expectancy for these computer equipment accounts of 10 years. (Direct Testimony of Texas Industrial Energy Consumers witness James Selecky).

**Q DO YOU HAVE ANY CONCERNS WITH THE COMPANY'S PROPOSED DEPRECIATION RATES FOR THESE ACCOUNTS?**

A Yes, I do. Due to the large increase in investment for both computer equipment and computer software, the Company's proposal to shorten the lives for Account 340.3 to five years and for Account 340.2 to six years, from the current life of 23 years has not been justified. The Company has not demonstrated the reasonableness of accelerating the recovery of this significant hardware and software investment. Therefore, the proposed depreciation rate change is unnecessarily creating a

significant cost burden on current customers, and inflating the claimed revenue deficiency in this case.

**Q DO YOU PROPOSE ANY ADJUSTMENTS TO THE COMPANY'S PROPOSED DEPRECIATION EXPENSE FOR THESE TWO ACCOUNTS?**

A Yes. I recommend these accounts' service lives be adjusted to 10 years, from the Company's proposed five years for Account 340.3 and proposed six years for Account 340.2, and from the current estimated life of 23 years for both accounts. I based this 10-year adjustment on a reasonable assumption of what an expected service life would be on such a large investment made by Missouri-American in this type of equipment, and the evidence Mr. Spanos has provided in other rate proceedings in support of other depreciation studies.

I think it is significant, and a material deficiency in Mr. Spanos' presentation in this case, to provide no evidence supporting his expected life of these accounts in this case, especially considering the significant investment the Company has made in these account items and his significant change to the current recovery period.

**Q WHAT REVENUE REQUIREMENT IMPACT RESULTS FOR THE ST. LOUIS DISTRICT IF THESE TWO ACCOUNT ITEMS' EXPECTED LIFE IS CHANGED FROM 10 YEARS FROM THE COMPANY'S PROPOSED FIVE AND SIX-YEAR AMORTIZATION ASSUMPTIONS?**

A As shown on my Schedule MPG-4, changing the recovery period on these two accounts to 10 years from five and six years, respectively, lowers the revenue requirement deficiency for the St. Louis District by $1.55 million. Changing the life to 10 years for these accounts added five years to the remaining life for Account 340.3 and four years to the remaining life for Account 340.2.

**Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY ON REVENUE REQUIREMENT ISSUES?**

A Yes, it does.

## Appendix A

## Qualifications of Michael Gorman

**Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A Michael P. Gorman. My business mailing address is P. O. Box 412000, 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000.

**Q PLEASE STATE YOUR OCCUPATION.**

A I am a consultant in the field of public utility regulation and a managing principal with Brubaker & Associates, Inc., energy, economic and regulatory consultants.

**Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.**

A In 1983 I received a Bachelors of Science Degree in Electrical Engineering from Southern Illinois University, and in 1986, I received a Masters Degree in Business Administration with a concentration in Finance from the University of Illinois at Springfield. I have also completed several graduate level economics courses.

In August of 1983, I accepted an analyst position with the Illinois Commerce Commission (ICC). In this position, I performed a variety of analyses for both formal and informal investigations before the ICC, including: marginal cost of energy, central dispatch, avoided cost of energy, annual system production costs, and working capital. In October of 1986, I was promoted to the position of Senior Analyst. In this position, I assumed the additional responsibilities of technical leader on projects, and my areas of responsibility were expanded to include utility financial modeling and financial analyses.

In 1987, I was promoted to Director of the Financial Analysis Department. In this position, I was responsible for all financial analyses conducted by the staff. Among other things, I conducted analyses and sponsored testimony before the ICC on rate of return, financial integrity, financial modeling and related issues. I also supervised the development of all Staff analyses and testimony on these same issues. In addition, I supervised the Staff's review and recommendations to the Commission concerning utility plans to issue debt and equity securities.

In August of 1989, I accepted a position with Merrill-Lynch as a financial consultant. After receiving all required securities licenses, I worked with individual investors and small businesses in evaluating and selecting investments suitable to their requirements.

In September of 1990, I accepted a position with Drazen-Brubaker & Associates, Inc. In April 1995 the firm of Brubaker & Associates, Inc. (BAI) was formed. It includes most of the former DBA principals and Staff. Since 1990, I have performed various analyses and sponsored testimony on cost of capital, cost/benefits of utility mergers and acquisitions, utility reorganizations, level of operating expenses and rate base, cost of service studies, and analyses relating industrial jobs and economic development. I also participated in a study used to revise the financial policy for the municipal utility in Kansas City, Kansas.

At BAI, I also have extensive experience working with large energy users to distribute and critically evaluate responses to requests for proposals (RFPs) for electric, steam, and gas energy supply from competitive energy suppliers. These analyses include the evaluation of gas supply and delivery charges, cogeneration and/or combined cycle unit feasibility studies, and the evaluation of third-party asset/supply management agreements. I have also analyzed commodity pricing

indices and forward pricing methods for third party supply agreements. Continuing, I have also conducted regional electric market price forecasts.

In addition to our main office in St. Louis, the firm also has branch offices in Phoenix, Arizona; Corpus Christi, Texas; and Plano, Texas.

**Q HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?**

A Yes. I have sponsored testimony on cost of capital, revenue requirements, cost of service and other issues before the regulatory commissions in Arizona, California, Delaware, Georgia, Illinois, Indiana, Iowa, Louisiana, Michigan, Missouri, New Mexico, New Jersey, Oklahoma, Oregon, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, Wyoming, and before the provincial regulatory boards in Alberta and Nova Scotia, Canada. I have also sponsored testimony before the Board of Public Utilities in Kansas City, Kansas; presented rate setting position reports to the regulatory board of the municipal utility in Austin, Texas, and Salt River Project, Arizona, on behalf of industrial customers; and negotiated rate disputes for industrial customers of the Municipal Electric Authority of Georgia in the LaGrange, Georgia district.

**Q PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR ORGANIZATIONS TO WHICH YOU BELONG.**

A I earned the designation of Chartered Financial Analyst (CFA) from the Charter Financial Analyst Institute. The CFA charter was awarded after successfully completing three examinations which covered the subject areas of financial accounting, economics, fixed income and equity valuation and professional and ethical conduct. I am a member of CFA's Financial Analyst Society.

# RATE OF RETURN

**Q WHAT IS THE PURPOSE OF YOUR APPENDIX B?**

A In my Appendix B, I will review Missouri-American's investment risk, and develop an overall rate of return which is fair to both the Company's investors and its retail ratepayers in Missouri. This rate of return assessment includes review of the Company's proposed capital structure, embedded security costs, and a fair return on common equity.

I will review Missouri-American's risk by an assessment of how it attracts external debt and equity capital. From this assessment, I will estimate a rate of return that will fairly compensate investors for Missouri-American's investment risk, and a return that will support its financial integrity and access to capital.

**Q PLEASE DESCRIBE HOW MISSOURI-AMERICAN ATTRACTS EXTERNAL DEBT AND EQUITY CAPITAL.**

A Missouri-American does not access external capital markets on its own, rather it gets all of its external capital through its parent company or affiliate companies. All external equity comes from its parent company American Water Works, and all debt capital is issued by American Water Capital Corp. As such, Missouri-American's entire access to external debt and equity capital is determined by its parent company and affiliates' credit standing and access to capital.

**Q WHAT RATE OF RETURN ARE YOU PROPOSING FOR MISSOURI-AMERICAN IN THIS PROCEEDING?**

A As shown on Appendix B-1, I recommend an overall rate of return of 7.77%.

**Q PLEASE DESCRIBE AMERICAN WATER CAPITAL CORP.'S CREDIT RATING.**

A American Water Capital Corp. has a credit rating of "A-" from Standard & Poor's and "Baa1" from Moody's. Standard & Poor's states the following concerning American Water Works' credit rating and assessment of its credit quality:

> The ratings on . . . American Water Capital Corp. reflect the stand-alone credit quality of American Water Works. American Water Capital is a wholly owned subsidiary of American Water Works, which serves as the funding vehicle for American Water Works' regulated water utility subsidiaries. . . .
>
> American Water Works' stand-alone business risk profile is "2" (excellent). (Utility business profiles are categorized from "1" (excellent) to "10" (vulnerable)). The business profile stems from insulation from competition, geographically diverse and largely residential markets, supportive regulatory environment, and the relatively low operating risk of managing groundwater and water treatment facilities. Uncertainty associated with American Water Works' IPO in 2007, increasingly stringent water quality standards, and the company's reliance on acquisitions to provide growth partly offsets its strengths.
>
> ("American Water Works Co. Inc.," Standard & Poor's Credit Ratings, November 1, 2006, emphasis added).

**Q SHOULD THE COMMISSION PLACE HEAVY RELIANCE ON PROJECTED INTEREST RATES AND FUTURE CAPITAL MARKET COSTS RELATIVE TO TODAY'S OBSERVABLE CAPITAL MARKET COSTS?**

A No. While projected interest rates should be given some consideration, the determination of Missouri-American's cost of capital today should be based primarily on observable and verifiable actual current market costs. The accuracy of projected changes to interest rates is highly problematic. In fact, over the past five years, the interest rate experienced at the time a projection was made has been a better predictor of the interest rate that would be experienced two years later than the prediction itself.

An analysis supporting this conclusion is illustrated on my Appendix B-2. This analysis clearly illustrates that projected interest rates based on current interest rates are likely to be as accurate as economists' consensus projections of future interest rates.

On this exhibit, under Columns 1 and 2, I show the actual market yield at the time a projection is made for Treasury bond yields two years in the future. In Column 1, I show the actual Treasury yield and, in Column 2, I show the projected yield two years out.

As shown in Columns 1 and 2, over the last five years Treasury yields were projected to increase relative to the current Treasury yields at the time of the projection.

In Column 4, I show what the Treasury yield actually turned out to be two years after the forecast. Under Column 5, I show the actual yield change at the time of the projections relative to the projected yield change.

As shown on this exhibit, over the last five years economists have consistently been projecting increases to interest rates. However, as demonstrated under Column 5, those yield projections have turned out to be overstated in virtually every case. Indeed, Treasury yields have actually decreased or remained flat over the last five years, rather than increase as the economists' projections indicated. Further, as shown under Column 6, interest rates have stayed relatively flat compared to the prevailing interest rates at the time the forecast was made.

This review of the experience with projected interest rates clearly illustrates that interest rate projection accuracy is highly problematic. Indeed, current observable interest rates are just as likely a reasonable projection of future interest rates as are economists' projections. Accordingly, while I will use projected interest

rates to provide some sense of the market's expectations of future capital market costs in my models, I will not use them exclusively. Rather, my analyses will be based on the combination of current observable interest rates and projected interest rates. Thus, my analyses will capture a return on equity range reflecting a broad range of potential actual capital market costs during the period rates determined in this proceeding will be in effect.

**Q ARE THERE OTHER REASONS NOT TO PROVIDE EXCLUSIVE RELIANCE ON UNCERTAIN PROJECTED INCREASES TO INTEREST RATES?**

A Yes. The ratemaking process in itself provides utility protection against the increasing cost of capital. Indeed, if Missouri-American's utility subsidiaries' rates of return are set based on today's market cost of capital, and capital costs increase in the future, then the utilities are free to file for a rate change to reflect higher capital costs in the future when or if costs change. Hence, the regulatory mechanism itself provides utilities a hedge against increasing capital costs.

## Missouri-American's Proposed Capital Structure

**Q WHAT CAPITAL STRUCTURE IS THE COMPANY REQUESTING TO USE TO DEVELOP ITS OVERALL RATE OF RETURN FOR WATER OPERATIONS IN THIS PROCEEDING?**

A The Company's overall rate of return was developed using the capital structure recommended by Missouri-American witness James Jenkins on his Schedule JMJ-1.

**TABLE 1**

**Missouri-American's**
**Proposed Capital Structure**

| Description | Weight |
|---|---|
| Long-Term Debt | 52.67% |
| Preferred Stock | 0.42% |
| Common Equity | 46.91% |
| Total | 100.00% |

Source: Schedule JMJ-1

**Q ARE YOU PROPOSING ANY ADJUSTMENTS TO MISSOURI-AMERICAN'S PROPOSED CAPITAL STRUCTURE?**

A No. I am not proposing any adjustments to Missouri-American's proposed capital structure.

**Q ARE YOU PROPOSING ANY ADJUSTMENTS TO MISSOURI-AMERICAN'S EMBEDDED COST OF DEBT OR PREFERRED STOCK?**

A No. I am concerned, however, about the cost of preferred stock for Missouri-American. Missouri-American reflects an embedded cost of preferred stock of 9.16%. This preferred stock is well above market, and well above sister companies of Missouri-American. For example, Tennessee-American and Indiana-American Water companies both have embedded cost of preferred stock of 5.00% and 6.00%, respectively. Missouri-American's inordinately high embedded preferred stock cost is an anomaly, well above market, and requires justification.

I recommend the Commission direct Missouri-American to explain and justify its preferred stock cost. Otherwise, it should develop Missouri-American's overall rate of return based on the average preferred stock cost of Tennessee-America and Indiana-American of 5.0% and 6.0%, respectively,[1] or 5.5%.

There may be contractual limitations or other restrictions that prevent Missouri-American from refinancing its preferred stock. However, because of the inordinately high cost of this preferred equity, Missouri-American should explain and justify why it is appropriate to include this inordinately high preferred stock cost in the development of retail rates.

## Return On Common Equity

**Q PLEASE DESCRIBE THE FRAMEWORK FOR DETERMINING A REGULATED COMPANY'S COST OF COMMON EQUITY.**

A In general, determining a fair cost of common equity for a regulated utility has been framed by two decisions of the U.S. Supreme Court, in Bluefield Water Works vs. West Virginia PSC (1923) and Federal Power Commission vs. Hope Natural Gas Company (1944). These decisions state that in establishing the cost of common equity for a public utility, the general standards to be considered are that the authorized return should: (1) be sufficient to maintain financial integrity, (2) attract capital under reasonable terms, and (3) be commensurate with returns investors could earn by investing in other enterprises of comparable risk.

[1] Tennessee-American, Michael Miller, Exhibit MAM-3, Tennessee Regulatory Authority, Case No. 06-0090, June 30, 2006. Indiana-American, James Jenkins, Petitioners Exhibit JMJ-1, Schedule 1, Page 1, Indiana Utility Regulatory Commission, Cause No. 43187, June 30, 2006.

**Q PLEASE DESCRIBE WHAT IS MEANT BY "UTILITY'S COST OF COMMON EQUITY."**

A The utility's cost of common equity is the return investors expect, or require, in order to make an investment. Investors expect to achieve their return requirement from receiving dividends and stock price appreciation.

**Q PLEASE DESCRIBE THE METHODS YOU HAVE USED TO ESTIMATE THE COST OF COMMON EQUITY FOR MISSOURI-AMERICAN.**

A I have used several models based on financial theory to estimate Missouri-American's cost of common equity. These models are: (1) the constant growth discounted cash flow (DCF) model, (2) a two-stage growth DCF model, (3) a risk premium (RP) model, and (4) a capital asset pricing model (CAPM). I have applied these models to a group of publicly traded utilities that I have determined represent the investment risk of a water utility similar to Missouri-American.

**Q HOW DID YOU DEVELOP A DCF ANALYSIS AND CAPM ESTIMATES FOR MISSOURI-AMERICAN?**

A Since Missouri-American is not a publicly traded entity, I performed the DCF and CAPM analysis on two risk proxy utility groups. First, I relied on a group of publicly traded companies that are predominantly involved in the water utility business. Second, I used a group of local natural gas distribution companies (LDC). The business risk of a gas LDC group is greater than that a water utility company. However, gas utilities are more widely followed. Also, the water utility industry continues to be impacted by acquisition and mergers which can impact valuation and

the reliability of return on equity estimates. Hence, the use of the gas LDC group will help improve the reliability of my return on equity estimate.

**Q HOW DID YOU SELECT YOUR WATER UTILITY GROUP?**

A I relied on the water utilities included in the Value Line Investment Analyzer.

**Q IS YOUR WATER UTILITY PROXY GROUP COMPARABLE IN RISK TO MISSOURI-AMERICAN?**

A Yes. This group reflects reasonably comparable investment risk as Missouri-American. As shown on my Appendix B-3, Page 1, this group has a group average bond rating of "A" from S&P, and "A2" from Moody's, which is reasonably comparable to American Water Capital's bond ratings of "A-" and "Baa1" from each of these rating agencies. The group has an average S&P business profile score of "3" which is compared to American Water Capital Corp.'s profile score of "2." The group's higher business profile score indicates higher business risk than that of Missouri-American. The group's average common equity ratio from Value Line and AUS Utility Reports is 53% and 51%, respectively, which is higher than the common equity ratio for Missouri-American of 47%. Consequently, the group has slightly lower financial risk, but greater business risk than Missouri-American. Overall, the group's total risk (business and financial) is comparable to Missouri-American.

**Q HOW DID YOU SELECT YOUR GAS LDC GROUP?**

A I started with the natural gas distribution companies followed by Value Line and I excluded the companies that did not meet the following criteria:

(1) Have investment grade credit rating from Standard & Poor's (S&P) and Moody's.

(2) Have a common equity ratio equal to or greater than 40.0%.

(3) Have not suspended or reduced dividends over the last two years.

(4) Have available consensus analysts' growth rate estimates from Zack's, Reuters and Thomson Financial.

(5) Have not been involved in recent merger and acquisition activities.

The two comparable groups are shown on Appendix B-3, Page 2.

**Q IS YOUR GAS LDC PROXY GROUP COMPARABLE IN RISK TO MISSOURI-AMERICAN?**

A Yes. As shown on my Appendix B-3, Page 2, the gas LDC group has similar risk profile measures to Missouri-American. As shown on my Appendix B-3, Page 2, the average gas proxy group bond rating is "A" and "A3" from Standard & Poor's and Moody's, respectively, which is reasonably comparable to American Water Capital Corp.'s current bond rating. Also, the group's common equity ratio of 55% to 47% is reasonably comparable to Missouri-American's ratio of 47%. Further, the average business risk profile score from Standard & Poor's for the gas proxy group is "3." This indicates greater operating risk proxy than that of American Capital Corp. For all these reasons, the Gas Group is risk comparable to Missouri-American.

## Discounted Cash Flow (DCF) Model

**Q PLEASE DESCRIBE THE DCF MODEL.**

A The DCF model posits that a stock price is valued by summing the present value of expected future cash flows discounted at the investors' required rate of return (ROR) or cost of capital. This model is expressed mathematically as follows:

$$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} \ldots \frac{D_\infty}{(1+K)^\infty} \quad \text{where} \qquad \text{(Equation 1)}$$

$P_0$= Current stock price
D = Dividends in periods 1 - ∞
K = Investor's required return

This model can be rearranged in order to estimate the discount rate or investor required return, "K." If it is reasonable to assume that earnings and dividends will grow at a constant rate, then Equation 1 can be rearranged as follows:

$$K = D_1/P_0 + G \qquad \text{(Equation 2)}$$

K = Investor's required return
$D_1$ = Dividend in first year
$P_0$ = Current stock price
G = Expected constant dividend growth rate

Equation 2 is referred to as the "constant growth" annual DCF model.

**Q PLEASE DESCRIBE THE INPUTS TO YOUR CONSTANT GROWTH DCF MODEL.**

A As shown under Equation 2 above, the DCF model requires a current stock price, expected dividend, and expected growth rate in dividends.

**Q WHAT STOCK PRICE HAVE YOU RELIED ON IN YOUR CONSTANT GROWTH DCF MODEL?**

A For my Water Group I relied on the average of the weekly high and low stock prices over a 13-week period ending May 4, 2007, and for my Gas Group the period was ending May 18, 2007. An average stock price is less susceptible to market price variations than a spot price. Further, an average stock price is less susceptible to aberrant market price movements, which may not be reflective of the stock's long-term value.

A 13-week average stock price is short enough to contain data that reasonably reflects current market expectations, but it is not too short to be susceptible to market price variations that may not be reflective of the security's long-term value. Therefore, in my judgment, a 13-week average stock price is a reasonable balance between the need to reflect current market expectations and to capture sufficient data to smooth out aberrant market movements.

**Q WHAT DIVIDEND DID YOU USE IN YOUR CONSTANT GROWTH DCF MODEL?**

A I used the most recently paid quarterly dividend, as reported in the Value Line Investment Survey. This dividend was annualized (multiplied by 4) and adjusted for next year's growth to produce the $D_1$ factor for use in Equation 2 above.

**Q WHAT DIVIDEND GROWTH RATES HAVE YOU USED IN YOUR DCF MODEL?**

A For purposes of determining the market required return on common equity, one must attempt to estimate what the consensus of investors believes the dividend or earnings growth rate will be, and not what an individual investor or analyst may use to form individual investment decisions.

Security analyst growth estimates have been shown to be more accurate predictors of future returns than growth rates derived from historical data.[2] Because they are more reliable estimates, and assuming the market, in general, makes rational investment decisions, analysts' growth projections are the most likely growth estimates built into stock prices.

[2] See, for example, David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, Spring 1989.

For my constant growth DCF analysis, I have relied on a consensus, or mean, of professional security analysts' earnings growth estimates as a proxy for the investor consensus dividend growth rate expectations. I used the average of three sources of customer growth rate estimates: Zack's Detailed Analyst Estimates, Reuters, and Thomson Financial or First Call. All consensus analyst projections used were available on May 11, 2007 and May 21, 2007, as reported on-line. Each consensus growth rate projection is based on a survey of security analysts. The consensus estimate is a simple arithmetic average or mean of surveyed analysts' earnings growth forecasts. A simple average of the growth forecast gives equal weight to all surveyed analysts' projections. It is problematic as to whether any particular analyst's forecast is most representative of general market expectations. To avoid using only one particular forecast, I used a simple average, or arithmetic mean, of multiple analyst forecasts to arrive at a good proxy for market consensus expectations. The growth rates I used in my DCF analysis are shown on my Appendix B-4.

**Q WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF MODEL?**

A The results of my DCF analyses are shown on Appendix B-5. As shown on Appendix B-5, Page 1, the average DCF cost of common equity for the water proxy group is 11.3%. On Appendix B-5, Page 2, the gas proxy group DCF return is 8.4%.

My constant growth DCF study indicates a return on equity of 8.4% to 11.3%, with a midpoint of 9.9%.

**Q DO YOU HAVE ANY COMMENTS CONCERNING THE RESULTS OF YOUR WATER UTILITY DCF ANALYSIS?**

A Yes. The comparable Water Group average five-year growth rate is 8.47% and is too high to be sustainable over an indefinite period of time. The gas proxy group's three to five-year growth rate is reasonable. The water proxy group's three to five-year growth rate exceeds the growth rate of the overall U.S. economy. Based on consensus economic projections, as published by Blue Chip Economic Indicators, the five to ten-year U.S. economy, or GDP, is estimated to grow at a nominal rate of 5.1%.[3] A company cannot grow, indefinitely, at a faster rate than the market in which it sells its products. The U.S. economy growth projection represents a ceiling, or high end, sustainable growth rate for a utility over an indefinite period of time.

Utilities' growth cannot sustain a growth rate that exceeds the growth rate of the overall economy, because utilities' earnings/dividend growth is created by increased utility investment, which in turn is driven by service area economic growth. In other words, utilities invest in plant to meet sales demand growth, and sales growth in turn is tied to economic growth in their service areas. Hence, nominal GDP growth is a proxy for sales growth, utility rate base growth, and earnings growth. Therefore, GDP growth is the highest sustainable long-term growth rate of a utility.

Moreover, the water proxy group's projected growth rate of 8.5% is considerably higher than the historical growth rate the proxy group has achieved over the last five to ten years, and that is projected over the next three to five years. As shown on Appendix B-6, Page 1, the historical growth of my proxy group's dividend is substantially lower than the nominal GDP growth, and actually less than the projected inflation growth. Importantly, I used a growth rate that exceeds the projected growth

[3] Blue Chip Economic Indicators, March 10, 2007 at 15.

of inflation but less than the projected growth of nominal GDP. This is conservative by historical standards, and rational expectations.

**Q DO YOU HAVE ANY COMMENTS CONCERNING THE RESULTS OF YOUR GAS PROXY GROUP DCF RESULT?**

A Yes. The gas proxy DCF growth rate of 4.61% is a reasonable estimate of long-term sustainable growth for a utility company. As noted above, the maximum sustainable growth rate is proxied by the GDP growth rate which is currently 5.1%. As such, my gas utility constant growth estimate of 4.61% reflects reasonable sustainable growth. The gas proxy group's projected growth rate of 4.61% is also very high in comparison to historical growth for these proxy companies. As shown on Appendix B-6, Page 2, the forward-looking growth rate is considerably higher than it has been in the past, and past growth has been much closer to the inflation rate than it has been to actual GDP growth. Hence, the current projected growth approaching that of forward-looking GDP growth, is a very robust growth outlook for these proxy groups.

Further, the current and projected payout ratios of my Gas Group are 62% and 61%, respectively. This indicates the utilities are retaining a large percentage of their earnings, which will help support future growth through earnings and dividends. This again indicates the viability and reasonableness of my gas utility DCF estimate.

Finally, the current and projected dividend-to-book ratio of my gas utility group is 7.2%. This indicates that the dividend is affordable in today's low-cost capital market environment, and utilities could support that dividend at an authorized return on equity well under 10% and still retain adequate earnings to meet future growth expectations.

**Q WHY DO YOU BELIEVE GROWTH RATES FOR WATER UTILITY COMPANIES CAN BE PROJECTED TO BE SO HIGH OVER THE NEXT THREE TO FIVE YEARS?**

A Water utility companies are in the midst of major construction programs which are significantly increasing their outstanding capital and net plant investment. The Value Line Investment Survey is projecting a growth in the water utility industry's net utility plant, and capital of 41% and 49%, respectively, over the next three to five years.[4] Replacement of infrastructure and the improvements to water treatment plants to meet more stringent environmental requirements results in strong growth to utilities' rate base, and growth in earnings. This growth in earnings will be realized over the next five years or so, but will eventually return to more normalized long-term sustainable level.

It is simply not reasonable to expect that the earnings projections over the next three to five years will be sustainable indefinitely.

[4] The Value Line Investment Survey, April 27, 2007 at 1419.

**Q SINCE YOU HAVE CONCLUDED THAT YOUR WATER UTILITY GROWTH RATE USED IN YOUR CONSTANT GROWTH DCF MODEL IS NOT SUSTAINABLE, DO YOU BELIEVE THAT THE RESULTS OF YOUR CONSTANT GROWTH DCF MODEL FOR YOUR WATER UTILITY PROXY GROUP IS REASONABLE?**

A No, the results of my water utility constant growth DCF model are unreasonably high because it reflects a growth rate that is not sustainable over an indefinite period of time. However, the growth rate is based on consensus analysts' growth rate projections, so it is a reasonable reflection of rational investment expectations over the next three to five years. The limitation on the constant growth DCF model is that it cannot reflect a rational expectation that this short-term growth rate will likely be followed by slower growth at a more long-term sustainable level thereafter. Hence, I will perform a two-stage DCF analysis to reflect this expectation and to test the impact on the water utility DCF results. While I believe the results for my gas proxy group are reasonable, I will also construct a two-stage DCF model to illustrate the impact on the DCF results for my proxy Gas Group as well.

## Two-Stage DCF Model

**Q WHY DO YOU PROPOSE TO USE A TWO-STAGE DCF MODEL TO TEST THE RESULTS OF YOUR CONSTANT GROWTH DCF STUDY?**

A I propose to use a two-stage DCF model because the growth rates used in my constant growth model do not reflect reasonable estimates of sustainable long-term growth. While consensus analysts' growth rate estimates are likely reflective of investors' expectations over the next three to five years, professional investors would not expect those growth rates to remain in effect indefinitely. As noted above, utilities

cannot grow faster than the economies in which they sell their services. Historically, utility sales have grown at a rate that trails the growth in the overall U.S. economy.

As such, a two-stage DCF model can capture the value of this extraordinary growth over the next five years, followed by a period of sustainable long-term growth thereafter.

**Q PLEASE DESCRIBE YOUR TWO-STAGE DCF MODEL.**

A The two-stage DCF growth model reflects the possibility of non-constant growth to the company over time. The two-stage reflects two growth periods: (1) a short-term growth period, which consists of the first five years; and (2) a long-term growth period, which consists of each year starting in year six through perpetuity. For the short-term growth period, I relied on the consensus analysts' growth projections described above in relationship to my constant growth model. For the long-term growth period, I assumed each company's growth would increase toward the maximum sustainable growth rate for a utility company as proxied by the consensus analysts' projected growth for the U.S. GDP.

**Q WHAT STOCK PRICE AND DIVIDEND DID YOU USE IN YOUR MULTI-STAGE DCF ANALYSIS?**

A I relied on the same 13-week stock price, the most recent quarterly dividend payment, and consensus analysts' growth rate projections discussed above in my constant growth DCF model. For the long-term sustainable growth rate starting in year six, I used the consensus economists' five to ten-year projected GDP normal growth rate of 5.1%.

**Q WHAT ARE THE RESULTS OF YOUR TWO-STAGE GROWTH DCF MODEL?**

A As shown on the attached Appendix B-7, Pages 1 and 2, the resulting common cost of equity from my two-stage DCF growth estimate for my water proxy group is 8.2% and the gas proxy group is 8.8%. As such, the two-stage DCF model indicates a return on equity for Missouri-American in the range of 8.2% to 8.8%, with a midpoint of 8.5%.

## Risk Premium Model

**Q PLEASE DESCRIBE YOUR BOND YIELD PLUS RISK PREMIUM MODEL.**

A This model is based on the principle that investors require a higher rate of return to assume greater risk. Common equity investments have greater risk than bond investments because bonds have more security of payment in bankruptcy proceedings than common equity and the coupon payments on bonds represent contractual obligations. In contrast, companies are not required to pay dividends on common equity, or to guarantee returns on common equity investments. Therefore, common equity securities are considered to be more risky than bond securities. I used two models to estimate an equity risk premium.

This risk premium model is based on two estimates of an equity risk premium. In the first model, I estimated the difference between the required return on utility common equity investments and Treasury bonds. The difference between the required return on common equity and the bond yield is the risk premium. I estimated the risk premium on an annual basis for each year over the period 1986 through 2006. The common equity required returns were based on regulatory commission-authorized returns for gas utility companies. I relied on gas utility authorized returns, because the information is more readily available, and there are more gas utility rate

decisions over the historical period than there are water utilities. Authorized returns are typically based on expert witnesses' estimates of the contemporary investor required return.

The second equity risk premium method is based on the difference between regulatory commission authorized returns on common equity and contemporary "A" rated utility bond yields. This time period was selected because over the period 1986 through 2006, public utility bond yields have consistently traded at a premium to book value. This is illustrated on my Appendix B-8, where the market to book ratio for the gas utility industry was consistently at or above 1.0 since 1986. Therefore, over this time period, regulatory authorized returns were sufficient to support market prices that at least exceeded book value. This is an indication that regulatory authorized returns on common equity supported a utility's ability to issue additional common stock, without diluting existing shares. This is an indication that utilities were able to access equity markets without a detrimental impact on current shareholders.

Based on this analysis, as shown on my Appendix B-9, the average indicated equity risk premium of authorized gas utility common equity returns over U.S. Treasury bond yields over the period 1986 to 2006 has been 4.93%. Of the 21 observations, 15 indicated risk premiums fall in the range of 4.2% to 5.7%. Since the risk premium can vary depending upon market conditions and changing investor risk perceptions, I believe using an estimated range of risk premiums provides the best method to measure the current return on common equity using this methodology.

As shown on my Appendix B-10, the average indicated equity risk premium, based on the authorized gas utility common equity returns over contemporary Moody's utility bond yields, was 3.53% over the same period. Removing the three

highest and lowest risk premium estimates produces an equity risk premium in the range of 3.0% to 4.4% over this time period.

**Q BASED ON THIS HISTORICAL ANALYSIS, WHAT RISK PREMIUM DO YOU PROPOSE TO USE TO ESTIMATE MISSOURI-AMERICAN'S COST OF EQUITY IN THIS PROCEEDING?**

A Academic research indicates that equity risk premiums should reflect the current market perception of risk in the equity versus debt markets. A recent study contends that one can reasonably approximate the relative level of equity risk premiums, by comparing the spread in corporate bond yields relative to Treasury bond yields. When the Corporate/Treasury bond yield spreads are wide, the market assessment of industry risk is greater, which suggests an increase to the equity risk premium. Conversely, when Corporate/Treasury bond yield spreads are relatively low, the industry equity risk premiums would also be relatively low.[5]

In order to assess the current investment risk of the utility industry, I have compared utility bond yield spreads over Treasury yields for the last 27 years. This is shown on my Appendix B-11. On this exhibit, I show the yield spread between utility bonds and Treasury bonds over the last 27 years. As shown on this exhibit, the current utility bond yield spreads for "A" rated and "Baa" rated utility bonds are 1.16% and 1.41%, respectively. These utility bond yield spreads over Treasury bonds are among the lowest yield spreads in the last 27 years, and are below the 27-year average for "A" and "Baa" yields of 1.58% and 1.94%, respectively.

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

This comparison of utility bond yield spreads over Treasury bond yields indicates the market's current perception of utility risk to be below average over this historical time period. As such, it is appropriate to conclude that utility equity investment risk is relatively low over this historical time period. Recognizing a robust market for low-risk utility investments, I believe it is appropriate to use an average market equity risk premium estimated over my historical time period to proxy the current market assessment of utility risk and equity risk premiums today and going forward.

Based on this assessment, I believe a market based equity risk premium for utility stock investments over Treasury bonds of 5.0% (the midpoint of the 4.2% of 5.7% spread) is reasonable, and an equity risk premium of 3.7% (the midpoint of 3.0% to 4.4% range, as described above) over utility bond yields is reasonable.

**Q HOW DID YOU ESTIMATE MISSOURI-AMERICAN'S COST OF COMMON EQUITY WITH THIS MODEL?**

A I added to my estimated equity risk premium over Treasury yields a projected long-term Treasury bond yield. Blue Chip Financial Forecasts projects 30-year Treasury bond yields to be 5.1%, and a 10-year Treasury bond to be 4.9% (May 1, 2007 at 2). Using the long-term bond yield of 5.1%, and an equity risk premium of 5.0%, produces an estimated common equity return of 10.1%.

I next added my equity risk premium over utility bond yields of 5.91%, which represents an average yield on an "A" rated utility bond for the 13-week period ending May 4, 2007, as shown on my Appendix B-12. A premium of 3.7 and a rounded "A" yield of 5.9% produces a cost rate of 9.6%.

My risk premium analyses produce a return estimate in the range of 9.6% to 10.1%, with a mid-point estimate of 9.9%.

## Capital Asset Pricing Model (CAPM)

**Q PLEASE DESCRIBE THE CAPM.**

A The CAPM method of analysis is based upon the theory that the market required ROR for a security is equal to the risk-free ROR, plus a risk premium associated with the specific security. This relationship between risk and return can be expressed mathematically as follows:

$R_i = R_f + B_i \times (R_m - R_f)$ where:

$R_i$ = Required return for stock i
$R_f$ = Risk-free rate
$R_m$ = Expected return for the market portfolio
$B_i$ = Beta - Measure of the risk for stock.

The stock specific risk term in the above equation is beta. Beta represents the investment risk that cannot be diversified away when the security is held in a diversified portfolio. When stocks are held in a diversified portfolio, firm-specific risks can be eliminated by balancing the portfolio with securities that react in opposite direction to firm-specific risk factors (e.g., business cycle, competition, product mix and production limitations).

The risks that cannot be eliminated when held in diversified portfolio are nondiversifiable risks. Nondiversifiable risks are related to the market in general and are referred to as systematic risks. Risks that can be eliminated by diversification are regarded as nonsystematic risks. The CAPM theory suggests that the market will not compensate investors for assuming risks that can be diversified away. Therefore, the only risk that investors will be compensated for are systematic or nondiversifiable risks. The beta is a measure of the systematic or nondiversifiable risks.

**Q PLEASE DESCRIBE THE INPUTS TO YOUR CAPM.**

A The CAPM requires an estimate of the market risk-free rate, the company's beta, and the market risk premium.

**Q WHAT DID YOU USE AS AN ESTIMATE OF THE MARKET RISK-FREE RATE?**

A I used Blue Chip Financial Forecasts' projected long-term Treasury bond yield of 5.1% (Blue Chip Financial Forecast, May 1, 2007 at 2).

**Q WHY DID YOU USE LONG-TERM TREASURY BOND YIELDS AS AN ESTIMATE OF THE RISK-FREE RATE?**

A Treasury securities are backed by the full faith and credit of the United States government. Therefore, long-term Treasury bonds are considered to have negligible credit risk. Also, long-term Treasury bonds have an investment horizon similar to that of common stock. As a result, investor-anticipated long-run inflation expectations are reflected in both common stock required returns and long-term bond yields. Therefore, the nominal risk-free rate (or expected inflation rate and real risk-free rate) included in a long-term bond yield is a reasonable estimate of the nominal risk-free rate included in common stock returns.

Treasury bond yields, however, include risk premiums related to unanticipated future inflation and interest rates. Therefore, a Treasury bond yield is not a risk-free rate. Risk premiums related to unanticipated inflation and interest rates are systematic or market risks. Consequently, for companies with betas less than one, using the Treasury bond yield as a proxy for the risk-free rate in the CAPM analysis can produce an overstated estimate of the CAPM return.

**Q WHAT BETA DID YOU USE IN YOUR ANALYSIS?**

A I relied on the group average Value Line beta estimate for the comparable group. A group average beta has stronger statistical parameters that better describe the systematic risk of the group, than does an individual company beta. For this reason, a group average beta will produce a more reliable return estimate.

As shown on Appendix B-13, Page 1, the water utility proxy group average beta estimate is 0.81. The gas proxy group average beta is 0.87, as shown on Appendix B-13, Page 2.

The gas beta is skewed by two companies that have abnormally high betas, including Nicor and AGL Resources. Both of these companies' historical trading has been impacted by non-regulated investment risk, which is uncharacteristic of the risk of a regulated water utility operation. Excluding these two companies, most of the other companies' beta estimates fall reasonably consistent in line with the water utility group. Indeed, the median of the gas utility group beta is 0.80.

As such, for use in my CAPM study, I will use a beta of 0.80, which reflects both the gas and water proxy groups.

**Q HOW DID YOU DERIVE YOUR MARKET PREMIUM ESTIMATE?**

A I derived two market premium estimates, a forward-looking estimate and one based on a long-term historical average.

The forward-looking estimate was derived by estimating the expected return on the market (S&P 500) and subtracting the risk-free rate from this estimate. I estimated the expected return on the S&P 500 by adding an expected inflation rate to the long-term historical arithmetic average real return on the market. The real return on the market represents the achieved return above the rate of inflation.

The Ibbotson and Associates' Stocks, Bonds, Bills and Inflation 2007 Year Book publication estimates the historical arithmetic average real market return over the period 1926-2006 as 9.1%. A current five-year consensus analyst inflation projection, as measured by the Consumer Price Index, is 2.3% (Blue Chip Financial Forecasts, May 1, 2007 at 2). Using these estimates, the expected market return is 11.6%.[6] The market premium then is the difference between the 11.6% expected market return, and my 5.1% risk-free rate estimate, or 6.5%.

The historical estimate of the market risk premium was also estimated by Ibbotson and Associates in the Stock, Bonds, Bills and Inflation, 2007 Year Book. Over the period 1926 through 2006, Ibbotson's study estimated that the arithmetic average of the achieved total return on the S&P 500 was 12.3%, and the total return on long-term Treasury bonds was 5.8%. The indicated equity risk premium is 6.5% (12.3% - 5.8% = 6.5%).

**Q WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?**

A As shown on Appendix B-14, based on the historical and prospective market risk premium estimate of 6.5%, a risk-free rate of 5.1%, and a beta of 0.80, the CAPM estimated return on equity is 10.3%.

[6] [(1+0.091)*(1+0.023)-1]*100.

## Return On Equity Summary

**Q BASED ON THE RESULTS OF YOUR RATE OF RETURN ON COMMON EQUITY ANALYSES DESCRIBED ABOVE, WHAT RETURN ON COMMON EQUITY DO YOU RECOMMEND FOR MISSOURI-AMERICAN?**

A Based on my analyses, I estimate an appropriate return on equity for Missouri-American to be 9.7%.

**TABLE 2**

**ROE Summary Results**

| Description | Result |
|---|---|
| Constant Growth DCF | 9.9% |
| Two-Stage DCF | 8.5% |
| DCF Average | 9.2% |
| | |
| Risk Premium | 9.9% |
| CAPM | 10.3% |

I estimate a range for my estimated return of equity for Missouri-American of 9.2% to 10.1%. The low end represents the average of my constant growth and two-stage DCF analyses. The upper end is the average of my risk premium and CAPM analyses. The midpoint of my estimated range, 9.7% is my point estimate used to set Missouri-American's rate in this proceeding.

## Financial Integrity

**Q WILL YOUR RECOMMENDED OVERALL RATE OF RETURN SUPPORT MISSOURI-AMERICAN'S CURRENT BOND RATING FROM S&P?**

A Yes. I have reached this conclusion by comparing the key credit rating financial ratios for Missouri-American at my proposed capital structure and return on equity to S&P's benchmark financial ratios for an "AA" rated utility and "A" rated utility with a business profile score of 2.

**Q PLEASE DESCRIBE S&P'S USE OF THE FINANCIAL BENCHMARK RATIOS IN ITS CREDIT RATING REVIEW.**

A S&P evaluates a utility's credit rating based on an assessment of its financial and business risks. A combination of financial and business risks equates to the overall assessment of the Company's total credit risk exposure. S&P publishes a matrix of financial ratios that defines the level of financial risk as a function of the level of business risk.

S&P rates a utility's business risk based on a business profile score of 1, lowest risk, up to 10, highest risk. Water utilities typically have a business profile score from S&P of 2 or 3.

S&P publishes ranges for three primary financial ratios that it uses as guidance in its credit review for utility companies. The three primary financial ratio benchmarks it relies on in its credit rating process include: (1) funds from operations ("FFO") to debt interest expense, (2) FFO to total debt, and (3) total debt to total capital.

**Q HOW DID YOU APPLY S&P'S FINANCIAL RATIOS TO TEST THE REASONABLENESS OF YOUR RATE OF RETURN RECOMMENDATIONS?**

A I calculated each of S&P's financial ratios based on Missouri-American's cost of service for retail operations.

While S&P would be concerned with total Missouri-American's consolidated financial ratios in its credit review process, my investigation in this proceeding is to judge the reasonableness of my proposed cost of capital for setting rates in Missouri-American's jurisdictional utility operations. Hence, I am attempting to determine whether the rate of return and cash flow generation opportunity reflected in my proposed return on equity for Missouri-American will support Missouri-American's current "A-" investment grade bond ratings and financial integrity.

**Q PLEASE DESCRIBE THE RESULTS OF THIS CREDIT METRIC ANALYSIS FOR MISSOURI-AMERICAN.**

A The S&P financial metric calculations for Missouri-American are developed on my Appendix B-15.

As shown on my Appendix B-15, based on an equity return of 9.7%, Missouri-American will be provided an opportunity to produce a Funds From Operations ("FFO") to debt interest expense of 3.6x. This FFO to interest coverage ratio is within S&P's benchmark ratio range for an "AA" rated utility company, with a business profile score of 2, of 4.0x to 3.0x.

Missouri-American's total debt ratio to total capital is 53%. This is in the lower end of the S&P's "A" rated utility range of 52% to 58%.

Finally, Missouri-American's retail operations FFO to total debt coverage at a 9.7% equity return would be 16%, which is again within S&P's financial metric range of 20% to 12% for an "A" rated utility company with a business profile score of 2.

At Missouri-American's proposed capital structure and my return on equity of 9.7%, Missouri-American's financial metrics are supportive of a strong "A" to a weak "AA" utility bond rating.

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# Missouri-American Water Company

## Rate of Return at 9.7% ROE

| Line | Description | | Amount (1) | Weight (2) | Cost (3) | Weighted Cost (4) |
|---|---|---|---|---|---|---|
| 1 | Long-Term Debt | $ | 331,235,000 | 52.67% | 6.04% | 3.18% |
| 2 | Preferred Stock | $ | 2,644,000 | 0.42% | 9.16% | 0.04% |
| 3 | Common Equity | $ | 295,030,381 | 46.91% | **9.70%** | 4.55% |
| 4 | **Total** | **$** | **628,909,381** | **100.0%** | | **7.77%** |

Source:
Schedule JMJ-1.

# Missouri-American Water Company

## Accuracy of Interest Rate Forecasts

### (Long-Term Treasury Bond Yields - Projected Vs. Actual)

| Line | Date | Publication Data: Current Yield (1) | Publication Data: Projected Yield (2) | Publication Data: For Quarter (3) | Actual Yield in Projected Quarter (4) | Projected Yield Higher (Lower) Than Actual Yield (5) | Actual Yields Differential (6) |
|---|---|---|---|---|---|---|---|
| 1 | Dec-00 | 5.8% | 5.8% | 1Q, 02 | 5.6% | 0.2% | 0.2% |
| 2 | Mar-01 | 5.7% | 5.6% | 2Q, 02 | 5.8% | -0.2% | -0.1% |
| 3 | Jun-01 | 5.4% | 5.8% | 3Q, 02 | 5.2% | 0.6% | 0.2% |
| 4 | Sep-01 | 5.7% | 5.9% | 4Q, 02 | 5.1% | 0.8% | 0.6% |
| 5 | Dec-01 | 5.5% | 5.7% | 1Q, 03 | 4.9% | 0.8% | 0.6% |
| 6 | Mar-02 | 5.3% | 5.9% | 2Q, 03 | 4.7% | 1.2% | 0.6% |
| 7 | Jun-02 | 5.6% | 6.2% | 3Q, 03 | 5.2% | 1.0% | 0.4% |
| 8 | Sep-02 | 5.8% | 5.9% | 4Q, 03 | 5.2% | 0.7% | 0.6% |
| 9 | Dec-02 | 5.2% | 5.7% | 1Q, 04 | 4.9% | 0.8% | 0.3% |
| 10 | Mar-03 | 5.1% | 5.7% | 2Q, 04 | 5.4% | 0.3% | -0.3% |
| 11 | Jun-03 | 5.0% | 5.4% | 3Q, 04 | 5.1% | 0.3% | -0.1% |
| 12 | Sep-03 | 4.7% | 5.8% | 4Q, 04 | 4.9% | 0.9% | -0.2% |
| 13 | Dec-03 | 5.2% | 5.9% | 1Q, 05 | 4.8% | 1.1% | 0.4% |
| 14 | Mar-04 | 5.2% | 5.9% | 2Q, 05 | 4.6% | 1.3% | 0.6% |
| 15 | Jun-04 | 4.9% | 6.2% | 3Q, 05 | 4.5% | 1.7% | 0.4% |
| 16 | Sep-04 | 5.4% | 6.0% | 4Q, 05 | 4.8% | 1.2% | 0.6% |
| 17 | Dec-04 | 5.1% | 5.8% | 1Q, 06 | 4.6% | 1.2% | 0.4% |
| 18 | Mar-05 | 4.9% | 5.6% | 2Q, 06 | 5.1% | 0.5% | -0.3% |
| 19 | Jun-05 | 4.8% | 5.5% | 3Q, 06 | 5.0% | 0.5% | -0.2% |
| 20 | Sep-05 | 4.6% | 5.2% | 4Q, 06 | 4.7% | 0.5% | -0.2% |
| 21 | Dec-05 | 4.5% | 5.3% | 1Q, 07 | 4.8% | 0.5% | -0.3% |
| 22 | Jan-06 | 4.8% | 5.3% | 2Q, 07 | | | |
| 23 | Feb-06 | 4.8% | 5.1% | 2Q, 07 | | | |
| 24 | Mar-06 | 4.8% | 5.1% | 2Q, 07 | | | |
| 25 | Apr-06 | N/A | 5.1% | 3Q, 07 | | | |
| 26 | May-06 | 4.6% | 5.2% | 3Q, 07 | | | |
| 27 | Jun-06 | 4.6% | 5.3% | 3Q, 07 | | | |
| 28 | Jul-06 | 5.1% | 5.3% | 4Q, 07 | | | |
| 29 | Aug-06 | 5.1% | 5.3% | 4Q, 07 | | | |
| 30 | Sep-06 | 5.1% | 5.2% | 4Q, 07 | | | |
| 31 | Oct-06 | 5.0% | 5.1% | 1Q, 08 | | | |
| 32 | Nov-06 | 5.0% | 5.1% | 1Q, 08 | | | |
| 33 | Dec-06 | 5.0% | 5.0% | 1Q, 08 | | | |
| 34 | Jan-07 | 4.7% | 5.1% | 2Q, 08 | | | |
| 35 | Feb-07 | 4.7% | 5.1% | 2Q, 08 | | | |
| 36 | Mar-07 | 4.7% | 5.1% | 2Q, 08 | | | |
| 37 | Apr-07 | 4.8% | 5.0% | 3Q, 08 | | | |
| 38 | May-07 | 4.8% | 5.1% | 3Q, 08 | | | |

Source:
Blue Chip Financial Forecasts, Various Dates.

# Missouri-American Water Company

## Water Comparable Group

| Line | Water Utility | Bond Ratings S&P[1] (1) | Bond Ratings Moody's[1] (2) | Business Profile Rating[3] (3) | 2006 Common Equity Ratios Value Line[2] (4) | 2006 Common Equity Ratios AUS (5) |
|---|---|---|---|---|---|---|
| 1 | American States Water Co. | A- | A2 | 3 | 51% | 50% |
| 2 | Aqua America, Inc | AA- | NR | 2 | 49% | 38% |
| 3 | California Water Service Group | A+ | A2 | 3 | 56% | 55% |
| 4 | Connecticut Water Services | A | NR | 3 | 55% | 54% |
| 5 | Middlesex Water Company | A | NR | 3 | 49% | 49% |
| 6 | SJW Corporation | NR | NR | N/A | 58% | 56% |
| 7 | Southwest Water Company | NR | NR | N/A | 56% | 56% |
| 8 | York Water Company | A- | NR | 2 | 52% | 51% |
| 9 | **Average** | **A** | **A2** | **3** | **53%** | **51%** |
| 10 | Indiana-American Water Company | | | | | |
| 11 | American Water Capital, Inc. | A- | Baa1 | 2 | 45%[4] | |

Sources:

[1] AUS Utility Reports; May, 2007.

[2] The Value Line Investment Survey; April 27, 2007.

[3] U.S. Utilities and Power Ranking List, January 26, 2007.

[4] Petitioner's Exhibit No. PRM-2, Schedule 1.

# Missouri-American Water Company

## Gas Comparable Group

| Line | Gas Utility | Senior Secured Ratings S&P[1] (1) | Senior Secured Ratings Moody's[1] (2) | Business Profile Rating[3] (3) | 2006 Common Equity Ratios Value Line[2] (4) | 2006 Common Equity Ratios AUS (5) |
|---|---|---|---|---|---|---|
| 1 | AGL Resources | A- | A3 | 4 | 50% | 42% |
| 2 | Atmos Energy | BBB | Baa3 | 4 | 43% | 45% |
| 3 | KeySpan Corp. | A+ | A2 | 4 | 51% | 45% |
| 4 | New Jersey Resources | AA- | Aa3 | 2 | 65% | 51% |
| 5 | NICOR | AA | A1 | 3 | 63% | 51% |
| 6 | Northwest Natural Gas | AA- | A2 | 1 | 54% | 48% |
| 7 | Piedmont Natural Gas | A | A3 | 2 | 52% | 46% |
| 8 | South Jersey Industries | A | Baa1 | 3 | 55% | 44% |
| 9 | WGL Holdings, Inc. | AA- | A2 | 3 | 62% | 51% |
| 10 | **Average** | **A** | **A3** | **3** | **55%** | **47%** |
| 11 | Indiana-American Water Company | | | | | |
| 12 | American Water Capital, Inc. | A- | Baa1 | 2 | 45%[4] | |

Sources:

[1] AUS Utility Reports; May, 2007.

[2] The Value Line Investment Survey; March 16, 2007.

[3] U.S. Utilities and Power Ranking List, January 26, 2007.

[4] Petitioner's Exhibit No. PRM-2, Schedule 1.

# Missouri-American Water Company

## Growth Rate Estimates (Water)

| Line | Water Utility | Zacks Estimated Growth %[1] (1) | Zacks Number of Estimates[1] (2) | Reuters Estimated Growth %[2] (3) | Reuters Number of Estimates[2] (4) | Thomson Estimated Growth %[3] (5) | Thomson Number of Estimates[3] (6) | AVG of Growth Rates (7) |
|---|---|---|---|---|---|---|---|---|
| 1 | American States Water Co. | 5.00% | 1 | 5.00% | 1 | 4.50% | 2 | 4.83% |
| 2 | Aqua America, Inc | 9.60% | 5 | 10.33% | 6 | 10.00% | 5 | 9.98% |
| 3 | California Water Service Group | 8.20% | 4 | 8.20% | 5 | 8.00% | 5 | 8.13% |
| 4 | Connecticut Water Services | 10.00% | 1 | 10.00% | 1 | N/A | N/A | 10.00% |
| 5 | Middlesex Water Company | 8.00% | 1 | 6.00% | 2 | 8.00% | 1 | 7.33% |
| 6 | SJW Corporation | 10.00% | 1 | 10.00% | 1 | 10.00% | 1 | 10.00% |
| 7 | Southwest Water Company | 10.00% | 3 | 10.00% | 3 | 8.33% | 3 | 9.44% |
| 8 | York Water Company | 8.00% | 2 | 8.00% | 2 | 8.00% | 2 | 8.00% |
| 9 | **Average** | **8.60%** | **2** | **8.44%** | **3** | **8.12%** | **3** | **8.47%** |

Sources:

[1] www.zacksadvisor.com, Detailed Research on May 11, 2007.

[2] www.investor.reuters.com, Earnings Estimates on May 11, 2007.

[3] http://ec.thomsonfn.com, Earnings Estimates on May 11, 2007.

# Missouri-American Water Company

## Growth Rate Estimates (Gas)

| Line | Gas Utility | Zacks Estimated Growth %[1] (1) | Zacks Number of Estimates[1] (2) | Reuters Estimated Growth %[2] (3) | Reuters Number of Estimates[2] (4) | Thomson Estimated Growth %[3] (5) | Thomson Number of Estimates[3] (6) | AVG of Growth Rates (7) |
|---|---|---|---|---|---|---|---|---|
| 1 | AGL Resources | 4.00% | 4 | 4.67% | 6 | 4.10% | 5 | 4.26% |
| 2 | Atmos Energy | 5.25% | 4 | 5.58% | 6 | 5.38% | 4 | 5.40% |
| 3 | KeySpan Corp. | 3.50% | 2 | 3.63% | 4 | 3.17% | 3 | 3.43% |
| 4 | New Jersey Resources | 5.00% | 1 | 5.20% | 5 | 4.50% | 2 | 4.90% |
| 5 | NICOR | 2.00% | 1 | 3.30% | 5 | 4.60% | 3 | 3.30% |
| 6 | Northwest Natural Gas | 5.33% | 3 | 5.33% | 3 | 4.88% | 4 | 5.18% |
| 7 | Piedmont Natural Gas | 5.50% | 4 | 4.64% | 5 | 5.10% | 2 | 5.08% |
| 8 | South Jersey Industries | 6.50% | 2 | 6.33% | 3 | 7.25% | 4 | 6.69% |
| 9 | WGL Holdings, Inc. | 3.00% | 1 | 3.33% | 3 | 3.50% | 4 | 3.28% |
| 10 | **Average** | **4.45%** | **2** | **4.67%** | **4** | **4.72%** | **3** | **4.61%** |

Sources:

[1] www.zackselite.com, Detailed Research on May 21, 2007.

[2] www.investor.reuters.com, Earnings Estimates on May 21, 2007.

[3] http://ec.thomsonfn.com, Earnings Estimates on May 21, 2007.

# Missouri-American Water Company

## Constant Growth DCF Model (Water)

| Line | Water Utility | 13-Week AVG Stock Price[1] (1) | AVG (%) Growth (2) | Annual Dividend[2] (3) | Adjusted Yield (4) | Constant Growth DCF (5) |
|---|---|---|---|---|---|---|
| 1 | American States Water Co. | $ 37.84 | 4.83% | $ 0.94 | 2.60% | 7.44% |
| 2 | Aqua America, Inc | $ 22.64 | 9.98% | $ 0.46 | 2.23% | 12.21% |
| 3 | California Water Service Group | $ 39.35 | 8.13% | $ 1.16 | 3.19% | 11.32% |
| 4 | Connecticut Water Services | $ 24.29 | 10.00% | $ 0.86 | 3.89% | 13.89% |
| 5 | Middlesex Water Company | $ 18.38 | 7.33% | $ 0.69 | 4.04% | 11.37% |
| 6 | SJW Corporation | $ 37.44 | 10.00% | $ 0.60 | 1.77% | 11.77% |
| 7 | Southwest Water Company | $ 13.61 | 9.44% | $ 0.23 | 1.87% | 11.31% |
| 8 | York Water Company | $ 17.36 | 8.00% | $ 0.47 | 2.94% | 10.94% |
| 9 | **Average** | **$ 26.37** | **8.47%** | **$ 0.68** | **2.82%** | **11.3%** |

Sources:

[1] http://moneycentral.msn.com, downloaded on May 10, 2007.

[2] The Value Line Investment Survey; April 27, 2007.

# Missouri-American Water Company

## Constant Growth DCF Model (Gas)

| Line | Gas Utility | 13-Week AVG Stock Price[1] (1) | AVG (%) Growth (2) | Annual Dividend[2] (3) | Adjusted Yield (4) | Constant Growth DCF (5) |
|---|---|---|---|---|---|---|
| 1 | AGL Resources | $ 42.46 | 4.26% | $ 1.64 | 4.03% | 8.28% |
| 2 | Atmos Energy | $ 31.86 | 5.40% | $ 1.28 | 4.23% | 9.64% |
| 3 | KeySpan Corp. | $ 41.20 | 3.43% | $ 1.90 | 4.77% | 8.20% |
| 4 | New Jersey Resources | $ 51.32 | 4.90% | $ 1.52 | 3.11% | 8.01% |
| 5 | NICOR | $ 49.18 | 3.30% | $ 1.86 | 3.91% | 7.21% |
| 6 | Northwest Natural Gas | $ 46.86 | 5.18% | $ 1.42 | 3.19% | 8.37% |
| 7 | Piedmont Natural Gas | $ 26.44 | 5.08% | $ 0.96 | 3.82% | 8.90% |
| 8 | South Jersey Industries | $ 37.28 | 6.69% | $ 0.98 | 2.81% | 9.50% |
| 9 | WGL Holdings, Inc. | $ 32.66 | 3.28% | $ 1.36 | 4.30% | 7.58% |
| 10 | **Average** | **$ 39.92** | **4.61%** | **$ 1.44** | **3.79%** | **8.4%** |

Sources:

[1] http://moneycentral.msn.com, downloaded on May 21, 2007.

[2] The Value Line Investment Survey; March 16, 2007.

# Missouri-American Water Company

## GDP and Dividend Growth Rates (Water)

| Line | Water Utility | Dividend Growth: Past 5 Years[1] (1) | Dividend Growth: Past 10 Years[1] (2) | Dividend Growth: 3-5 Years Projection[1] (3) | Inflation (CPI)*: Past 5 Years[2] (4) | Inflation (CPI)*: Past 10 Years[2] (5) | Inflation (CPI)*: 3-5 Years Projection[2] (6) | Nominal GDP*: Past 5 Years[1] (7) | Nominal GDP*: Past 10 Years[1] (8) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | American States Water Co. | 1.0% | 1.0% | 3.0% | | | | | |
| 2 | Aqua America, Inc | 6.5% | 6.0% | 9.5% | | | | | |
| 3 | California Water Service Group | 1.0% | 1.5% | 1.0% | | | | | |
| 4 | Connecticut Water Services | 1.0% | N/A | N/A | | | | | |
| 5 | Middlesex Water Company | 2.0% | N/A | N/A | | | | | |
| 6 | SJW Corporation | 5.5% | N/A | N/A | | | | | |
| 7 | Southwest Water Company | 10.0% | 6.0% | 9.5% | | | | | |
| 8 | York Water Company | -3.0% | N/A | N/A | | | | | |
| 9 | **Average** | **3.0%** | **3.6%** | **5.8%** | **2.6%** | **2.5%** | **2.2%** | **5.0%** | **5.4%** |

Sources:

[1] The Value Line Investment Survey; May 12, June 2, June 30, 2006.

[2] The Value Line Investment Survey; April 27, 2007.

# Missouri-American Water Company

## GDP and Dividend Growth Rates (Gas)

| Line | Gas Utility | Dividend Growth: Past 5 Years[1] (1) | Dividend Growth: Past 10 Years[1] (2) | Dividend Growth: 3-5 Years Projection[1] (3) | Inflation (CPI)*: Past 5 Years[2] (4) | Inflation (CPI)*: Past 10 Years[2] (5) | Inflation (CPI)*: 3-5 Years Projection[2] (6) | Nominal GDP*: Past 5 Years[1] (7) | Nominal GDP*: Past 10 Years[1] (8) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | AGL Resources | 2.0% | 1.5% | 5.5% | | | | | |
| 2 | Atmos Energy | 2.0% | 3.0% | 1.5% | | | | | |
| 3 | KeySpan Corp. | 1.5% | 3.0% | 2.5% | | | | | |
| 4 | New Jersey Resources | 3.5% | 3.0% | 3.0% | | | | | |
| 5 | NICOR | 3.5% | 4.0% | 1.0% | | | | | |
| 6 | Northwest Natural Gas | 1.0% | 1.0% | 4.0% | | | | | |
| 7 | Piedmont Natural Gas | 5.0% | 5.5% | 4.0% | | | | | |
| 8 | South Jersey Industries | 2.5% | 1.5% | 5.5% | | | | | |
| 9 | WGL Holdings, Inc. | 1.5% | 1.5% | 1.5% | | | | | |
| 10 | **Average** | **2.5%** | **2.7%** | **3.2%** | **2.6%** | **2.5%** | **2.2%** | **5.0%** | **5.4%** |

Sources:

[1] The Value Line Investment Survey; May 12, June 2, June 30, 2006.

[2] The Value Line Investment Survey; March 16, 2007.

# Missouri-American Water Company

## Two-Stage Growth DCF Model (Water)

| Line | Water Utility | 13-Week AVG Stock Price[1] (1) | AVG (%) Growth (2) | GDP Growth[3] (3) | Annual Dividend[2] (4) | Two-Stage Growth DCF (5) |
|---|---|---|---|---|---|---|
| 1 | American States Water Co. | $ 37.84 | 4.83% | 5.10% | $ 0.94 | 7.66% |
| 2 | Aqua America, Inc | $ 22.64 | 9.98% | 5.10% | $ 0.46 | 7.73% |
| 3 | California Water Service Group | $ 39.35 | 8.13% | 5.10% | $ 1.16 | 8.64% |
| 4 | Connecticut Water Services | $ 24.29 | 10.00% | 5.10% | $ 0.86 | 9.69% |
| 5 | Middlesex Water Company | $ 18.38 | 7.33% | 5.10% | $ 0.69 | 9.46% |
| 6 | SJW Corporation | $ 37.44 | 10.00% | 5.10% | $ 0.60 | 7.17% |
| 7 | Southwest Water Company | $ 13.61 | 9.44% | 5.10% | $ 0.23 | 7.24% |
| 8 | York Water Company | $ 17.36 | 8.00% | 5.10% | $ 0.47 | 8.34% |
| 9 | **Average** | **$ 26.37** | **8.47%** | **5.10%** | **$ 0.68** | **8.2%** |

Sources:

[1] http://moneycentral.msn.com, downloaded on May 10, 2007.

[2] The Value Line Investment Survey; April 27, 2007.

[3] Blue Chip Economic Indicators; March 10, 2007.

# Missouri-American Water Company

## Two-Stage Growth DCF Model (Gas)

| Line | Gas Utility | 13-Week AVG Stock Price[1] (1) | AVG (%) Growth (2) | GDP Growth[3] (3) | Annual Dividend[2] (4) | Two-Stage Growth DCF (5) |
|---|---|---|---|---|---|---|
| 1 | AGL Resources | $ 42.46 | 4.26% | 5.10% | $ 1.64 | 9.01% |
| 2 | Atmos Energy | $ 31.86 | 5.40% | 5.10% | $ 1.28 | 9.38% |
| 3 | KeySpan Corp. | $ 41.20 | 3.43% | 5.10% | $ 1.90 | 9.60% |
| 4 | New Jersey Resources | $ 51.32 | 4.90% | 5.10% | $ 1.52 | 8.18% |
| 5 | NICOR | $ 49.18 | 3.30% | 5.10% | $ 1.86 | 8.76% |
| 6 | Northwest Natural Gas | $ 46.86 | 5.18% | 5.10% | $ 1.42 | 8.29% |
| 7 | Piedmont Natural Gas | $ 26.44 | 5.08% | 5.10% | $ 0.96 | 8.91% |
| 8 | South Jersey Industries | $ 37.28 | 6.69% | 5.10% | $ 0.98 | 8.06% |
| 9 | WGL Holdings, Inc. | $ 32.66 | 3.28% | 5.10% | $ 1.36 | 9.13% |
| 10 | **Average** | **$ 39.92** | **4.61%** | **5.10%** | **$ 1.44** | **8.8%** |

Sources:

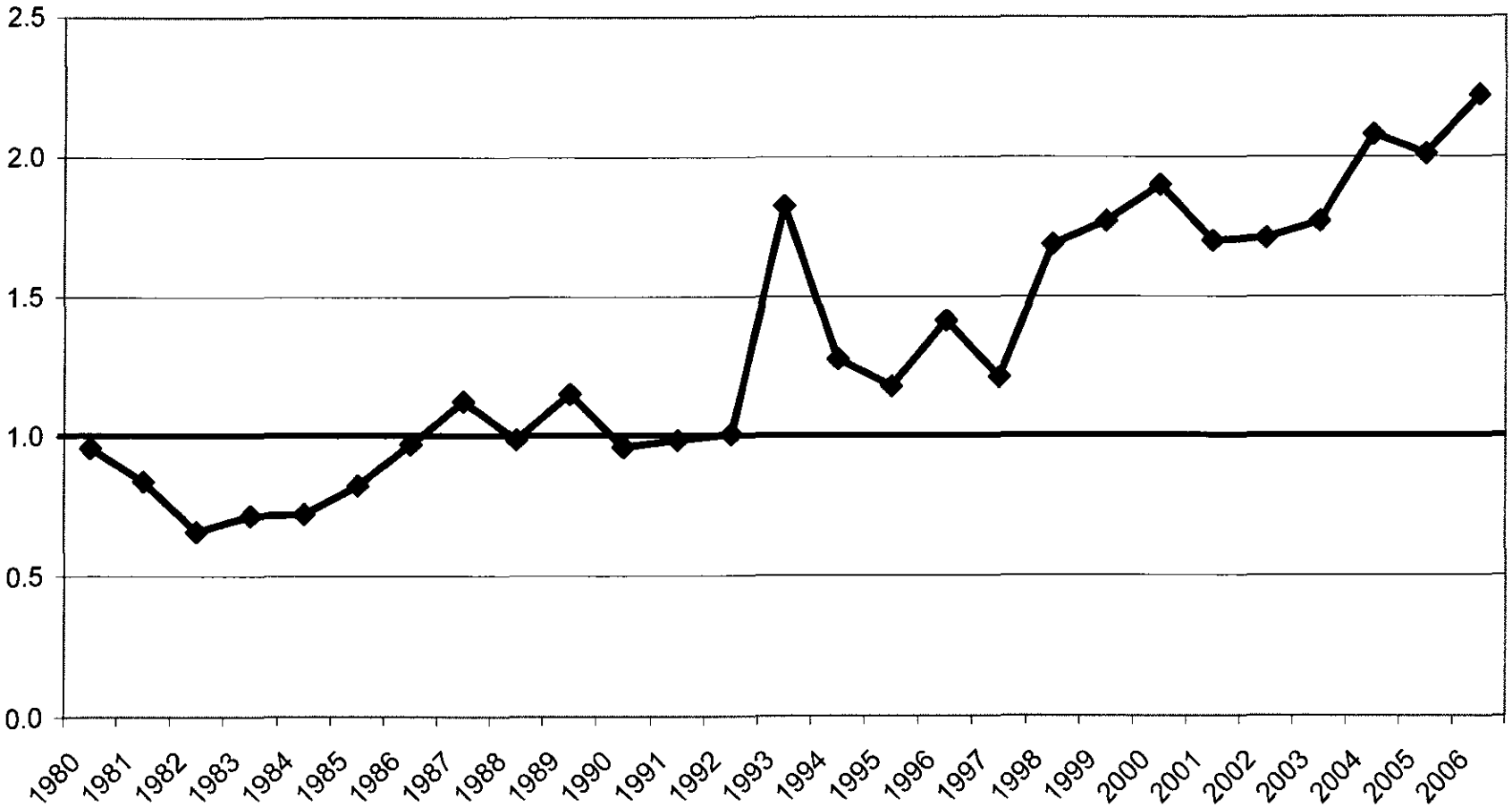
[1] http://moneycentral.msn.com, downloaded on May 10, 2007.

[2] The Value Line Investment Survey; March 16, 2007.

[3] Blue Chip Economic Indicators; March 10, 2007.

# Missouri-American Water Company

## Gas Utility Index
## (Market/Book Ratio)




Sources:
2002-2006: AUS Utility Reports.
1980 - 2000: Mergent Public Utility Manual, 2003.

# Missouri-American Water Company

## Equity Risk Premium - Treasury Bond

| Line | Date | Treasury Bond Yield[1] (1) | Authorized Gas Returns[2] (2) | Indicated Risk Premium (3) |
|---|---|---|---|---|
| 1 | 1986 | 7.78% | 13.46% | 5.68% |
| 2 | 1987 | 8.59% | 12.74% | 4.15% |
| 3 | 1988 | 8.96% | 12.85% | 3.89% |
| 4 | 1989 | 8.45% | 12.88% | 4.43% |
| 5 | 1990 | 8.61% | 12.67% | 4.06% |
| 6 | 1991 | 8.14% | 12.46% | 4.32% |
| 7 | 1992 | 7.67% | 12.01% | 4.34% |
| 8 | 1993 | 6.59% | 11.35% | 4.76% |
| 9 | 1994 | 7.37% | 11.35% | 3.98% |
| 10 | 1995 | 6.88% | 11.43% | 4.55% |
| 11 | 1996 | 6.71% | 11.19% | 4.48% |
| 12 | 1997 | 6.61% | 11.29% | 4.68% |
| 13 | 1998 | 5.58% | 11.51% | 5.93% |
| 14 | 1999 | 5.87% | 10.66% | 4.79% |
| 15 | 2000 | 5.94% | 11.39% | 5.45% |
| 16 | 2001 | 5.49% | 10.95% | 5.46% |
| 17 | 2002 | 5.43% | 11.03% | 5.60% |
| 18 | 2003 | 4.96% | 10.99% | 6.03% |
| 19 | 2004 | 5.05% | 10.59% | 5.54% |
| 20 | 2005 | 4.65% | 10.46% | 5.81% |
| 21 | 2006 | 4.91% | 10.44% | 5.53% |
| 22 | **Average** | **6.68%** | **11.60%** | **4.93%** |

Sources:

[1] Economic Report of the President 2007: Table 73 at 316. The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.

[2] Regulatory Research Associates, Inc., Regulatory Focus, Jan. 85 - Dec. 06.

# Missouri-American Water Company

## Equity Risk Premium - Utility Bond

| Line | Date | Average "A" Rating Utility Bond Yield[1] (1) | Authorized Gas Returns[2] (2) | Indicated Risk Premium (3) |
|---|---|---|---|---|
| 1 | 1986 | 9.58% | 13.46% | 3.88% |
| 2 | 1987 | 10.10% | 12.74% | 2.64% |
| 3 | 1988 | 10.49% | 12.85% | 2.36% |
| 4 | 1989 | 9.77% | 12.88% | 3.11% |
| 5 | 1990 | 9.86% | 12.67% | 2.81% |
| 6 | 1991 | 9.36% | 12.46% | 3.10% |
| 7 | 1992 | 8.69% | 12.01% | 3.32% |
| 8 | 1993 | 7.59% | 11.35% | 3.76% |
| 9 | 1994 | 8.31% | 11.35% | 3.04% |
| 10 | 1995 | 7.89% | 11.43% | 3.54% |
| 11 | 1996 | 7.75% | 11.19% | 3.44% |
| 12 | 1997 | 7.60% | 11.29% | 3.69% |
| 13 | 1998 | 7.04% | 11.51% | 4.47% |
| 14 | 1999 | 7.62% | 10.66% | 3.04% |
| 15 | 2000 | 8.24% | 11.39% | 3.15% |
| 16 | 2001 | 7.76% | 10.95% | 3.19% |
| 17 | 2002 | 7.37% | 11.03% | 3.66% |
| 18 | 2003 | 6.58% | 10.99% | 4.41% |
| 19 | 2004 | 6.16% | 10.59% | 4.43% |
| 20 | 2005 | 5.65% | 10.46% | 4.81% |
| 21 | 2006 | 6.07% | 10.44% | 4.37% |
| 22 | **Average** | **8.17%** | **11.60%** | **3.53%** |

Sources:

[1] Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2006 were obtained from the Mergent Bond Record.

[2] Regulatory Research Associates, Inc., Regulatory Focus, Jan. 85 - Dec. 06.

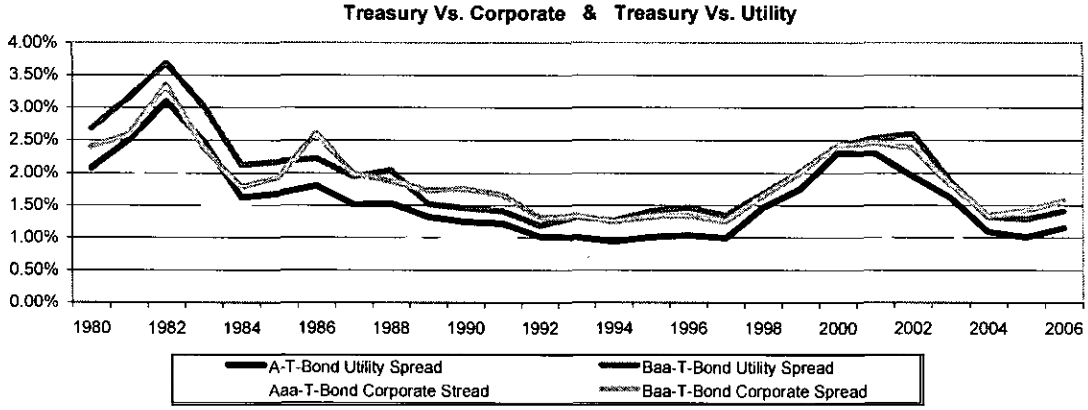
# Missouri-American Water Company

## Annual Average Yields

| Line | Year | T-Bond Yield[1] | Public Utility Bond Yields | | | | Corporate Bond Yields | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A[2] | Baa[2] | A-T-Bond Spread | Baa-T-Bond Spread | Aaa[1] | Baa[1] | Aaa-T-Bond Spread | Baa-T-Bond Spread |
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 1 | 1980 | 11.27% | 13.34% | 13.95% | 2.07% | 2.68% | 11.94% | 13.67% | 1.73% | 2.40% |
| 2 | 1981 | 13.45% | 15.95% | 16.60% | 2.50% | 3.15% | 14.17% | 16.04% | 1.87% | 2.59% |
| 3 | 1982 | 12.76% | 15.86% | 16.45% | 3.10% | 3.69% | 13.79% | 16.11% | 2.32% | 3.35% |
| 4 | 1983 | 11.18% | 13.66% | 14.20% | 2.48% | 3.02% | 12.04% | 13.55% | 1.51% | 2.37% |
| 5 | 1984 | 12.41% | 14.03% | 14.53% | 1.62% | 2.12% | 12.71% | 14.19% | 1.48% | 1.78% |
| 6 | 1985 | 10.79% | 12.47% | 12.96% | 1.68% | 2.17% | 11.37% | 12.72% | 1.35% | 1.93% |
| 7 | 1986 | 7.78% | 9.58% | 10.00% | 1.80% | 2.22% | 9.02% | 10.39% | 1.37% | 2.61% |
| 8 | 1987 | 8.59% | 10.10% | 10.53% | 1.51% | 1.94% | 9.38% | 10.58% | 1.20% | 1.99% |
| 9 | 1988 | 8.96% | 10.49% | 11.00% | 1.53% | 2.04% | 9.71% | 10.83% | 1.12% | 1.87% |
| 10 | 1989 | 8.45% | 9.77% | 9.97% | 1.32% | 1.52% | 9.26% | 10.18% | 0.92% | 1.73% |
| 11 | 1990 | 8.61% | 9.86% | 10.06% | 1.25% | 1.45% | 9.32% | 10.36% | 1.04% | 1.75% |
| 12 | 1991 | 8.14% | 9.36% | 9.55% | 1.22% | 1.41% | 8.77% | 9.80% | 1.03% | 1.66% |
| 13 | 1992 | 7.67% | 8.69% | 8.86% | 1.02% | 1.19% | 8.14% | 8.98% | 0.84% | 1.31% |
| 14 | 1993 | 6.59% | 7.59% | 7.91% | 1.00% | 1.32% | 7.22% | 7.93% | 0.71% | 1.34% |
| 15 | 1994 | 7.37% | 8.31% | 8.63% | 0.94% | 1.26% | 7.96% | 8.62% | 0.66% | 1.25% |
| 16 | 1995 | 6.88% | 7.89% | 8.29% | 1.01% | 1.41% | 7.59% | 8.20% | 0.61% | 1.32% |
| 17 | 1996 | 6.71% | 7.75% | 8.17% | 1.04% | 1.46% | 7.37% | 8.05% | 0.68% | 1.34% |
| 18 | 1997 | 6.61% | 7.60% | 7.95% | 0.99% | 1.34% | 7.26% | 7.86% | 0.60% | 1.25% |
| 19 | 1998 | 5.58% | 7.04% | 7.26% | 1.46% | 1.68% | 6.53% | 7.22% | 0.69% | 1.64% |
| 20 | 1999 | 5.87% | 7.62% | 7.88% | 1.75% | 2.01% | 7.04% | 7.87% | 0.83% | 2.00% |
| 21 | 2000 | 5.94% | 8.24% | 8.36% | 2.30% | 2.42% | 7.62% | 8.36% | 0.74% | 2.42% |
| 22 | 2001 | 5.49% | 7.78% | 8.02% | 2.29% | 2.53% | 7.08% | 7.95% | 0.87% | 2.46% |
| 23 | 2002 | 5.42% | 7.36% | 8.02% | 1.94% | 2.60% | 6.49% | 7.80% | 1.31% | 2.38% |
| 24 | 2003 | 4.96% | 6.57% | 6.83% | 1.61% | 1.87% | 5.67% | 6.77% | 1.10% | 1.81% |
| 25 | 2004 | 5.05% | 6.14% | 6.37% | 1.09% | 1.32% | 5.63% | 6.39% | 0.58% | 1.34% |
| 26 | 2005 | 4.65% | 5.66% | 5.93% | 1.01% | 1.29% | 5.24% | 6.06% | 0.59% | 1.41% |
| 27 | 2006 | 4.91% | 6.07% | 6.32% | 1.16% | 1.41% | 5.59% | 6.48% | 0.68% | 1.57% |
| 28 | **Average** | **7.85%** | **9.44%** | **9.80%** | **1.58%** | **1.94%** | **8.66%** | **9.74%** | **1.07%** | **1.90%** |

### Yield Spreads

**Treasury Vs. Corporate & Treasury Vs. Utility**




Notes:

[1] Economic Report of the President 2007: Table 73 at 316. The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.

[2] Mergent Public Utility Manual 2003. Moodys Daily News Reports.

# Missouri-American Water Company

## Series "A" and "Baa" Utility Bond Yields

| Line | Date | "A" Rating Utility Bond Yield (1) | "Baa" Rating Utility Bond Yield (2) |
|---|---|---|---|
| 1 | 05/04/07 | 5.88% | 6.13% |
| 2 | 04/27/07 | 5.97% | 6.22% |
| 3 | 04/20/07 | 5.94% | 6.21% |
| 4 | 04/12/07 | 6.02% | 6.30% |
| 5 | 04/05/07 | 5.99% | 6.27% |
| 6 | 03/30/07 | 5.97% | 6.25% |
| 7 | 03/22/07 | 5.91% | 6.18% |
| 8 | 03/16/07 | 5.82% | 6.09% |
| 9 | 03/09/07 | 5.85% | 6.09% |
| 10 | 03/02/07 | 5.77% | 6.00% |
| 11 | 02/23/07 | 5.90% | 6.09% |
| 12 | 02/16/07 | 5.87% | 5.88% |
| 13 | 02/09/07 | 5.96% | 6.16% |
| 14 | **Average** | **5.91%** | **6.14%** |

Source:
www.moodys.com, Bond Yields and Key Indicators.

# Missouri-American Water Company

## Comparable Group Beta (Water)

| Line | Water Utility | Historical Beta 2002 (1) | 2003 (2) | 2004 (3) | 2005 (4) | 2006 (5) | 5-Yr. AVG (6) | Current Beta (7) |
|---|---|---|---|---|---|---|---|---|
| 1 | American States Water Co. | 0.60 | 0.65 | 0.70 | 0.70 | 0.80 | 0.69 | 0.80 |
| 2 | Aqua America, Inc | 0.70 | 0.70 | 0.75 | 0.80 | 0.85 | 0.76 | 0.90 |
| 3 | California Water Service Group | 0.60 | 0.60 | 0.70 | 0.75 | 0.85 | 0.70 | 0.90 |
| 4 | Connecticut Water Services | 0.55 | 0.60 | 0.65 | 0.70 | 0.85 | 0.67 | 0.90 |
| 5 | Middlesex Water Company | 0.55 | 0.55 | 0.60 | 0.70 | 0.80 | 0.64 | 0.85 |
| 6 | SJW Corporation | 0.55 | 0.50 | 0.55 | 0.60 | 0.75 | 0.59 | 0.70 |
| 7 | Southwest Water Company | 0.55 | 0.60 | 0.65 | 0.65 | 0.80 | 0.65 | 0.90 |
| 8 | York Water Company | N/A | 0.50 | 0.55 | 0.50 | 0.50 | 0.51 | 0.55 |
| 9 | **Average** | **0.59** | **0.59** | **0.64** | **0.68** | **0.78** | **0.65** | **0.81** |
| 10 | **Median** | **0.55** | **0.60** | **0.65** | **0.70** | **0.80** | **0.66** | **0.88** |

Source:
The Value Line Investment Survey; April 27, 2007.

# Missouri-American Water Company

## Comparable Group Beta (Gas)

| Line | Electric Utility | Historical Beta 2002 (1) | 2003 (2) | 2004 (3) | 2005 (4) | 2006 (5) | 5-Yr. AVG (6) | Current Beta (7) |
|---|---|---|---|---|---|---|---|---|
| 1 | AGL Resources | 0.70 | 0.75 | 0.80 | 0.85 | 0.95 | 0.81 | 0.95 |
| 2 | Atmos Energy | 0.60 | 0.65 | 0.65 | 0.70 | 0.75 | 0.67 | 0.80 |
| 3 | KeySpan Corp. | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.75 | 0.85 |
| 4 | New Jersey Resources | 0.65 | 0.65 | 0.70 | 0.75 | 0.80 | 0.71 | 0.80 |
| 5 | NICOR | 0.80 | 0.95 | 1.00 | 1.10 | 1.20 | 1.01 | 1.30 |
| 6 | Northwest Natural Gas | 0.60 | 0.60 | 0.65 | 0.70 | 0.75 | 0.66 | 0.75 |
| 7 | Piedmont Natural Gas | 0.65 | 0.70 | 0.75 | 0.75 | 0.80 | 0.73 | 0.80 |
| 8 | South Jersey Industries | 0.50 | 0.50 | 0.55 | 0.60 | 0.70 | 0.57 | 0.70 |
| 9 | WGL Holdings, Inc. | 0.65 | 0.65 | 0.75 | 0.80 | 0.80 | 0.73 | 0.85 |
| 10 | **Average** | **0.64** | **0.68** | **0.73** | **0.78** | **0.84** | **0.74** | **0.87** |
| 11 | **Median** | **0.65** | **0.65** | **0.75** | **0.75** | **0.80** | **0.73** | **0.80** |

Source:
The Value Line Investment Survey; March 16, 2007.

# Missouri-American Water Company

## CAPM Return Estimate

| Line | Description | Historical Premium (1) |
|---|---|---|
| 1 | Risk Free Rate[1] | 5.1% |
| 2 | Risk Premium[2] | 6.5% |
| 3 | Beta | 0.80 |
| 4 | CAPM | 10.3% |

| Line | Description | Prospective Premium (1) |
|---|---|---|
| 5 | Risk Free Rate[1] | 5.1% |
| 6 | Risk Premium[2] | 6.5% |
| 7 | Beta | 0.80 |
| 8 | CAPM | 10.3% |
| 9 | **CAPM Average** | **10.3%** |

Sources:

[1] Blue Chip Financial Forcasts; May 1, 2007 at 2.

[2] SBBI; 2007 at pp. 31 & 120.

# Missouri-American Water Company

## S&P Credit Rating Financial Ratios at ROE of 9.7%

| Line | Description | Ratio at 9.7% Equity Return (1) | S&P "AA" Rating (BP: 2) Benchmark* (2) | S&P "A" Rating (BP: 2) Benchmark* (3) | Reference (4) |
|---|---|---|---|---|---|
| 1 | Rate Base | $ 619,398,187 | | | Schedule CAS-1, Page 3 of 3. |
| 2 | Weighted Common Return | 4.55% | | | Appendix B-1, Line 3, Col. 4. |
| 3 | Income to Common | $ 28,185,149 | | | Line1 x Line 2. |
| 4 | Depreciation & Amortization | $ 21,319,532 | | | Schedule CAS-1, Page 2 of 3. |
| 5 | Deferred Income Tax Plus ITC | $ 1,948,391 | | | Schedule CAS-1, Page 2 of 3. |
| 6 | Funds from Operations (FFO) | $ 51,453,072 | | | Sum of Line 3 though Line 5. |
| 7 | Weighted Interest Rate | 3.18% | | | Appendix B-1, Line 1, Col. 4. |
| 8 | Interest Expense | $ 19,704,028 | | | Line 1 x Line 7. |
| 9 | FFO Plus Interest | $ 71,157,100 | | | Line 6 + Line 8. |
| 10 | FFO Interest Coverage | 3.6x | **4.0x - 3.0x** | 3.0x - 2.0x | Line 9 / Line 8. |
| 11 | Total Debt Ratio | 53% | 45% - 52% | **52% - 58%** | Appendix B-1, Line 2 + Line 3, Col. 2. |
| 12 | FFO to Total Debt | 16% | 25% - 20% | **20% - 12%** | Line 6 / (Line 1 x Line 11). |

Source:
* Standard and Poors. New Business Profile Scores Assigned to U.S. Utility and Power Companies; Financial Guidelines Revised; June 2, 2004.

## Missouri-American Water Company
## Company District Revenue Requirements Proposal

| | Line | District | Cost of Service ($) | Current Operating Revenues ($) | Revenue Deficiency ($) | % Deficiency to Cost of Service (%) | Revenue Increase (%) | Proposed Revenue Increase ($) | Proposed Pro Forma Revenues ($) | Subsidy/ (Deficiency) ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| ***Water*** | 1 | Brunswick | $ 599,000 | $ 138,050 | $ 460,950 | 333.90% | 24.69% | $ 34,090 | $ 172,140 | $ (426,860) |
| | 2 | Jefferson City | $ 5,597,819 | $ 4,118,670 | $ 1,479,149 | 35.91% | 25.12% | $ 1,034,515 | $ 5,153,185 | $ (444,634) |
| | 3 | Joplin | $ 13,026,573 | $ 7,918,756 | $ 5,107,817 | 64.50% | 24.49% | $ 1,939,097 | $ 9,857,853 | $ (3,168,720) |
| | 4 | Mexico | $ 3,834,990 | $ 2,552,764 | $ 1,282,226 | 50.23% | 24.77% | $ 632,396 | $ 3,185,160 | $ (649,830) |
| | 5 | Platte County | $ 4,181,941 | $ 3,324,997 | $ 856,944 | 25.77% | 24.98% | $ 830,617 | $ 4,155,614 | $ (26,327) |
| | 6 | St Charles | $ 11,696,828 | $ 9,240,820 | $ 2,456,008 | 26.58% | 24.53% | $ 2,266,372 | $ 11,507,192 | $ (189,636) |
| | 7 | St Joseph | $ 21,161,988 | $ 16,167,883 | $ 4,994,105 | 30.89% | 24.80% | $ 4,010,314 | $ 20,178,197 | $ (983,791) |
| | **8** | **St Louis** | **$ 142,908,994** | **$ 120,406,541** | **$ 22,502,453** | **18.69%** | **24.90%** | **$ 29,979,473** | **$ 150,386,014** | **$ 7,477,020** |
| | 9 | Warrensburg | $ 3,318,902 | $ 2,577,610 | $ 741,292 | 28.76% | 24.54% | $ 632,462 | $ 3,210,072 | $ (108,830) |
| | 10 | Warren County | $ 302,903 | $ 112,926 | $ 189,977 | 168.23% | 25.23% | $ 28,488 | $ 141,414 | $ (161,489) |
| | 11 | Water Total | $ 206,629,938 | $ 166,559,017 | $ 40,070,921 | 24.06% | 24.85% | $ 41,387,823 | $ 207,946,840 | $ 1,316,902 |
| ***Sewer*** | 12 | Platte County | $ 69,788 | $ 49,374 | $ 20,414 | 41.35% | 25.23% | $ 12,459 | $ 61,833 | $ (7,955) |
| | 13 | Cedar Hill | $ 843,992 | $ 160,780 | $ 683,212 | 424.94% | 26.11% | $ 41,983 | $ 202,763 | $ (641,229) |
| | 14 | Warren County | $ 763,720 | $ 76,648 | $ 687,072 | 896.40% | 25.25% | $ 19,354 | $ 96,002 | $ (667,718) |
| | 15 | Sewer Total | $ 1,677,500 | $ 286,802 | $ 1,390,698 | 484.90% | 25.73% | $ 73,796 | $ 360,598 | $ (1,316,902) |
| | 16 | **Total System** | **$ 208,307,438** | **$ 166,845,819** | **$ 41,461,619** | **24.85%** | **24.85%** | **$ 41,461,619** | **$ 208,307,438** | **$ (0)** |

**Schedule MPG-1**

# MISSOURI-AMERICAN WATER COMPANY

## Proposed Increase on Residential Customers

| Line | District | Current Typical Bill per Month (1) | Company Proposed Typical Bill per Month (2) |
|---|---|---|---|
| 1 | Brunswick | $ 22.58 | $ 28.28 |
| 2 | Jefferson City | 20.55 | 25.74 |
| 3 | Joplin | 16.29 | 20.40 |
| 4 | Mexico | 23.92 | 29.96 |
| 5 | Parkville | 38.39 | 48.08 |
| 6 | St. Charles | 22.58 | 28.28 |
| 7 | St. Joseph | 22.63 | 28.72 |
| 8 | St. Louis | 20.40 | 25.50 |
| 9 | Warrensburg | 18.57 | 23.26 |
| 10 | Warren County | 20.33 | 25.45 |
| 11 | Average | $ 22.62 | $ 28.37 |
| 12 | Median | $ 21.57 | $ 27.01 |

Source:
Item #6 - Press Releases to Direct Testimony
of Edward J. Grubb

## Missouri-American Water Company
## MIEC District Revenue Requirements Proposal

| | Line | District | Cost of Service ($) | Current Operating Revenues ($) | Revenue Deficiency ($) | % Deficiency to Cost of Service (%) | Gradual Percent Increase to Cost of Service * (%) | Proposed Revenue Increase ($) | Proposed Pro Forma Revenues ($) | Subsidy/ (Deficiency) ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| ***Water*** | 1 | Brunswick | $ 599,000 | $ 138,050 | $ 460,950 | 333.90% | 37.27% | $ 51,458 | $ 189,508 | $ (409,492) |
| | 2 | Jefferson City | $ 5,597,819 | $ 4,118,670 | $ 1,479,149 | 35.91% | 35.91% | $ 1,479,220 | $ 5,597,890 | $ 71 |
| | 3 | Joplin | $ 13,026,573 | $ 7,918,756 | $ 5,107,817 | 64.50% | 37.27% | $ 2,951,697 | $ 10,870,453 | $ (2,156,120) |
| | 4 | Mexico | $ 3,834,990 | $ 2,552,764 | $ 1,282,226 | 50.23% | 37.27% | $ 951,537 | $ 3,504,301 | $ (330,689) |
| | 5 | Platte County | $ 4,181,941 | $ 3,324,997 | $ 856,944 | 25.77% | 25.77% | $ 856,997 | $ 4,181,994 | $ 53 |
| | 6 | St Charles | $ 11,696,828 | $ 9,240,820 | $ 2,456,008 | 26.58% | 26.58% | $ 2,456,156 | $ 11,696,976 | $ 148 |
| | 7 | St Joseph | $ 21,161,988 | $ 16,167,883 | $ 4,994,105 | 30.89% | 30.89% | $ 4,994,373 | $ 21,162,256 | $ 268 |
| | **8** | **St Louis** | **$ 142,908,994** | **$ 120,406,541** | **$ 22,502,453** | **18.69%** | **22.31%** | **$ 26,857,014** | **$ 147,263,555** | **$ 4,354,561** |
| | 9 | Warrensburg | $ 3,318,902 | $ 2,577,610 | $ 741,292 | 28.76% | 28.76% | $ 741,334 | $ 3,318,944 | $ 42 |
| | 10 | Warren County | $ 302,903 | $ 112,926 | $ 189,977 | 168.23% | 37.27% | $ 42,093 | $ 155,019 | $ (147,884) |
| | 11 | Water Total | $ 206,629,938 | $ 166,559,017 | $ 40,070,921 | 24.06% | 24.85% | $ 41,381,879 | $ 207,940,896 | $ 1,310,958 |
| ***Sewer*** | 12 | Platte County | $ 69,788 | $ 49,374 | $ 20,414 | 41.35% | 37.27% | $ 18,404 | $ 67,778 | $ (2,010) |
| | 13 | Cedar Hill | $ 843,992 | $ 160,780 | $ 683,212 | 424.94% | 26.11% | $ 41,983 | $ 202,763 | $ (641,229) |
| | 14 | Warren County | $ 763,720 | $ 76,648 | $ 687,072 | 896.40% | 25.25% | $ 19,353 | $ 96,001 | $ (667,719) |
| | 15 | Sewer Total | $ 1,677,500 | $ 286,802 | $ 1,390,698 | 484.90% | 27.80% | $ 79,740 | $ 366,542 | $ (1,310,958) |
| | **16** | **Total System** | **$ 208,307,438** | **$ 166,845,819** | **$ 41,461,619** | **24.85%** | **24.85%** | **$ 41,461,619** | **$ 208,307,438** | **$ (0)** |

## Missouri-American Water Company
### Depreciation Expense Adjustment

| St. Louis County - District 1702 | | | | | May-07 Pro Forma | Current Depreciation Rates | | | Proposed Company Depreciation Rates | | | Proposed MIEC Depreciation Rates | | | Proposed MIEC Adjustment to Depreciation Expense |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JDE | RC SCH | SUB | DESCRIPTION | | UPIS | Life | Rates | Amount | Life | Rates | Amount | Life | Rates | Amount | Amount |
| A391 | 391.2 | 340200 | Comp & Periph Equip | | 4,520,308 | 23 | 4.35% | 196,633 | 6 | 27.41% | 1,239,016 | 10 | 10.10% | 456,551 | 782,465 |
| A391 | 391.25 | 340300 | Computer Software | | 6,898,509 | 23 | 4.35% | 300,085 | 5 | 18.49% | 1,275,534 | 10 | 7.36% | 507,730 | 767,804 |
| | | | | Total | 11,418,817 | | | $496,719 | | | $ 2,514,551 | | | $ 964,281 | $1,550,269 |

Note: The MIEC proposes a 10-year life for Accounts 340.2 and 340.3. This adds 4 years and 5 years to the remaining lives of the accounts, respectively.