EXHIBIT

Exhibit No.: OPC #1
Issue: Revenue Requirement
Witness: Michael P. Gorman
Type of Exhibit: Direct Testimony
Sponsoring Party: Public Counsel
Case Nos.: WR-2015-0301 and SR-2015-0302
Date Testimony Prepared: December 23, 2015

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 and Sewer Service Provided in Missouri Service Areas	**Case Nos. WR-2015-0301 and SR-2015-0302**

Direct Testimony and Schedules of

Michael P. Gorman

On behalf of

The Office of Public Counsel

December 23, 2015

BAI
BRUBAKER & ASSOCIATES, INC.

Project 10136

OPC Exhibit No. 1
Date 3-21-16 Reporter TC
File No. WR-2015-0301

BEFORE THE PUBLIC SERVICE COMMISSION
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STATE OF MISSOURI)
) SS
COUNTY OF ST. LOUIS)

Affidavit of Michael P. Gorman

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

1. My name is Michael P. Gorman. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 16690 Swingley Ridge Road, Suite 140, Chesterfield, Missouri 63017. We have been retained by the Office of Public Counsel in this proceeding on its behalf.

2. Attached hereto and made a part hereof for all purposes are my direct testimony and schedules which were prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. WR-2015-0301 and SR-2015-0302.

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

Michael P. Gorman

Subscribed and sworn to before me this 23rd day of December, 2015.

MARIA E. DECKER
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis City
My Commission Expires: May 5, 2017
Commission # 13706793

Maria E. Decker
Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
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Direct Testimony of Michael P. Gorman

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

Q WHAT IS YOUR OCCUPATION?

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

Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A This information is included in Appendix A to this testimony.

Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A This testimony is presented on behalf of the Office of Public Counsel ("Public Counsel").

I. SUMMARY

Q PLEASE SUMMARIZE YOUR TESTIMONY.

A I recommend the Missouri Public Service Commission ("Commission") reject Missouri-American Water Company's ("MAWC" or "Company") proposed Revenue Stability Mechanism ("RSM"). The RSM shifts significant amounts of operating risk from the Company to its customers.

I recommend the Commission award MAWC a return on common equity of 9.00%, which is the midpoint of my estimated range of 8.80% to 9.20%.

I performed three versions of the Discounted Cash Flow ("DCF") model, a Risk Premium study, and a Capital Asset Pricing Model ("CAPM") to two proxy groups of publicly traded companies that have investment risk similar to MAWC. Based on these assessments, I estimate MAWC's current market cost of equity to be 9.00%.

My recommended return on equity and my proposed capital structure will provide MAWC with an opportunity to realize cash flow financial coverages and balance sheet strength that conservatively support MAWC's credit metrics at an investment grade bond rating level. Consequently, my recommended return on equity represents fair compensation for MAWC's investment risk, and it will preserve the Company's financial integrity and credit standing.

Based on my recommended return on equity of 9.00% and my proposed capital structure, I recommend an overall rate of return of 7.24% as developed on my Schedule MPG-1.

Q WILL YOU RESPOND TO MAWC'S PROPOSED RETURN ON EQUITY OF 10.7%?

A Yes, I will respond to MAWC witness Dr. Roger Morin's return on equity recommendation. As explained in more detail below, Dr. Morin's recommended

return for MAWC of 10.7% significantly exceeds a fair and reasonable return on equity for a water and sewer utility. Indeed, his analyses largely are based on overstated data, or do not reflect fair compensation for the low-risk characteristics of MAWC. For these reasons, I recommend the Commission reject Dr. Morin's recommended return on equity.

II. REVENUE STABILITY MECHANISM ("RSM")

Q HAVE YOU REVIEWED MAWC'S PROPOSAL FOR THE REVENUE STABILITY MECHANISM?

A Yes.

Q PLEASE SUMMARIZE THE RSM PROPOSED BY MAWC IN THIS CASE.

A The RSM is described in detail in the Direct Testimony of MAWC witness Ms. Jeanne M. Tinsley. MAWC proposes to defer, or accrue, the difference between: (1) the rate case authorized amount of metered revenue; and (2) actual metered revenues by customer class, less the change in the applicable production expenses on a monthly basis. Ms. Tinsley states that the production expenses will include purchased water, power, chemicals, and waste disposal. These are effectively operating expenses that vary with the amount of water actually produced and sold.

The classes of customers that would be included in the metered revenue are Residential, Commercial, Other Public Authority ("OPA"), and Sales for Resale. Industrial customers would not be included in the RSM. The annual amounts of metered revenues and production expenses would be prorated to monthly amounts.[1]

[1]Direct Testimony of Ms. Jeanne Tinsley at 28-29.

Q WHY IS MAWC SEEKING AN RSM IN THIS PROCEEDING?

A Ms. Tinsley outlines the Company's concern about the current rate structure and its ability to recover its cost of service under traditional rate mechanisms. She states that approximately 90% of the Company's costs are fixed, however, based on its pricing structures, approximately 77% of those fixed costs are recovered through volume charges. This she concludes results in uncertainty about the Company fully recovering its cost of service due to sales variations due to weather, and customers' conservation that reduces sales per customer over time.

Q DOES MS. TINSLEY OPINE THAT THE PROPOSED RSM IS BENEFICIAL TO CUSTOMERS AND TO THE COMPANY?

A Yes. She identifies several claimed benefits including the following:

1. The RSM will stabilize the Company's recovery of fixed costs, which will improve its credit standing and improve its access to capital.
2. She says the RSM will better align the interests of MAWC, its customers and the state of Missouri.
3. She states the RSM will eliminate some of the difficulties of designing an effective weather normalization mechanism.
4. She opines that the RSM will produce benefits over traditional tariff rate designs.

Q PLEASE COMMENT ON WHETHER AN RSM IS NEEDED IN ORDER TO PROVIDE MAWC ACCESS TO CAPITAL TO FUND ITS MAJOR CAPITAL PROGRAMS.

A As noted in detail later in this testimony, MAWC's access to capital is largely through its affiliate company, American Water Capital Corp. ("AWCC"). AWCC's credit standing was recently upgraded by Standard & Poor's. Its current credit rating is A with a positive outlook. As discussed below concerning American Water Works, most

of American Water Works' utility subsidiaries do not currently have RSMs in effect. Hence, this strong credit standing and strong access to capital have been achieved without the RSM proposed by Ms. Tinsley. Therefore, the RSM is not needed to support MAWC's strong access to capital at competitive prices.

Q WILL AN RSM ENCOURAGE CONSERVATION BY MAWC'S CUSTOMERS?

A No. Indeed, an RSM will actually discourage conservation efforts on behalf of customers. This economic disincentive for customers to implement conservation efforts is that an RSM will essentially eliminate the economic payback of any conservation investments made by customers. Generally, a customer will initiate conservation efforts if it can reduce its consumption and lower its utility bill. Under traditional rate setting, customers can evaluate the economic merits of making the conservation investment by comparing utility bill savings to the cost of the conservation activity. With an RSM, bill savings would be eliminated if customers implement conservation investments because sales reductions would be offset by RSM price increases such that utility bill savings would not materialize. As such, customers would no longer have an economic incentive to pursue conservation-related investments.

Q PLEASE COMMENT ON MS. TINSLEY'S COMMENTS CONCERNING TARIFF RATE DESIGN UNDER AN RSM.

A Ms. Tinsley did not provide a detailed explanation of why she believes an RSM is consistent with appropriate rate design. However, proper cost allocation and design of customer rates is generally consistent with appropriate rate design. It is not clear why Ms. Tinsley believes an RSM meets these objectives.

Q MS. TINSLEY STATES THAT AN RSM WILL PRODUCE BOTH REFUNDS AND SURCHARGES TO CUSTOMERS. DOES THIS SUPPORT HER PROPOSED RSM?

A No. To the contrary, her graph at page 26 of her testimony shows the relative balance of traditional ratemaking without an RSM. As shown on this graph, the relative percentage rate changes under an RSM show that there is equal likelihood of customers receiving refunds as they will surcharges. This tells us that sales conditions can vary above and below the assumed sales levels in the traditional rate cases. Because it is a relatively equal distribution of the difference between actual sales and the sales used in the rate case, it is reasonable to conclude that the utility is equally as likely to recover more than its cost of service when those rates are in effect, as it is to recover less than its cost of service. Over years, the Company will have an opportunity to fully recover its cost of service using traditional rate-setting mechanisms, because it will over and under recover costs with the same frequency, and on average will recover its cost of service.

Q SHOULD THE COMMISSION APPROVE MAWC'S RSM PROPOSAL?

A No. For the reasons described in the balance of my testimony, the Commission should reject an RSM or revenue decoupling in this proceeding. If the Commission allows MAWC to implement the RSM, it should only allow recovery of volumetric base revenues that are lost due to the Company's mandated energy efficiency programs.

Q DOES THE RSM REPRESENT A DEPARTURE FROM TRADITIONAL RATEMAKING PRINCIPLES?

A Yes. Under the traditional ratemaking process, the Commission establishes the Company's revenue requirement in a base rate case by relying on a snapshot of the Company's costs and revenues for a given test year. The revenue levels are derived using the Company's test year sales levels, adjusted for weather and other known and measurable changes.

Once base rates are set to recover the allowed test year revenue requirement, these rates traditionally remain fixed until the next base rate case. The Company's shareholders bear the risk that earnings could be adversely impacted between base rate cases due to increases in costs or a reduction in revenues. Conversely, the Company's shareholders benefit if MAWC can successfully reduce costs or increase revenues between base rate cases. This creates a powerful incentive for the Company's management to operate cost-effectively and to promote economic development in its service area, because economic growth results in increased revenues that improve the Company's bottom line between base rate cases.

Revenue decoupling dramatically alters the traditional ratemaking process by allowing the Company to automatically adjust its base rates outside of a base rate case to reflect the impact of changing sales levels over time. In contrast to the strong economic incentives associated with sales growth that are created by the traditional ratemaking process, full revenue decoupling would essentially make the Company's shareholders indifferent to the impact of fluctuations in sales levels in its service area.

Q WILL THE RSM TRANSFER TRADITIONAL UTILITY BUSINESS RISKS FROM SHAREHOLDERS TO CUSTOMERS?

A Yes. As I discussed above, the traditional base ratemaking process sets a utility's revenue requirement based on the weather-normalized level of test year sales. This approach puts the Company's shareholders at risk for any decline in sales levels between rate cases. This is the case because, all else being equal, a decline in sales translates into reduced revenues relative to the amounts calculated for the test year. Under traditional ratemaking, a decline in sales levels is not recognized in the ratemaking process until the next base rate case.

Revenue decoupling eliminates this traditional business risk by making MAWC revenue neutral with respect to fluctuations in sales levels between base rate cases. If sales levels decline between base rate cases, the Company is guaranteed to receive revenues that are based on test year sales rather than on actual sales levels. This approach places customers at risk for rate surcharges due to events that may be entirely outside of their control, such as abnormal weather conditions or a general economic downturn in MAWC's service area.

Q ARE THE UTILITY'S SHAREHOLDERS COMPENSATED FOR BEARING THE RISK OF FLUCTUATING SALES LEVELS UNDER TRADITIONAL RATEMAKING?

A Yes. Through the Company's allowed rate of return, the Company's shareholders are compensated for the business risks of operating the utility. Among these risks is the exposure to fluctuations in sales levels between base rate cases due to rising water prices, abnormal weather, changing economic conditions or other factors. Absent an adequate downward adjustment to the Company's return on equity to reflect the reduced business risks that revenue decoupling would place on MAWC, the

Company's allowed rate of return would overcompensate the Company's shareholders.

Q WILL THE RSM CREATE INCREASED RATE VOLATILITY AND RATE UNCERTAINTY RELATIVE TO TRADITIONAL RATEMAKING?

A Yes. The RSM proposal would calculate the revenue impact of any decline in sales levels and defer these amounts for collection through rate surcharges. Moreover, the proposal would compensate MAWC if sales levels decline for any reason, including an economic recession or abnormal weather. If such events produce a dramatic decline in sales levels between base rate cases, this could result in the accumulation of significant deferrals that would be surcharged to customers in future years. Thus, the RSM would expose customers to the risk of significant rate increases, potentially on an annual basis. This contrasts with the situation under traditional ratemaking, in which a retail customer's base rates are fixed between base rate cases.

The rate uncertainty created by the RSM proposal would adversely impact customers by exposing them to a significantly higher level of financial risk, making it much more difficult for them to manage their utility budgets and plan for future cost of business.

Q DO YOU HAVE ANY OTHER RECOMMENDATIONS IN THE EVENT THE COMMISSION APPROVES MAWC'S PROPOSED RSM?

A Yes. If the Commission approves the RSM proposal, the resultant lowering of MAWC's business risk should translate into a reduction in the authorized return on equity that the Commission approves in this proceeding.

Q HAVE OTHER STATE REGULATORY COMMISSIONS RECOGNIZED THAT A DOWNWARD ADJUSTMENT TO A UTILITY'S RETURN ON EQUITY IS APPROPRIATE IF REVENUE DECOUPLING OR SIMILAR POLICIES ARE IMPLEMENTED?

A Yes. The Connecticut Department of Public Utility Control ("Department") issued an order which found that the implementation of a revenue decoupling proposal permitted the Department to lower the allowed return on equity for United Illuminating Company.[2] Moreover, this Commission applied an explicit reduction to Missouri Gas Energy's allowed return on equity to recognize the reduced risks associated with the adoption of a straight-fixed variable rate design, which is an alternative approach to achieving the results sought by MAWC through the RSM.[3] Finally, the Indiana Utility Regulatory Commission issued an Order that stated the following on this issue:

> Further, we agree with the OUCC's comments that decoupling mechanisms clearly shift risk from the utility to ratepayers, and that reduction of risk should be considered in determining the appropriate return on equity of for-profit gas utilities.[4]

Q DO YOU HAVE A RECOMMENDED DECOUPLING RELATED REDUCTION FOR MAWC'S RETURN ON EQUITY?

A I have testified in the past that a 0.25% return on equity reduction is at minimum appropriate. Such a reduction is warranted in this case as well.

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[2]Connecticut Department of Public Utility Control, Docket No. 08-07-04, *Application of the United Illuminating Company to Increase its Rates and Charges*, Decision at 123 (February 4, 2009).

[3]Missouri Public Service Commission, Case No. GR-2006-0422, *In the Matter of Missouri Gas Energy's Tariffs Increasing Rates for Gas Service Provided to Customers in the Company's Missouri Service Area*, Report and Order at 31 (March 22, 2007).

[4]Indiana Utility Regulatory Commission, Cause No. 43180, Order at 10 (October 21, 2009).

Q **PLEASE SUMMARIZE YOUR RECOMMENDATIONS WITH RESPECT TO THE RSM SUBMITTED BY MAWC IN THIS CASE.**

A The Commission should reject MAWC's RSM proposal. Revenue decoupling should be rejected because it unjustifiably departs from traditional ratemaking principles, discourages voluntary conservation efforts, transfers business risks to customers, makes the Company less responsive to customer needs and increases rate volatility and uncertainty.

If the Commission nevertheless determines that a revenue decoupling mechanism is warranted, RSM surcharges should be permitted only where there is evidence of a decline in the absolute level of MAWC's sales by rate class. Furthermore, the mechanism should exclude the revenue impact of voluntary customer efforts to reduce load and the impact of any voluntary Company expansion of its energy efficiency programs beyond the levels required by the Commission.

If the RSM is authorized, the Commission should also reduce MAWC's allowed return on equity to recognize the lower business risks that the Company's shareholders face when revenues are decoupled from sales levels.

III. ENVIRONMENTAL COST ADJUSTMENT MECHANISM ("ECAM")

Q **PLEASE DESCRIBE THE ENVIRONMENTAL COST ADJUSTMENT MECHANISM ("ECAM") PROPOSED BY MAWC.**

A MAWC is proposing an ECAM to recover prudently incurred capital costs and expenses that are a result of meeting compliance requirements of federal, state and local environmental laws, rules, or regulations.[5] The proposed ECAM would allow

[5]Direct Testimony of Kevin Dunn at 22.

MAWC to increase, or decrease, rates up to two times per year.[6] As it is proposed, rate increases resulting from the ECAM would be capped at 2.5% of operating revenues.[7]

Q WOULD THE ECAM HAVE AN IMPACT ON MAWC'S BUSINESS RISK?

A Yes. As it is proposed, the ECAM would effectively reduce MAWC's business risk. The proposed ECAM would allow MAWC to increase rates based on a single issue of its overall cost of service. The ECAM would be implemented without any regard to potentially offsetting conditions such as increasing revenues (growing customer base or increased revenues due to weather), or a decline in other cost of service items.

Q WHY WOULD THE IMPLEMENTATION OF THE ECAM REDUCE MAWC'S BUSINESS RISK?

A It essentially improves the cost recovery probability for MAWC. Specifically, it allows for changes outside the general rate case format to better ensure full cost recovery. At the same time, however, it increases rate instability for customers. That is, customers will experience rate increases outside a general rate case without a full consideration of MAWC's cost of service. As such, the ECAM does not eliminate the cost recovery risk. Rather, it simply shifts it from investors to customers.

[6]Missouri Department of Economic Development, 4 CSR 240-50.050, at 5.
[7]*Id.*

Q IF THE COMMISSION WERE TO ADOPT THE ECAM AS IT IS PROPOSED, WOULD THAT HAVE AN IMPACT ON YOUR RECOMMENDED RETURN ON EQUITY?

A Yes. My recommended range and return on equity are based on MAWC's current business and financial risks as they stand today without an ECAM. As I previously described, the ECAM will reduce the overall risk profile of MAWC, and therefore, an authorized return on equity in the lower half of my recommended range is warranted.

Q WHAT RANGE OF RETURN ON EQUITY ADJUSTMENTS SHOULD THE COMMISSION CONSIDER IF IT IMPLEMENTS THE ECAM?

A An appropriate reduction of the return on equity cannot be measured until there is market evidence of how investors will respond to the revised regulatory mechanisms. Therefore, I recommend the Commission stay within my recommended return on equity range developed in this case based on existing regulatory mechanisms. However, if the ECAM is awarded, I recommend the Commission award a return on equity below the midpoint of my recommended range as I have proposed in this proceeding.

IV. RATE OF RETURN

IV.A. Utility Industry Market Outlook

Q PLEASE DESCRIBE THIS SECTION OF YOUR TESTIMONY.

A I begin my estimate of a fair return on equity for MAWC by reviewing the market's assessment of water utility industry investment risk, and credit standing. I used this information to develop a sense of the market's perception of the risk characteristics of water utility investments in general, which is then used to produce a refined estimate

of the market's return requirement for assuming investment risk similar to MAWC's utility operations.

Q PLEASE DESCRIBE THE CREDIT RATING OUTLOOK FOR REGULATED UTILITIES.

A Utilities' credit ratings have improved over the recent past and the credit outlook according to credit rating agencies is Stable. Further, credit analysts have observed that utilities currently have strong access to capital at attractive pricing (i.e., low capital costs).

Standard & Poor's ("S&P") recently published a report titled "The Outlook For U.S. Regulated Utilities Remains Stable On Increasing Capital Spending And Robust Financial Performance." In that report, S&P noted the following:

> **Capital Spending Will Grow**
>
> Consistent with the trend over the past 10 years, we expect that utility company capital spending will continue to grow (see related article "U.S. Regulated Electric Utilities' Annual Capital Spending Is Poised To Eclipse $100 Billion," July 29, 2014). We project that capital spending will reach an all-time high of about $95 billion in 2014, reflecting growing funding needs for environmental compliance projects and new transmission investments. For 2015-2016, we expect capital spending overall to slow somewhat, but transmission investments to continue to grow to address reliability, accommodate new generation, and integrate renewable energy projects into the grid. The slowdown in the next few years is due to environmental compliance-related capital spending that reflects the completion of [sic] the necessary projects for much of coal-fired generation to meet the existing U.S. Environmental Protection Agency's (EPA) Mercury and Air Toxics Standards (MATS). Beginning in 2017, we expect the industry's generation and overall capital spending needs to pick up significantly, consistently exceeding $100 billion annually. This hike reflects some utilities' decisions to proactively boost lower carbon-intensive generation capital spending in order to meet the EPA's recently announced proposed carbon pollution rules.

* * *

INDUSTRY RATINGS OUTLOOK: STABLE

> Our outlook on the regulated utility sector, which encompasses electric, natural gas, and water companies, is stable with a slightly positive bias, with about 20% of companies in the sector having a positive outlook. The positive bias is not industrywide, rather it is the result of certain issuers undertaking actions that can benefit their credit profiles, a trend that has been making its way through the industry over the past few years. We have seen companies, when opportune, endeavor to reduce business risk while maintaining or slightly enhancing their financial profiles. Overall, our fundamental view of the sector is a stable one, supported by the essential nature of the services provided, making the companies somewhat insensitive to economic fluctuations; the rate-regulated nature of the business, which lends a measure of stability and predictability to cash flow generation; and the generally supportive posture of regulators toward cost recovery of incremental investments facilitated by the ongoing low power prices.[8]

Similarly, Fitch states:

> **Stable Sector Outlook:** Fitch Ratings' stable outlook for the U.S. Utilities, Power and Gas (UPG) sector reflects modest recovery in electricity sales after three years of stagnant growth. The recently observed positive momentum in industrial sales could sustain in line with the broader economic recovery and potentially spill over to other sectors. This is welcome news for electric utilities wrestling with structural headwinds posed by energy efficiency and distributed generation, and pressure on retail prices as costs are spread over declining units of sales.
>
> * * *
>
> **Divergence in Subsector Rating Outlook**
> The outlook for electric and gas utilities and utility parent companies is stable given the backdrop of gradual economic recovery, low inflation and subdued interest rates, and stable commodity prices. Issuer Default Ratings should remain on the cusp of 'BBB+' to 'A–', with more than 90% of debt issuances being rated in the 'A' category. Long-term debt instrument ratings of Fitch's entire universe of regulated utilities carry investment-grade ratings, a testament to the sound credit profile of the industry. The outlook for gencos is negative, reflecting poor sector fundamentals, including weak electricity demand and low power prices. Affiliated gencos generally have investment-grade ratings and may be under greater rating pressure. Recent consolidation among

[8] *Standard & Poor's RatingsDirect*: "Industry Report Card: The Outlook For U.S. Regulated Utilities Remains Stable On Increasing Capital Spending And Robust Financial Performance," December 16, 2014, at 4, emphasis added.

independent gencos has added scale and diversity, and is a credit positive.[9]

Moody's recent comments on the U.S. Utility Sector state as follows:

> Our outlook for the US regulated utilities industry is stable. This outlook reflects our expectation for the fundamental business conditions in the industry over the next 12 to 18 months.
>
> » **Regulatory support is the most important driver of our stable outlook.** Our stable outlook for the US regulated utility industry is based on our expectation that regulators will continue to help utilities recover costs and maintain stable cash flow, such that the ratio of cash flow from operations (CFO) to debt will remain close to 20%, on average, for the industry.
>
> » **Capital spending will decline in 2015, which reduces borrowing needs.** The credit profiles of large, integrated utilities that generate, transmit and distribute power will benefit from a drop in capital spending in 2015, because most of the heavy capital expenditures for environmental compliance have been made. This will reduce the industry's debt needs and stabilize financial metrics, at least for the next two years.[10]

Q PLEASE DESCRIBE THE CREDIT RATING OUTLOOK FOR REGULATED WATER UTILITIES.

A Credit rating agencies continue to rate the water utility industry as relatively low-risk stable investments. For example, S&P states the following:

> **Industry Economic And Ratings Outlook:**
>
> **U.S. Regulated Utilities To Continue On Stable To Modestly Improving Trajectory**
>
> Standard & Poor's Ratings Services' believes the outlook for creditworthiness in the U.S. investor-owned regulated electric, gas, and water utility sectors for the remainder of 2013 and into 2014 will remain stable or even modestly strengthen. We can trace this trend to modestly improving economic considerations, the essential nature of the services utilities provide, generally responsive regulatory decisions

[9] *Fitch Ratings*: "2015 Outlook: U.S. Utilities, Power and Gas," December 16, 2014, at 1-2, emphasis added.

[10] *Moody's Investors Service*: "2015 Outlook – US Regulated Utilities: Regulatory Support Drives Our Stable Outlook," December 15, 2014, at 1, emphasis added.

(including automatic provisions that allow that for the timely recovery in rates of commodity prices, environmental-compliance costs, and other expenses), effective management of regulatory risk, credit-supportive actions by utility managements, and improving financial measures. In addition, the utility industry enjoys relatively easy access to debt and equity capital markets.[11]

Similarly, in a more recent report, S&P states:

> Standard & Poor's Ratings Services continues to maintain high-investment-grade ratings on most U.S. regulated water utilities (USRWUs) even though we estimate these companies' capital spending will exceed more than $2 billion in capital spending annually by 2020. We've identified three key areas that we expect will likely affect USRWUs' ability to manage regulatory and operating risks in coming years: Regulatory lag, drought, and declining sales.
>
> USRWUs have fared well thus far in managing these risks. And this is reflected in USRWU ratings, which compare favorably to ratings for regulated gas and electric utilities (see chart 1). Nevertheless, USRWUs will continue to confront these three aforementioned issues, which could likely affect their credit quality over the long term. In evaluating these risks, we've considered how regulated water utilities have managed to preserve their high-investment-grade ratings and how they are likely to cope in the future.[12]

As outlined by S&P above, the water utility industry is regarded as a stable investment with relatively low-risk investment characteristics. S&P also notes that regulated utilities enjoy ready access to low-cost capital to fund their capital programs.

Further, S&P states that water utility risk is lower than electric and gas utilities:

> **Key Rating Factors For Water Companies Around The World**
>
> Standard & Poor's Ratings Services views the overall business risk of the highly rated water utility sector as generally being lower than that of electric and gas utilities. This is mainly due to a mostly favorable regulatory environment, a lack of competition from other water utilities, and relatively low

[11] *Standard & Poor's RatingsDirect*: "Industry Economic and Ratings Outlook: U.S. Regulated Utilities To Continue On Stable to Modestly Improving Trajectory," July 23, 2013 at 2, emphasis added.

[12] *Standard & Poor's RatingsDirect*: "U.S. Regulated Water Utilities' Credit Quality Remains Buoyant, But Key Risks Remain That Could Weigh It Down," April 30, 2015 at 2, emphasis added.

operating risk. These positive characteristics exist throughout the universe of rated water utilities, which mainly includes the U.S. and Europe, but also parts of Latin America as well as Australia, New Zealand, Korea, and South Africa.[13]

IV.B. MAWC's Investment Risk

Q PLEASE DESCRIBE MAWC'S INVESTMENT RISK.

A The market assessment of MAWC's investment risk is best described by credit rating analysts' reports. MAWC issued tax exempt senior secured debt with a credit rating of AA+.[14] Its parent company, American Water Works Company ("AWW"), has S&P and Moody's corporate credit ratings of A+ and A3, respectively. MAWC's corporate bonds are issued by its affiliate, American Water Capital Corp. ("AWCC"). Both credit rating agencies have a "Stable" outlook for AWW. In fact, on May 7, 2015, AWW and its subsidiaries were upgraded. Specifically, S&P states:

> **Rationale**
>
> The upgrade reflects the continued improvement in cash flow and leverage measures, primarily as a result of the company's improved management of regulatory risk along with the continued execution of its cost management initiative, which provides for incremental stability and certainty in cash flow generation. We expect that the company will continue its relatively conservative financial policies to maintain its credit measures.
>
> We base our rating on AWK on our assessment of its "excellent" business risk profile and "intermediate" financial risk profile. The company serves approximately 3.2 million water and wastewater customers across 16 states. Based on EBITDA, we consider AWK's operations about 95% regulated and 5% unregulated operations. While we view the unregulated businesses as having higher business risk compared with the regulated operations, we also recognize that AWK's unregulated businesses marginally affect the company's business risk profile because of its modest expected capital requirements, affiliation with its regulated service jurisdictions, and lower-risk service contracts.

[13] *Standard & Poor's RatingsDirect*: "Key Rating Factors For Water Companies Around The World," July 17, 2006 at 2.

[14] *Standard & Poor's RatingsDirect*: "American Water Works Co. Inc.," July 22, 2014 at 11.

> The "excellent" business risk profile reflects the company's lower-risk rate-regulated water and wastewater distribution business.[15]

S&P states as follows about AWCC:

> Rating Action
>
> On May 7, 2015, Standard & Poor's Ratings Services raised its issuer credit ratings on regulated water utility company American Water Works Co Inc. (AWK) and subsidiaries American Water Capital Corp. (AWCC), New Jersey-American Water Co., and Pennsylvania-American Water Co. to 'A' from 'A-'. The outlook is stable.
>
> At the same time, we are raising our senior unsecured issue rating on American Water Capital Corp. to 'A' from 'A-', our senior secured issue ratings on New Jersey-American Water Co. and Pennsylvania American Water Co. to 'A+' from 'A', and our short-term rating on AWK and American Water Capital Corp. to 'A-1' from 'A-2'.[16]

Moody's states the following concerning AWW and AWCC credit ratings:

> New York, August 07, 2015 -- Moody's Investors Service, ("Moody's") today upgraded the long-term ratings of American Water Works Company, Inc. (American Water, or AWK; A3 issuer rating) and its financing subsidiary American Water Capital Corp. (AWCC; A3 senior unsecured). Moody's also affirmed AWCC's commercial paper rating at P-2, along with affirming the ratings of New Jersey-American Water Company (NJ-AWC; see debt list below) and Pennsylvania-American Water Company (PAWC; see debt list below). The rating outlook for AWK, AWCC, NJ-AWC and PAWC is stable.[17]
>
> "The outlook change for American Water reflects our expectation for a sustained improvement in the financial credit ratios, including a ratio of funds from operations to debt" said Assistant Vice President Ryan Wobbrock. "American Water's geographic and regulatory diversity provides a path to achieve a ratings level on par with its largest subsidiaries in New Jersey and Pennsylvania" Wobbrock added.
>
> AWK's financial profile improvement is driven by enhanced cost recovery provisions throughout most of its regulated jurisdictions and through strong cost mitigation efforts. For example, the company's FFO / Net Debt percentage has increased each year since 2010, from 12.7% in 2010 to 17.8% in 2014. While the company has benefitted from generous federal tax policies that temporarily boost cash flow,

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[15] *Standard & Poor's RatingsDirect*: "Research Update: American Water Works Co. Inc. And Subsidiaries Ratings Raised To 'A' From 'A-' On Improved Financial Measures," May 7, 2015 at 3, emphasis added.

[16] *Id.* at 2, emphasis added.

[17] *Moody's Investors Service*: "Rating Action: Moody's Upgrades American Water to A3," August 7, 2015, emphasis added.

Moody's expects that better cost recovery (e.g., revenue decoupling and infrastructure trackers) will support improving financial metrics on an ongoing basis.

AWK's rating reflects its size, scale and diversity that results from regulated utility operations across 16 states. This is rather unique in the industry, as most US water utilities are smaller, and have a higher degree of geographic and regulatory concentration. For AWK, consolidated operations benefit from numerous revenue and cash flow streams, which help protect AWK's financial position from the potential of a negative regulatory outcome in any one jurisdiction.[18]

IV.C. MAWC's Proposed Capital Structure

Q WHAT IS MAWC'S PROPOSED CAPITAL STRUCTURE?

A MAWC's proposed capital structure is shown below in Table 1. This capital structure is sponsored by MAWC witness Scott Rungren. Mr. Rungren proposes a capital structure for the pro forma period ending January 31, 2016.

TABLE 1

MAWC's Proposed Capital Structure
(January 31, 2016)

Description	Weight
Long-Term Debt	47.51%
Preferred Stock	0.12%
Common Equity	52.37%
Total	100.00%

Source: Rungren Direct, Schedule SWR-1, page 1.

[18] *Moody's Investors Service*: "Rating Action: Moody's Changes American Water Works Outlook to Positive from Stable," April 22, 2015.

Q **IS MAWC'S PROPOSED CAPITAL STRUCTURE REASONABLE?**

A No. Mr. Rungren's proposed capital structure for MAWC contains considerably more common equity than MAWC's capital structure used in its last rate case. MAWC's last rate case was in 2012, and in that case the parties settled on a capital structure which included a common equity ratio of 50.57%.[19] At the time of MAWC's last rate case, its parent company's (AWW) common equity ratio total capital was about 46.1%. AWW's common equity ratio at year-end 2014 was 47.4%, and its *Value Line* projected common equity ratio over the period 2018-2020 is 47.0%.[20] Because MAWC's parent company's capital structure is largely the capital structure that supports its bond rating, and the bond rating of AWCC, it is important to note that the parent company's capital structure is largely the same today as it was in 2012.

Again, this is significant because AWW's and AWCC's bond ratings have been upgraded since MAWC's last rate case. This is a clear indication that the capital structure at the parent company has supported strong and improving credit standing. As such, the capital structure previously approved for MAWC contributed to the capital structure at the parent company in its last rate case which was a strong investment grade bond rating. Increasing the common equity ratio in this case as proposed by Mr. Rungren will unnecessarily increase MAWC's claimed revenue requirement, without producing measurable benefits to MAWC's retail customers. Therefore, Mr. Rungren's proposal to increase the common equity ratio relative to MAWC's last rate case should be rejected.

[19] Institutional Investors Presentation, November 2015 at 36,.
[20] *The Value Line Investment Survey*, AWW, October 16, 2015.

Q WHY WOULD A CAPITAL STRUCTURE TOO HEAVILY WEIGHTED WITH COMMON EQUITY UNNECESSARILY INCREASE MAWC'S COST OF SERVICE IN THIS PROCEEDING?

A A capital structure too heavily weighted with common equity unnecessarily increases MAWC's claimed revenue deficiency because common equity is the most expensive form of capital and is subject to income tax expense. For example, if MAWC's authorized return on equity is set at 9.0%, the revenue requirement cost to customers would be approximately 14.4%, or 9.0% adjusted by a tax revenue conversion factor of approximately 1.6x. In contrast, the cost of debt capital is not subject to an income tax expense. MAWC's current marginal cost of debt is around 5.50%. Common equity is more than twice as expensive on a revenue requirement basis than is debt capital.

A reasonable mix of debt and equity (50% debt/50% equity) is necessary in order to balance MAWC's financial risk, support an investment grade credit rating, and permit MAWC access to capital under reasonable terms and prices. However, a capital structure too heavily weighted with common equity will unnecessarily increase its cost of capital and revenue requirement for ratepayers.

Q PLEASE COMPARE AWW FROM MAWC'S LAST RATE CASE TO THIS CASE.

A As noted above, AWW's current investment grade bond rating from both Moody's and S&P is "Stable." Indeed, as noted above, S&P regards AWW's cash flow to be stable largely due to its regulated utility operations, and supportive regulatory treatment in its various jurisdictions. Further, AWW was upgraded twice since the Commission authorized a common equity ratio of 50.57%. On May 24, 2013 S&P increased the Company's credit rating from BBB+ to A- and on May 7, 2015 the credit rating agency

further increased AWW's credit rating to A. Importantly, S&P bases its assessment on the Company's most recent financial position. S&P estimated AWW's equity ratio over the last three years to be approximately 45%, as reported on S&P's Global Credit Portal, excluding off-balance sheet adjustment. Hence, a capital structure composed of approximately 45% (unadjusted) common equity has been adequate to support AWW's current bond rating with a "Stable" outlook.

I believe this is significant because it demonstrates the capital structure mix is adequate to support AWW's access to capital at reasonable terms and prices, while minimizing its cost to retail customers in various jurisdictions, including Missouri.

Q WOULD THE COMMISSION BE OBLIGATED TO MAKE DISALLOWANCES FOR MAWC'S COST OF SERVICE IF IT ACCEPTS YOUR CAPITAL STRUCTURE ADJUSTMENT IN THIS PROCEEDING?

A No. MAWC can modify its actual capital structure to reflect what the Commission finds appropriate for setting rates in this proceeding. Indeed, Mr. Rungren's workpapers clearly illustrate the flexibility and control MAWC has on its actual capital structure.

Specifically, Mr. Rungren projects a capital structure for MAWC by assuming a $30 million equity infusion, and a $20 million debt issuance to support the Company's capital program. While I understand that the equity infusion has already taken place, the Company can reverse or modify its capital structure to accommodate the capital structure weights found appropriate and reasonable by the Commission.

The Commission should find an appropriate rate-setting capital structure and MAWC can revise its capital structure by issuing a higher amount of debt and/or reversing the equity infusion of $30 million which the Company received from its

parent company in May 2015. If the capital additions are modified to reflect a $12 million equity infusion (rather than $30 million) and a $38 million debt issue (rather than $20 million), the resulting capital structure for MAWC will be in line with what the Commission approved in its last rate case, and which has helped to support a strong and improving investment grade bond rating for MAWC, and its capital affiliate, AWCC. Hence, MAWC can respond to the Commission's capital structure decision in this case by actually adjusting its capital structure.

Q WHAT IS YOUR PROPOSED CAPITAL STRUCTURE TO BE USED FOR RATEMAKING PURPOSES IN THIS CASE?

A My proposed capital structure is shown in Table 2 below.

TABLE 2

Gorman's Proposed Capital Structure
(January 31, 2016)

Description	Weight
Long-Term Debt	49.28%
Preferred Stock	0.12%
Common Equity	50.59%
Total	100.00%

Source: Schedule MPG-1, page 1.

Q **WILL YOUR PROPOSED CAPITAL STRUCTURE ALLOW MAWC TO MAINTAIN ITS FINANCIAL INTEGRITY?**

A Yes. My capital structure contains less common equity and more debt capital than MAWC's proposed capital structure. As discussed later in my testimony, my proposed capital structure will support the Company's financial integrity for regulated utility operations, its current strong investment grade bond rating and will mitigate cost to customers.

Q **HAVE YOU REVISED THE COMPANY'S EMBEDDED COST OF DEBT?**

A Yes. Increasing the amount of debt issuance from $20 million to $38 million reduced the Company's proposed cost of debt from 5.47% to 5.42%. This is based on a MAWC assumed interest rate for the new debt issue as reflected in its filing. This debt cost can be updated at true-up.

V. RETURN ON EQUITY

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

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

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

A In general, determining a fair cost of common equity for a regulated utility has been framed by two hallmark decisions of the U.S. Supreme Court: Bluefield Water Works

& Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679 (1923) and Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

These decisions identify the general standards to be considered in establishing the cost of common equity for a public utility. Those general standards provide 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.

Q PLEASE DESCRIBE THE METHODS YOU HAVE USED TO ESTIMATE MAWC'S COST OF COMMON EQUITY.

A I have used several models based on financial theory to estimate MAWC's cost of common equity. These models are: (1) a constant growth Discounted Cash Flow ("DCF") model using consensus analysts' growth rate projections; (2) a constant growth DCF using sustainable growth rate estimates; (3) a multi-stage growth DCF model; (4) a Risk Premium model; and (5) a Capital Asset Pricing Model ("CAPM"). I have applied these models to water and gas groups of publicly traded utilities that have investment risk similar to MAWC's.

Q WILL YOU APPLY THESE MODELS DIRECTLY TO MAWC?

A No. I applied these models to water and gas groups of publicly traded companies that reasonably approximate the investment risk of MAWC. MAWC is not a publicly traded company and therefore these models cannot be applied directly to MAWC.

V.A. Risk Proxy Groups

Q HOW DID YOU SELECT A WATER UTILITY PROXY GROUP SIMILAR IN INVESTMENT RISK TO MAWC TO ESTIMATE ITS CURRENT MARKET COST OF EQUITY?

A I relied on a water utility proxy group that I determined to be comparable in investment risk to MAWC. My recommended water utility proxy group is the same utility proxy group used by MAWC witness Dr. Morin to estimate MAWC's return on equity. However, I excluded Consolidated Water because it is not rated by S&P and Moody's. Further, this company has a *Value Line* common equity ratio of 100% and was also excluded from Mr. Rungren's analysis.

In addition, I also developed a gas utility proxy group, comparable to MAWC. My gas utility proxy group was developed by starting with the gas companies followed by *Value Line.* Then, I excluded AGL Resources because it is involved in a significant merger transaction and excluded Chesapeake Utilities Corporation because it is not rated by S&P and Moody's.

Q WHY DID YOU RELY ON GAS UTILITIES AS A PROXY GROUP IN ESTIMATING MAWC'S COST OF EQUITY?

A I relied on a gas proxy group along with the water proxy group to better measure MAWC's cost of equity. This was necessary for several reasons. First, a gas proxy group's securities are more widely followed than are water utility stocks, and therefore the estimated cost of equity from a gas proxy group provides a more robust estimate of MAWC's current market cost of equity. Second, the assets capitalization and operations of gas and water utilities are very similar. Both utility groups' operations are dependent on large main investment and operations, infrastructure replacement

and upgrades, and reliability and safety compliance with state, local and federal regulations. The two groups produce a better investment risk proxy than only a water proxy group.

For these reasons, I believe these two proxy groups are reasonable to estimate the investment risk of MAWC.

Q PLEASE DESCRIBE WHY YOU BELIEVE YOUR WATER UTILITY PROXY GROUP IS REASONABLY COMPARABLE IN INVESTMENT RISK TO MAWC.

A The water proxy group is shown on page 1 of Schedule MPG-2. This proxy group has an average corporate credit rating from S&P of A+, which is identical to S&P's corporate credit rating for MAWC (AWW). The water proxy group's corporate credit rating from Moody's of A2 is one notch higher than MAWC's (AWW) rating from Moody's of A3.

The water proxy group has an average common equity ratio of 52.4% from AUS Utility Reports ("AUS") and 54.5% (excluding short-term debt) from *Value Line* for 2014. The water proxy group's common equity ratio is considerably higher than that of AWW with a *Value Line* projected common equity ratio in 2014 of approximately 47%. Despite the proxy group's considerably larger common equity ratio compared to AWW, I believe its overall risk assessment is reasonably comparable based on a direct comparison of the S&P and Moody's bond ratings.

I believe that my water proxy group reasonably approximates the investment risk of MAWC, and can be used to estimate a fair return on equity for MAWC.

Q **PLEASE DESCRIBE WHY YOU BELIEVE YOUR GAS UTILITY PROXY GROUP IS REASONABLY COMPARABLE IN INVESTMENT RISK TO MAWC.**

A The gas proxy group is shown on page 2 of Schedule MPG-2. This proxy group has an average corporate credit rating from S&P of A, which is one notch lower than S&P's corporate credit rating for MAWC (AWW) of A+. The gas proxy group's corporate credit rating from Moody's of A2 is one notch higher than MAWC's (AWW) rating from Moody's of A3.

The gas proxy group has an average common equity ratio of 46.7% from AUS and 51.6% (excluding short-term debt) from *Value Line* in 2014. The gas proxy group's common equity ratio is comparable to AWW's projected common equity ratio of 47% from *Value Line*. This indicates that the gas proxy group has reasonably comparable financial risk to the Company.

I believe that my gas proxy group reasonably approximates the investment risk of MAWC, and can be used to estimate a fair return on equity for MAWC.

V.B. Discounted Cash Flow 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 investor's required rate of return or cost of capital. This model is expressed mathematically as follows:

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

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 annual "constant growth" DCF model.

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

A As shown in 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 I relied on the average of the weekly high and low stock prices of the utilities in the proxy groups over a 13-week period ending on November 20, 2015. An average stock price is less susceptible to market price variations than a spot price. Therefore, 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 reflects a period that is still short enough to contain data that reasonably reflect current market expectations, but the period is not so short as to be susceptible to market price variations that may not reflect the stock's long-term value. In my judgment, a 13-week average stock price is a reasonable balance between the need to reflect current market expectations and the need 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 *Value Line*.[21] 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 CONSTANT GROWTH DCF MODEL?

A There are several methods that can be used to estimate the expected growth in dividends. However, regardless of the method, for purposes of determining the market-required return on common equity, one must attempt to estimate investors' consensus about what the dividend or earnings growth rate will be, and not what an individual investor or analyst may use to make individual investment decisions.

As predictors of future returns, security analysts' growth estimates have been shown to be more accurate than growth rates derived from historical data.[22] That is, assuming the market generally makes rational investment decisions, analysts' growth projections are more likely to influence investors' decisions which are captured in observable stock prices than growth rates derived only from historical data.

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 investor consensus dividend growth rate expectations. I used the average of analysts' growth rate estimates from three sources: Zacks, Yahoo! Finance and Reuters.

[21] *The Value Line Investment Survey*, September 4 and October 16, 2015.

[22] *See, e.g.*, David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management*, Spring 1989.

Q WHAT ARE THE GROWTH RATES YOU USED IN YOUR CONSTANT GROWTH DCF MODEL?

A The growth rates I used in my DCF analysis are shown on Schedule MPG-3. The average growth rates for my water and gas proxy groups are 6.30% and 5.79%, respectively.

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

A As shown on Schedule MPG-4, the average and median constant growth DCF returns for my water proxy group are 9.16% and 8.02%, respectively. The average and median constant growth DCF returns for my gas proxy group are 9.18% and 9.30%, respectively.

Q DO YOU HAVE ANY COMMENTS ON THE RESULTS OF YOUR CONSTANT GROWTH DCF ANALYSIS?

A Yes. The constant growth DCF analyses for my water and gas proxy groups are based on long-term sustainable growth rates of 6.30% and 5.79%, respectively. The growth rates are approximately 140-190 basis points higher than my estimate of a maximum long-term sustainable growth rate of 4.4%, which I discuss later in this testimony. Consequently, I believe my constant growth DCF analyses produce an overstated return estimate for MAWC.

Q HOW DID YOU ESTIMATE A MAXIMUM LONG-TERM SUSTAINABLE GROWTH RATE?

A A long-term sustainable growth rate for a utility stock cannot exceed the growth rate of the economy in which it sells its goods and services. Hence, a reasonable proxy

for the long-term maximum sustainable growth rate for a utility investment is best proxied by the projected long-term Gross Domestic Product ("GDP"). *Blue Chip Economic Indicators* projects that over the next 5 and 10 years, the U.S. nominal GDP will grow in the range of 4.4% to 4.3%. As such, the average growth rate over the next 10 years is around 4.4%, which I believe is a reasonable proxy of long-term sustainable growth.[23]

I discuss in my multi-stage growth DCF analysis academic and investment practitioner support for accepting the projected long-term GDP growth outlook as a maximum sustainable growth rate projection. Hence, recognizing the long-term GDP growth rate as a maximum sustainable growth is logical, and is generally consistent with academic and economic practitioner accepted practices.

V.C. Sustainable Growth DCF

Q PLEASE DESCRIBE HOW YOU ESTIMATED A SUSTAINABLE LONG-TERM GROWTH RATE FOR YOUR SUSTAINABLE GROWTH DCF MODEL.

A A sustainable growth rate is based on the percentage of the utility's earnings that is retained and reinvested in utility plant and equipment. These reinvested earnings increase the earnings base (rate base). Earnings grow when plant funded by reinvested earnings is put into service, and the utility is allowed to earn its authorized return on such additional rate base investment.

The internal growth methodology is tied to the percentage of earnings retained in the company and not paid out as dividends. The earnings retention ratio is 1 minus the dividend payout ratio. As the payout ratio declines, the earnings retention ratio

[23] *Blue Chip Economic Indicators*, October 10, 2015, at 14.

increases. An increased earnings retention ratio will fuel stronger growth because the business funds more investments with retained earnings.

The payout ratios of the proxy group are shown in my Schedule MPG-5. These dividend payout ratios and earnings retention ratios then can be used to develop a sustainable long-term earnings retention growth rate. A sustainable long-term earnings retention ratio will help gauge whether analysts' current three- to five-year growth rate projections can be sustained over an indefinite period of time.

The data used to estimate the long-term sustainable growth rate is based on the Company's current market-to-book ratio and on *Value Line*'s three- to five-year projections of earnings, dividends, earned returns on book equity, and stock issuances.

As shown in Schedule MPG-6, pages 1 and 3, the average sustainable growth rates for the water and gas proxy groups using this internal growth rate model are 5.19% and 5.81%, respectively.

Q WHAT IS THE DCF ESTIMATE USING THESE SUSTAINABLE LONG-TERM GROWTH RATES?

A As shown my Schedule MPG-7, a sustainable growth DCF analysis produces water proxy group average and median DCF results for the 13-week period of 8.02% and 7.57%, respectively. The sustainable growth DCF analysis for the gas proxy group produces average and median results of 9.22% and 9.40%, respectively.

V.D. Multi-Stage Growth DCF Model

Q HAVE YOU CONDUCTED ANY OTHER DCF STUDIES?

A Yes. My first constant growth DCF 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 a period of high/low short-term growth can be followed by a change in growth to a rate that is more reflective of long-term sustainable growth. Hence, I performed a multi-stage growth DCF analysis to reflect this outlook of changing growth expectations.

Q WHY DO YOU BELIEVE GROWTH RATES CAN CHANGE OVER TIME?

A Analyst projected growth rates over the next three to five years will change as utility earnings growth outlooks change. Utility companies go through cycles in making investments in their systems. When utility companies are making large investments, their rate base grows rapidly, which in turn accelerates earnings growth. Once a major construction cycle is completed or levels off, growth in the utility rate base slows, and its earnings growth slows from an abnormally high three- to five-year rate to a lower sustainable growth rate.

As major construction cycles extend over longer periods of time, even with an accelerated construction program, the growth rate of the utility will slow simply because rate base growth will slow, and the utility has limited human and capital resources available to expand its construction program. Therefore, the three- to five-year growth rate projection should be used as a long-term sustainable growth rate but not without making a reasonable informed judgment to determine whether it

considers the current market environment, the industry, and whether the three- to five-year growth outlook is sustainable.

Q PLEASE DESCRIBE YOUR MULTI-STAGE GROWTH DCF MODEL.

A The multi-stage growth DCF model reflects the possibility of non-constant growth for a company over time. The multi-stage growth DCF model reflects three growth periods: (1) a short-term growth period, which consists of the first five years; (2) a transition period, which consists of the next five years (6 through 10); and (3) a long-term growth period, starting in year 11 through perpetuity.

For the short-term growth period, I relied on the consensus analysts' growth projections described above in relationship to my constant growth DCF model. For the transition period, the growth rates were reduced or increased by an equal factor, which reflects the difference between the analysts' growth rates and the long-term sustainable growth rate. For the long-term growth period, I assumed each company's growth would converge to the maximum sustainable long-term growth rate.

Q WHY IS THE GDP GROWTH PROJECTION A REASONABLE PROXY FOR THE MAXIMUM SUSTAINABLE LONG-TERM GROWTH RATE?

A Utilities cannot indefinitely sustain a growth rate that exceeds the growth rate of the economy in which they sell services. Utilities' earnings/dividend growth is created by increased utility investment or rate base. Such investment, in turn, is driven by service area economic growth and demand for utility service. 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.

Q IS THERE RESEARCH THAT SUPPORTS YOUR POSITION THAT, OVER THE LONG TERM, A COMPANY'S EARNINGS AND DIVIDENDS CANNOT GROW AT A RATE GREATER THAN THE GROWTH OF THE U.S. GDP?

A Yes. This concept is supported in published analyst literature and academic work. Specifically, in a textbook entitled "Fundamentals of Financial Management," published by Eugene Brigham and Joel F. Houston, the authors state as follows:

> The constant growth model is most appropriate for mature companies with a stable history of growth and stable future expectations. Expected growth rates vary somewhat among companies, but dividends for mature firms are often expected to grow in the future at about the same rate as nominal gross domestic product (real GDP plus inflation).[24]

Q IS THERE ANY ACTUAL INVESTMENT HISTORY THAT SUPPORTS THE NOTION THAT THE CAPITAL APPRECIATION FOR STOCK INVESTMENTS WILL NOT EXCEED THE NOMINAL GROWTH OF THE U.S. GDP?

A Yes. This is evident by a comparison of the compound annual growth of the U.S. GDP compared to the geometric growth of the U.S. stock market. Morningstar measures the historical geometric growth of the U.S. stock market over the period 1926-2014 to be approximately 5.9%. During this same time period, the U.S. nominal compound annual growth of the U.S. GDP was approximately 6.2%.[25]

As such, the compound geometric growth of the U.S. nominal GDP has been higher but comparable to the nominal growth of the U.S. stock market capital appreciation. This historical relationship indicates the U.S. GDP growth outlook is a conservative estimate of the long-term sustainable growth of U.S. stock investments.

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[24] *"Fundamentals of Financial Management,"* Eugene F. Brigham and Joel F. Houston, Eleventh Edition 2007, Thomson South-Western, a Division of Thomson Corporation at 298, emphasis added.

[25] *Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook* inflation rate of 3.0% at 91, and U.S. Bureau of Economic Analysis, August 27, 2015.

Q HOW DID YOU DETERMINE A SUSTAINABLE LONG-TERM GROWTH RATE THAT REFLECTS THE CURRENT CONSENSUS OUTLOOK OF THE MARKET?

A I relied on the consensus analysts' projections of long-term GDP growth. *Blue Chip Economic Indicators* publishes consensus economists' GDP growth projections twice a year. These consensus analysts' GDP growth outlooks are the best available measure of the market's assessment of long-term GDP growth. These analyst projections reflect all current outlooks for GDP, as reflected in analyst projections, and are likely the most influential on investors' expectations of future growth outlooks. The consensus economists' published GDP growth rate outlook is 4.4% to 4.3% over the next 10 years.[26]

Therefore, I propose to use the consensus economists' projected 5- and 10-year average GDP consensus growth rates of 4.4% and 4.3%, respectively, as published by *Blue Chip Economic Indicators*, as an estimate of long-term sustainable growth. *Blue Chip Economic Indicators* projections provide real GDP growth projections of 2.3% and 2.2%, and GDP inflation of 2.1%,[27] over the 5-year and 10-year projection periods, respectively. These consensus GDP growth forecasts represent the most likely views of market participants because they are based on published consensus economist projections.

Q DO YOU CONSIDER OTHER SOURCES OF PROJECTED LONG-TERM GDP GROWTH?

A Yes, and these sources corroborate my consensus analysts' projections, as shown below in Table 3.

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[26] *Blue Chip Economic Indicators*, October 10, 2015, at 14.
[27] *Id.*

TABLE 3

GDP Forecasts

Source	Term	Real GDP	Inflation	Nominal GDP
EIA – Annual Earnings Outlook[28]	25 Yrs	2.4%	1.8%	4.2%
Congressional Budget Office[29]	10 Yrs	2.6%	1.8%	4.5%
Moody's Analytics[30]	30 Yrs	2.1%	2.0%	4.2%
Social Security Administration[31]	30-75 Yrs			4.5%
The Economist Intelligence Unit[32]	15 Yrs	2.2%	2.0	4.2%
Blue Chip Economic Indicators	10 Yrs	2.3%	2.1%	4.4%

The U.S. EIA in its *Annual Energy Outlook* projects real GDP out to 2040. In its 2015 Annual Report, the EIA projects real GDP through 2040 to be in the range of 1.8% to 2.9%, with an approximate midpoint or reference case of 2.4%, and a long-term GDP price inflation projection of 1.8%. The EIA data supports a long-term nominal GDP growth outlook of 3.6% to 4.8%, with a midpoint of 4.2%.[28]

Also, the Congressional Budget Office ("CBO") makes long-term economic projections. The CBO is projecting real GDP growth in the range of 2.1% to 3.0%, with a midpoint of 2.6% during the next 10 years, with a GDP price inflation outlook of 1.8%.[29] The CBO's real GDP and GDP inflation projections produce nominal GDP projections of 4.5%, which is comparable to the consensus economists.

Moody's Analytics also makes long-term economic projections. In its recent 30-year outlook to 2044, Moody's Analytics is projecting real GDP growth of 2.1%

[28] *DOE/EIA Annual Energy Outlook 2015 With Projections to 2040*, April 2015, at 4 and A-38.
[29] *CBO: The Budget and Economic Outlook:* Fiscal Years 2015 to 2025, January 2015, at 154.

with GDP inflation of 2.0%.[30] Moody's projection of real GDP and GDP inflation is slightly below the consensus economists. Based on these projections, Moody's is projecting nominal GDP growth of 4.2% over the next 30 years.

The Social Security Administration makes long-term economic projections out to 2090. The Social Security Administration's nominal GDP projections, under its intermediate cost scenario for 30 and 75 years, ranges from 4.5% to 4.4%, respectively.[31] These projections are in line with the consensus economists.

The Economist Intelligence Unit, a division of *The Economist* and a third-party data provider to SNL Financial, makes a long-term economic projection out to 2030.[32] The Economist Intelligence Unit is projecting real GDP growth of 2.2% with an inflation rate of 2.0% out to 2030. The real GDP growth projection is in line with the consensus economists, while projected inflation is slightly higher. The long-term nominal GDP projection based on these outlooks is approximately 4.2%.

The real GDP and nominal GDP growth projections made by these independent sources support the use of the consensus economist 5-year and 10-year projected GDP growth outlooks as a reasonable estimate of market participants' long-term GDP growth outlooks.

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

A I relied on the same 13-week average stock prices and the most recent quarterly dividend payment data discussed above. For stage one growth, I used the consensus analysts' growth rate projections discussed above in my constant growth

[30] www.economy.com, *Moody's Analytics Forecast*, July 6, 2015.
[31] www.ssa.gov, "2015 OASDI Trustees Report," Table VI.G4.
[32] *SNL Financial, Economist Intelligence Unit*, downloaded on September 10, 2015.

DCF model. The first stage growth covers the first five years, consistent with the term of the analyst growth rate projections. The second stage, or transition stage, begins in year 6 and extends through year 10. The second stage growth transitions the growth rate from the first stage to the third stage using a linear trend. For the third stage, or long-term sustainable growth stage, which starts in year 11, I used a 4.4% long-term sustainable growth rate, which is based on the consensus economists' long-term projected nominal GDP growth rate.

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

A As shown in Schedule MPG-8, the average and median DCF returns on equity for my water proxy group using the 13-week average stock price are 7.60% and 7.44%, respectively. The average and median DCF results for my gas proxy group based on this model are 8.04% and 7.92%, respectively.

Q PLEASE SUMMARIZE THE RESULTS FROM YOUR DCF ANALYSES.

A The results from my DCF analyses are summarized in Table 4 below:

TABLE 4

Summary of DCF Results

Description	Water Proxy Group Average	Water Proxy Group Median	Gas Proxy Group Average	Gas Proxy Group Median
Constant Growth DCF Model (Analysts' Growth)	9.16%	8.02%	9.18%	9.30%
Constant Growth DCF Model (Sustainable Growth)	8.02%	7.57%	9.22%	9.40%
Multi-Stage Growth DCF Model	7.60%	7.44%	8.04%	7.92%
Average	8.26%	7.68%	8.81%	8.87%

I concluded that my DCF studies support a return on equity of 8.8%, which is the approximate midpoint of my recommended DCF range of 8.3% to 9.3%.

V.E. 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 return to assume greater risk. Common equity investments have greater risk than bonds 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 or guarantee returns on common equity investments. Therefore, common equity securities are considered to be more risky than bond securities.

This risk premium model is based on two estimates of an equity risk premium. First, I estimated the difference between the required return on utility common equity investments and U.S. Treasury bonds. The difference between the required return on common equity and the Treasury bond yield is the risk premium. I estimated the risk premium on an annual basis for each year over the period 1986 through September 2015. The common equity required returns were based on regulatory commission-authorized returns for gas utility companies. I relied on authorized returns for gas utilities, rather than water utilities, because gas utility rate cases have outnumbered those for water utilities, and gas utilities are more widely followed by industry financial trade organizations. The source of my documents, Regulatory Research Associates, tracks electric and gas utilities' authorized returns on equity, but does not provide a similar service for water utilities. In my opinion, the authorized returns on gas utilities are a robust estimate for low-risk regulated utility operations such as gas and water

companies. It should also be noted that authorized returns are typically based on expert witnesses' estimates of the contemporary investor-required return.

The second equity risk premium estimate is based on the difference between regulatory commission-authorized returns on common equity and contemporary "A" rated utility bond yields by Moody's. I selected the period 1986 through September 2015 because public utility stocks consistently traded at a premium to book value during that period. This is illustrated on Schedule MPG-9, which shows that the market-to-book ratio since 1986 for the utility industry was consistently above a multiple of 1.0x. Over this 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. It further demonstrates that utilities were able to access equity markets without a detrimental impact on current shareholders.

Based on this analysis, as shown on Schedule MPG-10, the average indicated equity risk premium over U.S. Treasury bond yields has been 5.31%. On a 5-year rolling average basis, the range of equity risk premium ranged from 4.17% to 6.48%. On a 10-year rolling average basis, the equity risk premium ranged from 4.30% to 6.13%. Since the risk premium can vary depending upon market conditions and changing investor risk perceptions, I believe using an estimated range of risk premiums based on rolling averages over 5-year and 10-year periods provides the best method to measure the current return on common equity using this methodology.

As shown on Schedule MPG-11, the average indicated equity risk premium over contemporary Moody's utility bond yields was 3.93% over the period 1986

through September 2015. The indicated equity risk premium estimates based on this analysis fall in the range of 2.80% to 5.37% on a 5-year rolling average basis, and between 3.11% and 4.80% on a 10-year rolling average basis.

Q DO YOU BELIEVE THAT THESE EQUITY RISK PREMIUM ESTIMATES ARE BASED ON A TIME PERIOD THAT IS TOO LONG OR TOO SHORT TO DRAW ACCURATE CONCLUSIONS CONCERNING CONTEMPORARY MARKET CONDITIONS?

A No. The time period I use in this risk premium study is a generally accepted period to develop a risk premium study using "expectational" data.

Contemporary market conditions can change dramatically during the period that rates determined in this proceeding will be in effect. A relatively long period of time where stock valuations reflect premiums to book value is an indication that the authorized returns on equity and the corresponding equity risk premiums were supportive of investors' return expectations and provided utilities access to the equity markets under reasonable terms and conditions. Further, this time period is long enough to smooth abnormal market movement that might distort equity risk premiums. While market conditions and risk premiums do vary over time, this historical time period is a reasonable period to estimate contemporary risk premiums.

Alternatively, studies have recommended that use of "actual achieved investment return data" in a risk premium study should be based on long historical time periods. The studies find that achieved returns over short time periods may not reflect investors' expected returns due to unexpected and abnormal stock price performance. Short-term abnormal actual returns would be smoothed over time and the achieved actual investment returns over long time periods would approximate

investors' expected returns. Therefore, it is reasonable to assume that averages of annual achieved returns over long time periods will generally converge on the investors' expected returns.

My risk premium study is based on expectational data, not actual investment returns, and, thus, need not encompass a very long historical time period.

Q BASED ON HISTORICAL DATA, WHAT RISK PREMIUM HAVE YOU USED TO ESTIMATE MAWC'S COST OF COMMON EQUITY IN THIS PROCEEDING?

A The equity risk premium should reflect the relative market perception of risk in the utility industry today. I have gauged investor perceptions in utility risk today in Exhibit MPG-12. In Exhibit MPG-12, I show the yield spread between utility bonds and Treasury bonds over the last 36 years. As shown in this exhibit, the average utility bond yield spreads over Treasury bonds for "A" and "Baa" rated utility bonds for this historical period are 1.52% and 1.95%, respectively. The utility bond yield spreads over Treasury bonds for "A" and "Baa" rated utilities through September 2015 were 1.24% and 2.06%, respectively. The current average "A" rated utility bond yield spread over Treasury bond yields is now lower than the 36-year average spread. The current "Baa" rated utility bond yield spread over Treasury bond yields is comparable to, albeit somewhat higher than, the 36-year average spread.

A current 13-week average "A" rated utility bond yield of 4.35%, when compared to the current Treasury bond yield of 2.94% as shown in Exhibit MPG-13, page 1, implies a yield spread of around 140 basis points. This current utility bond yield spread is lower than the 36-year average spread for "A" rated utility bonds of 1.52%. The current spread for the "Baa" rated utility bond yield of 2.53% is higher than the 36-year average spread of 1.95%.

These utility bond yield spreads are evidence that the market perception of utility risk is about average relative to this historical time period and demonstrate that utilities continue to have strong access to capital in the current market.

Q HOW DID YOU ESTIMATE MAWC'S COST OF COMMON EQUITY WITH THIS RISK PREMIUM MODEL?

A I added a projected long-term Treasury bond yield to my estimated equity risk premium over Treasury yields. The 13-week average 30-year Treasury bond yield, ending November 20, 2015, was 2.94%, as shown in Exhibit MPG-13. *Blue Chip Financial Forecasts* projects the 30-year Treasury bond yield to be 3.80%, and a 10-year Treasury bond yield to be 3.10%.[33] Using the projected 30-year Treasury bond yield of 3.80%, and a Treasury bond risk premium of 4.17% to 6.48%, as developed above, produces an estimated common equity return in the range of 7.97% (3.80% + 4.17%) to 10.28% (3.80% + 6.48%). My risk premium estimates fall in the range of 7.97% to 10.28%.

I next added my equity risk premium over utility bond yields to a current 13-week average yield on "A" rated utility bonds for the period ending November 20, 2015, of 4.35%. Adding the utility equity risk premium of 2.80% to 5.37%, as developed above, to an "A" rated bond yield of 4.35%, produces a cost of equity in the range of 7.15% (4.35% + 2.80%) to 9.72% (4.35% + 5.37%).

[33] *Blue Chip Financial Forecasts*, November 1, 2015 at 2.

Q **WHAT IS YOUR RECOMMENDED RETURN FOR MAWC BASED ON YOUR RISK PREMIUM STUDY?**

A To be conservative, I am recommending more weight to the high-end risk premium estimates than the low-end. I state this because of the relatively low level of interest rates now, but relative upward movements of utility yields more recently. Hence, I propose to provide 60% weight to my high-end risk premium estimates and 40% to the low-end. Based on this methodology, my Treasury bond risk premium is 9.36%[34] and based on my utility bond risk premium I recommend a return of 8.69%.[35]

This methodology produces a return on equity in the range of 8.70% to 9.40%, with a midpoint of approximately 9.10%.

V.F. 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 rate of return for a security is equal to the risk-free rate, 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

[34](7.97% * 40%) + (10.28% * 60%) = 9.36%.
[35](7.15% * 40%) + (9.72% * 60%) = 8.69%.

can be eliminated by balancing the portfolio with securities that react in the 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 a diversified portfolio are non-diversifiable risks. Non-diversifiable 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 non-systematic risks. In a broad sense, systematic risks are market risks, and non-systematic risks are business 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 non-diversifiable risks. The beta is a measure of the systematic or non-diversifiable 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 As previously noted, *Blue Chip Financial Forecasts*' projected 30-year Treasury bond yield is 3.80%.[36] The current 30-year Treasury bond yield is 2.94%, as shown in Exhibit MPG-13. I used *Blue Chip Financial Forecasts*' projected 30-year Treasury bond yield of 3.80% for my CAPM analysis.

[36] *Blue Chip Financial Forecasts*, November 1, 2015 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, so 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, do include risk premiums related to unanticipated future inflation and interest rates. 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 1.0, 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 As shown in Exhibit MPG-14, the average *Value Line* beta estimate is 0.73 and 0.82 for the water and gas proxy groups, respectively.

Q HOW DID YOU DERIVE YOUR MARKET RISK PREMIUM ESTIMATE?

A I derived two market risk 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 (as represented by the 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.

Morningstar's *Stocks, Bonds, Bills and Inflation 2015 Classic Yearbook* estimates the historical arithmetic average real market return over the period 1926 to 2014 as 8.9%.[37] A current consensus analysts' inflation projection, as measured by the Consumer Price Index, is 2.3%.[38] Using these estimates, the expected market return is 11.40%.[39] The market risk premium then is the difference between the 11.40% expected market return, and my 3.80% risk-free rate estimate, or approximately 7.6%.

The historical estimate of the market risk premium was also estimated by Morningstar in *Stocks, Bonds, Bills and Inflation 2015 Classic Yearbook*. Over the period 1926 through 2014, Morningstar's study estimated that the arithmetic average of the achieved total return on the S&P 500 was 12.1%,[40] and the total return on long-term Treasury bonds was 6.10%.[41] The indicated market risk premium is 6.0% (12.1% - 6.1% = 6.0%). The average of my market risk premium estimates is 6.80% (6.0% to 7.6%).

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[37] *Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook* at 92.
[38] *Blue Chip Financial Forecasts*, November 1, 2015 at 2.
[39] { [(1 + 0.089) * (1 + 0.023)] – 1 } * 100.
[40] *Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook* at 91.
[41] *Id.*

Q **HOW DOES YOUR ESTIMATED MARKET RISK PREMIUM RANGE COMPARE TO THAT ESTIMATED BY MORNINGSTAR?**

A Morningstar's analysis indicates that a market risk premium falls somewhere in the range of 6.3% to 7.0%. My market risk premium falls in the range of 6.0% to 7.6%. My average market risk premium of 6.80% is within Morningstar's range.

Morningstar estimates a forward-looking market risk premium based on actual achieved data from the historical period of 1926 through 2014. Using this data, Morningstar estimates a market risk premium derived from the total return on large company stocks (S&P 500), less the income return on Treasury bonds. The total return includes capital appreciation, dividend or coupon reinvestment returns, and annual yields received from coupons and/or dividend payments. The income return, in contrast, only reflects the income return received from dividend payments or coupon yields. Morningstar claims that the income return is the only true risk-free rate associated with Treasury bonds and is the best approximation of a truly risk-free rate.[42] I disagree with this assessment from Morningstar, because it does not reflect a true investment option available to the marketplace and therefore does not produce a legitimate estimate of the expected premium of investing in the stock market versus that of Treasury bonds. Nevertheless, I will use Morningstar's conclusion to show the reasonableness of my market risk premium estimates.

Morningstar's range is based on several methodologies. First, Morningstar estimates a market risk premium of 7.0% based on the difference between the total market return on common stocks (S&P 500) less the income return on Treasury bond investments. Second, Morningstar found that if the New York Stock Exchange ("NYSE") was used as the market index rather than the S&P 500, that the market risk

[42] *Id.* at 153.

premium would be 6.8%, not 7.0%. Third, if only the two deciles of the largest companies included in the NYSE were considered, the market risk premium would be 6.3%.[43]

Finally, Morningstar found that the 7.0% market risk premium based on the S&P 500 was influenced by an abnormal expansion of price-to-earnings ("P/E") ratios relative to earnings and dividend growth during the period 1980 through 2001. Morningstar believes this abnormal P/E expansion is not sustainable.[44] Therefore, Morningstar adjusted this market risk premium estimate to normalize the growth in the P/E ratio to be more in line with the growth in dividends and earnings. Based on this alternative methodology, Morningstar published a long-horizon supply-side market risk premium of 6.1%.[45]

[43]Morningstar observes that the S&P 500 and the NYSE Decile 1-2 are both large capitalization benchmarks. *Id.* at 152.
[44]*Id.* at 156.
[45]*Id.* at 157.

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

A As shown in Exhibit MPG-15, based on my low market risk premium of 6.0% and my high market risk premium of 7.6%, a risk-free rate of 3.8%, and a beta of 0.73, my CAPM analysis produces a return in the range of 8.15% to 9.31% for the water group. Similarly, using the same inputs and a *Value Line* beta of 0.82 for my gas group produces a return in the range of 8.70% to 10.01%. Because of the relatively low historical level of the risk-free rates, I similarly recommend giving 60% weight to my high-end CAPM return estimates and 40% weight to the low-end return estimates for my two proxy groups. This produces a recommended CAPM return estimate in the range of 8.9% to 9.5%, with a midpoint of 9.2%.[46]

V.G. Return on Equity Summary

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

A Based on my analyses, I estimate MAWC's current market cost of equity to be 9.00%.

TABLE 5

Return on Common Equity Summary

Description	Results
DCF	8.8%
Risk Premium	9.1%
CAPM	9.2%

[46](8.15% * 40%) + (9.31% * 60%) = 8.85%.
(8.70% * 40%) + (10.01% * 60%) = 9.49%.

My recommended return on common equity of 9.00% is at approximately the midpoint of my estimated range of 8.8% to 9.2%. As shown on Table 5 above, the high-end of my estimated range is based on my CAPM studies. The low-end is based on my DCF studies. The risk premium return estimate falls within this recommended range.

This range reflects current market capital costs, increased interest rate risk in the current market due to Federal Reserve policies and other factors, and represents fair compensation to MAWC's investors for the total investment risk of its regulated utility.

V.H. Financial Integrity

Q WILL YOUR RECOMMENDED OVERALL RATE OF RETURN SUPPORT AN INVESTMENT GRADE BOND RATING FOR MAWC?

A Yes. I have reached this conclusion by comparing the key credit rating financial ratios for MAWC, at my proposed return on equity and my proposed capital structure, to S&P's benchmark financial ratios using S&P's new credit metric ranges.

Q PLEASE DESCRIBE THE MOST RECENT S&P FINANCIAL RATIO CREDIT METRIC METHODOLOGY.

A S&P publishes a matrix of financial ratios that correspond to its assessment of the business risk of utility companies and related bond ratings. On May 27, 2009, S&P expanded its matrix criteria by including additional business and financial risk categories.[47]

[47] S&P updated its 2008 credit metric guidelines in 2009, and incorporated utility metric benchmarks with the general corporate rating metrics. *Standard & Poor's RatingsDirect*: "Criteria Methodology: Business Risk/Financial Risk Matrix Expanded," May 27, 2009.

Based on S&P's most recent credit matrix, the business risk profile categories are "Excellent," "Strong," "Satisfactory," "Fair," "Weak," and "Vulnerable." Most utilities have a business risk profile of "Excellent" or "Strong."

The financial risk profile categories are "Minimal," "Modest," "Intermediate," "Significant," "Aggressive," and "Highly Leveraged." Most of the utilities have a financial risk profile of "Aggressive." MAWC has an "Excellent" business risk profile and an "Intermediate" financial risk profile.

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 MAWC's total credit risk exposure. On November 19, 2013, S&P updated its methodology. In its update, S&P published a matrix of financial ratios that defines the level of financial risk as a function of the level of business risk.

S&P publishes ranges for three primary financial ratios that it uses as guidance in its credit review for utility companies. The two core financial ratio benchmarks it relies on in its credit rating process include: (1) Debt to Earnings Before Interest, Taxes, Depreciation and Amortization ("EBITDA"); and (2) Funds From Operations ("FFO") to Total Debt.[48]

[48] *Standard & Poor's RatingsDirect*: "Criteria: Corporate Methodology," November 19, 2013.

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 MAWC's cost of service for its retail jurisdictional operations. While S&P would normally look at total consolidated MAWC financial ratios in its credit review process, my investigation in this proceeding is not the same as S&P's. I am attempting to judge the reasonableness of my proposed cost of capital for rate-setting in MAWC's retail regulated utility operations. Hence, I am attempting to determine whether my proposed rate of return will in turn support cash flow metrics, balance sheet strength, and earnings that will support an investment grade bond rating and MAWC's financial integrity.

Q DID YOU INCLUDE ANY OFF-BALANCE SHEET DEBT EQUIVALENTS?

A No. Even though S&P accounts for operating leases, I did not have the necessary information to identify the exact amount, if any, attributed to MAWC. Therefore, I did not include any off-balance sheet debt equivalents.

Q PLEASE DESCRIBE THE RESULTS OF THIS CREDIT METRIC ANALYSIS AS IT RELATES TO MAWC.

A The S&P financial metric calculations for MAWC at a 9.0% return are developed on Exhibit MPG-16, page 1. S&P currently rates MAWC's business risk as "Excellent" and financial risk as "Intermediate." The credit metrics produced below, with this financial and business risk outlook by S&P, will be used to assess the strength of the credit metrics based on MAWC's retail operations in Missouri.

MAWC's adjusted total debt ratio is approximately 49.0%. This adjusted debt ratio is generally comparable to, albeit somewhat stronger than, the adjusted debt

ratios for utilities with an S&P bond rating of A. Hence, I concluded this capital structure reasonably supports MAWC's current investment grade bond rating. This adjusted total debt ratio will support an investment grade bond rating.

Based on an equity return of 9.00%, MAWC will be provided an opportunity to produce a debt to EBITDA ratio of 3.5x. This is within S&P's "Intermediate" guideline range of 3.0x to 4.0x,[49] which reflects less risk and a stronger metric than needed to support MAWC's risk ranking of "Intermediate." This ratio also supports an investment grade credit rating.

MAWC's retail operations FFO to total debt coverage at a 9.0% equity return is 22%, which is within S&P's "Intermediate" metric guideline range of 13% to 23%. This FFO/total debt ratio will support an investment grade bond rating.

At my recommended return on equity of 9.00% and my proposed embedded debt cost and capital structure, MAWC's financial credit metrics continue to be supportive of its investment grade utility bond rating.

VI. RESPONSE TO MAWC WITNESS DR. ROGER MORIN

Q WHAT RATE OF RETURN ON COMMON EQUITY IS MAWC REQUESTING IN THIS PROCEEDING?

A MAWC is requesting a return on common equity of 10.70% based on the analysis and testimony sponsored by Dr. Roger Morin. He recommends a return on equity at the upper end of his range of 10.1% to 10.7%.

[49] *Id.*

Q **PLEASE DESCRIBE HOW DR. MORIN DEVELOPED HIS RETURN ON EQUITY RANGE FOR MAWC.**

A Dr. Morin used a DCF model, a CAPM, an ECAPM, and a risk premium study to support his return on equity estimate for MAWC. Dr. Morin employed these models to a group of water utilities followed by *Value Line*.

His estimated return on equity results for MAWC are shown below in Table 6 under Column 1. Under Column 2, I show adjustments to Dr. Morin's return estimates.

Further, Dr. Morin proposes to adjust his return estimates to account for flotation costs. As discussed below, the use of a flotation cost adder increases the actual cost of equity for MAWC by 20-30 basis points and should be rejected.

TABLE 6

Summary of Dr. Morin's Return on Equity Estimates

Description	Morin Results (1)	Adjusted (2)
Constant Growth DCF		
Value Line Growth	10.0%	8.9%
Analysts' Growth	9.0%	8.3%
Average Constant Growth DCF	**9.5%**	**8.6%**
CAPM		
Traditional CAPM	9.8%	9.0%
Empirical CAPM	10.3%	8.6%
Average CAPM	**10.1%**	**8.8%**
Risk Premium		
Historical Risk Premium	10.1%	9.5%
Allowed Risk Premium	10.7%	9.4%
Average Risk Premium	**10.4%**	**9.5%**
Recommended Return on Equity	**10.1% - 10.7%**	**9.0%**

Source: Morin Direct Testimony at 59.

With reasonable adjustments described in detail below, Dr. Morin's analyses will support a current market cost of equity for MAWC of 9.0%.

VI.A. Dr. Morin's DCF Analyses

Q PLEASE DESCRIBE DR. MORIN'S DCF ANALYSES.

A Dr. Morin performed two constant growth DCF analyses on a group of water utilities followed by *Value Line*, using consensus analysts' growth rate projections from Yahoo! Finance for the first one and *Value Line*'s projected growth rates for the second one.

As shown on Schedules RAM-2 and Schedule RAM-3, he relied on growth rate estimates in the range of 6.2% to 7.2% from both *Yahoo! Finance and Value Line* to produce a DCF cost of equity in the range of 9.00% to 10.00%.

Q PLEASE DESCRIBE THE ISSUES YOU TAKE WITH DR. MORIN'S DCF ANALYSES.

A My major concern with Dr. Morin's DCF studies is that he failed to provide any evaluation of whether or not the proxy group three- to five-year growth rate estimates are reasonable estimates of long-term sustainable growth.

Q WHY ARE THE GROWTH RATE ESTIMATES USED IN DR. MORIN'S DCF STUDY NOT REASONABLE?

A Dr. Morin's average growth rates from *Value Line* and *Yahoo! Finance* fall in the range of 6.2% to 7.2%. These growth rate estimates exceed the projected GDP growth rate of 4.4% for the next five to 10 years. As explained in detail earlier in my testimony, the GDP growth rate can be used as a proxy for long-term sustainable growth rate because it represents the maximum growth rate of the U.S. economy. The growth rate estimates used in Dr. Morin's DCF study exceed the projected GDP growth rate of 4.40% by 180-280 basis points, and inflate the DCF return on equity results for MAWC.

Q CAN DR. MORIN'S DCF MODEL BE MODIFIED TO REFLECT MORE REASONABLE GROWTH RATE ESTIMATES?

A Yes. As discussed at length in my testimony above, a utility cannot grow at a faster rate than the economy in which it provides goods and services. Hence, Dr. Morin's

growth rates are not sustainable indefinitely as required by the constant growth DCF model. Therefore, the relatively high short-term growth outlooks for security analysts can be included in a multi-stage DCF analysis to produce a more reasonable and sustainable long-term growth outlook.

The multi-stage growth DCF analysis should be used to gauge the accuracy of Dr. Morin's constant growth DCF model. Because the growth rates included in his model reflect three- to five-year projections, and are not reasonable estimates of long-term sustainable growth, additional data is necessary in order to produce a reliable DCF return estimate. Using Dr. Morin's data, and a multi-stage growth DCF analysis with a rational estimate of long-term sustainable growth, expands Dr. Morin's DCF study to produce a more reasonable range of DCF return estimates that more accurately measure MAWC's cost of common equity.

Using Dr. Morin's dividend and growth rates as an initial growth period for five years, transitioning toward the GDP growth rate for years six to 10, and growing indefinitely at the GDP growth rate of 4.4% starting in year 11, results in an average cost of equity estimate of 7.67% for his *Value Line* growth rates and 7.50% for his analysts' growth rates, as shown on Schedule MPG-17.

Therefore, giving equal weight to Dr. Morin's constant growth DCF estimates, excluding flotation costs and the multi-stage DCF analysis based on his data, will produce a DCF return estimate for MAWC of 8.9%[50] based on his *Value Line* growth rates and 8.3%[51] based on his analysts' growth rates. The midpoint of this adjusted DCF return on equity for MAWC is 8.6%.

[50](10.0% + 7.7%)/2 = 8.85%, rounded to 8.9%.
[51](9.0% + 7.5%)/2 = 8.25%, rounded to 8.3%.

VI.B. Dr. Morin's CAPM Analysis

Q PLEASE DESCRIBE DR. MORIN'S TRADITIONAL CAPM ANALYSIS.

A Dr. Morin developed a CAPM return estimate of 9.80% based on a group average beta of 0.74, a risk-free rate of 4.4% and a market risk premium of 7.3%.[52]

Q WHAT ISSUES DO YOU TAKE WITH DR. MORIN'S CAPM ANALYSIS?

A I have primarily two issues with Dr. Morin's CAPM study. First, his risk-free rate of 4.4% significantly exceeds independent market participants' outlooks for Treasury bond yields. Second, his market risk premium is in part developed from an unreasonable market DCF study.

Q PLEASE DESCRIBE HOW DR. MORIN DEVELOPED HIS MARKET RISK PREMIUM ESTIMATE.

A Dr. Morin's market risk premium estimate of 7.5% is based on the average DCF return estimate of the S&P 500 (11.9%) minus his risk-free rates of 4.4%. Second, he relied on the market risk premium of 7.0% published by Ibbotson. Dr. Morin gave equal weight to his DCF market risk premium estimate, and that published by Ibbotson. This produces a market risk premium estimate of 7.3%.

Q DO YOU BELIEVE THAT DR. MORIN'S MARKET RISK PREMIUM ESTIMATES ARE REASONABLE?

A I take issue with the risk premium based on Dr. Morin's DCF return on the market. Dr. Morin's DCF return on the market reflects a growth rate that is too high to be a reasonable estimate of long-term sustainable growth, and therefore produces a DCF

[52] Morin Direct Testimony at 43.

return on the market which is not reliable. In his market DCF, Dr. Morin relied on a growth rate of 10.0% (Schedule RAM-5). As described at length in my testimony above, this growth rate is excessive and not sustainable in perpetuity as the constant growth form of the DCF model requires. In fact, this growth estimate is more than double a reasonable outlook for sustainable expected growth.

Q HOW DID DR. MORIN DEVELOP HIS RISK-FREE RATE ESTIMATE?

A Dr. Morin developed his risk-free rate estimate using *Global Insight*, and *Value Line*. He also considered the projections made by the CBO and Wall Street. At page 34 of his testimony, he outlines projected Treasury bond yields from 2016 to 2019 reflecting these sources. Based on these outlooks, Dr. Morin states that the average forecast over the period 2016 through 2019 was 4.4%. This reflects a uniform outlook of around 4.3% for 2017, which reflects an increase from the 3.9% projection for 2016. The higher estimates of 4.7% largely reflect projections for 2018 and 2019. Dr. Morin's Treasury bond yield significantly exceeds the consensus projections he provided in his testimony.

Q WHAT ISSUES DO YOU HAVE WITH DR. MORIN'S RISK-FREE RATE?

A Dr. Morin used a projected risk-free rate of 4.4%, which is well in excess of the consensus economists' projected 30-year Treasury bond yield of 3.8% as published in *The Blue Chip Financial Forecasts*.

Dr. Morin's 4.4% projected Treasury bond yield exceeded consensus economists' outlooks by 60 basis points. Therefore, his CAPM return estimate is overstated.

Q CAN DR. MORIN'S TRADITIONAL CAPM ANALYSIS BE CORRECTED TO PRODUCE MORE RELIABLE RESULTS?

A Yes. Correcting Dr. Morin's traditional CAPM analysis by using an Ibbotson historical market risk premium of 7.0%, an estimated beta of 0.74, and using a consensus economists' projected risk-free rate (30-year Treasury bond yield) of 3.8%, produces a traditional CAPM cost estimate of approximately 9.0%.

VI.C. Dr. Morin's Empirical CAPM ("ECAPM")

Q PLEASE DESCRIBE DR. MORIN'S ECAPM ANALYSIS.

A The ECAPM analysis modifies the traditional CAPM equation by including a risk premium weighted by the utility beta, and the overall market beta of 1.0. The original ECAPM analysis was designed to use unadjusted regression betas. In Dr. Morin's ECAPM analysis, he adds two weighted risk premiums to a risk-free rate: a 75% weighted risk premium based on a 0.74 utility beta, and a 25% weighted risk premium based on a beta equal to the overall market beta of 1.0. The theory of the ECAPM is that a beta of less than 1.0 will increase toward the market beta of 1.0 over time, which is necessary because the risk of securities will be increasing over time.

Q WHAT ISSUES DO YOU TAKE WITH DR. MORIN'S ECAPM ANALYSIS?

A The ECAPM analysis should be rejected for several reasons. First, the practical result of Dr. Morin's ECAPM is that the CAPM return is based on a beta estimate of 0.81,[53] instead of his actual *Value Line* utility beta of 0.74. The ECAPM analysis significantly overstates a utility company-specific risk premium for use in a risk premium analysis.

[53] Weighted at 75% utility proxy beta, plus the market beta of 1.0 weighted at 25%.

Second, the ECAPM produces the same mathematical adjustments to the result of a traditional CAPM return estimate as does the use of an adjusted *Value Line* beta relative to an unadjusted raw beta. Theoretical constructs of the ECAPM are based on a raw beta or unadjusted betas. Using a raw beta, the ECAPM will increase the CAPM return estimate when the raw betas are less than 1.0, and decrease the CAPM return estimate when the raw betas are greater than 1.0.

Value Line's adjusted beta creates the same impact on a CAPM return estimate as the ECAPM. *Value Line*'s adjusted betas are produced by giving 35% weight to the market beta of 1.0 and 67% weight to the raw beta estimates. *Value Line*'s beta adjustment when used in a traditional CAPM return estimate, will increase a CAPM return estimate when the beta is less than 1.0, and decrease the CAPM return estimate when the beta is greater than 1.0. Therefore, an ECAPM with a raw beta produces the same impact on the CAPM return estimate as does a traditional CAPM using an adjusted beta estimate. Importantly, I am not aware of any research that was subjected to peer review that supports Dr. Morin's proposed use of an adjusted beta in an ECAPM study. Therefore, Dr. Morin's proposal to use an "adjusted" beta in an ECAPM is not based on sound academic principles, is not supported by the academic community, and should be rejected.

Further, using an adjusted beta in an ECAPM analysis, as Dr. Morin proposes, double-counts the increase in the CAPM return estimates for betas less than 1.0, and correspondingly would decrease the CAPM return estimates for companies that have betas greater than 1.0. Since utility companies have betas less than 1.0, Dr. Morin's application of an ECAPM with adjusted beta estimates, overstates a CAPM return estimate for a utility company.

For all these reasons, Dr. Morin's ECAPM analysis should be rejected.

Q **IS THERE A WAY TO MODIFY DR. MORIN'S ECAPM ANALYSIS TO PRODUCE A MORE REASONABLE ESTIMATE OF MAWC'S CURRENT COST OF EQUITY?**

A Yes. Adjusting Dr. Morin's use of the ECAPM analysis to reflect "raw" beta from *Value Line* rather than *Value Line*'s adjusted beta would produce a more reasonable ECAPM return estimate. Adjusting the proxy group's reported *Value Line* beta of 0.74 to remove *Value Line*'s beta adjustment would reduce it to an unadjusted or raw beta estimate of 0.58. Using a risk-free rate of 3.8% and market risk premium of 7.0% as discussed above produces an ECAPM estimate of 8.6%.[54] As this modified ECAPM clearly shows, an ECAPM analysis produces approximately the same result as a traditional CAPM return estimate if a raw beta is used in the ECAPM study, and an adjusted beta is used in a traditional CAPM study.

VI.D. Dr. Morin's Historical Risk Premium

Q **PLEASE DESCRIBE DR. MORIN'S HISTORICAL RISK PREMIUM.**

A Dr. Morin estimates the actual achieved return on electric utility stocks relative to that of long-term Treasury bond securities over the period 1931 through 2014. This produced an achieved return on electric utility stocks above the achieved return on Treasury bonds of 5.7%.[55]

Then he adds the estimated electric equity risk premium of 5.7% to his projected yield on Treasury bonds of 4.4%, to arrive at a risk premium estimate of 10.1%.[56]

[54] 3.8% + 7.0% (75% x 0.58 + 25% x 1.00) = 8.6%.
[55] Schedule RAM-6.
[56] Morin Direct Testimony at 48.

Q **WHAT ISSUE DO YOU TAKE WITH DR. MORIN'S RISK PREMIUM?**

A My main concern with Dr. Morin's analysis is his reliance on unrealistic and overstated projected Treasury bond yields. As described above, Dr. Morin's Treasury bond projection is substantially out of line with consensus economists' outlooks that are published by independent sources. I believe the consensus economists' published Treasury bond projections are far more reasonable estimates of consensus investor and market participants than are Dr. Morin's subjective projections.

Q **HOW WOULD THE RISK PREMIUM METHODOLOGY USED BY DR. MORIN CHANGE IF IT IS UPDATED TO INCLUDE MORE REALISTIC TREASURY BOND YIELDS?**

A Adding a more reasonable projected Treasury yield of 3.8% to his risk premium of 5.7% produces a cost estimate of 9.5%.

VI.E. Dr. Morin's Allowed Risk Premium

Q **PLEASE DESCRIBE DR. MORIN'S ALLOWED RISK PREMIUM.**

A Dr. Morin measures the indicated risk premium of authorized electric returns over Treasury bond yields over the period 1986 through 2014. The average indicated risk premium that Dr. Morin calculates is 5.57%.[57] Dr. Morin then performs a linear regression analysis in an attempt to capture a simple inverse relationship between interest rates and authorized electric return risk premiums. Dr. Morin then plugs in his projected Treasury bond yields of 4.4% in the regression formula to calculate a

[57] Schedule RAM-7.

projected risk premium of 6.3%. Adding the risk premium estimate of 6.3% to his projected 4.4% Treasury bond yield implies a cost of equity estimate of 10.7%.[58]

Q WHAT ISSUES DO YOU HAVE WITH DR. MORIN'S ALLOWED RISK PREMIUM ANALYSES?

A My two main concerns with Dr. Morin's allowed risk premium analysis are his continued reliance on unrealistic long-term Treasury bond yields and his use of a simple inverse relationship to estimate a risk premium.

Q WHY IS DR. MORIN'S USE OF A SIMPLE INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND EQUITY RISK PREMIUMS NOT REASONABLE?

A Dr. Morin's belief that there is a simplistic inverse relationship between equity risk premiums and interest rates is not supported by academic research. While academic studies have shown that, in the past, there has been an inverse relationship with these variables, researchers have found that the relationship changes over time and is influenced by changes in perception of the risk of bond investments relative to equity investments, and not simply changes to interest rates.[59]

In the 1980s, equity risk premiums were inversely related to interest rates, but that was likely attributable to the interest rate volatility that existed at that time. Interest rate volatility currently is much lower than it was in the 1980s.[60] As such, when interest rates were more volatile, the relative perception of bond investment risk

[58]Morin Direct Testimony at 51-52.

[59]"The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts," Robert S. Harris and Felicia C. Marston, *Journal of Applied Finance*, Volume 11, No. 1, 2001 and "The Risk Premium Approach to Measuring a Utility's Cost of Equity," Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *Financial Management*, Spring 1985.

[60]Morningstar SBBI, 2015 Classic Yearbook at 86-87.

increased relative to the investment risk of equities. This changing investment risk perception caused changes in equity risk premiums.

In today's marketplace, interest rate variability is not as extreme as it was during the 1980s. Nevertheless, changes in the perceived risk of bond investments relative to equity investments still drive changes in equity premiums. However, a relative investment risk differential cannot be measured simply by observing changes to nominal interest rates. Changes in nominal interest rates are highly influenced by changes to inflation outlooks, which also change equity return expectations. As such, the relevant factor needed to explain changes in equity risk premiums is the relative changes to the risk of equity versus debt securities investments, not simply changes to interest rates.

Importantly, Dr. Morin's analysis simply ignores investment risk differentials. His projected equity risk premium is based exclusively on changes in nominal interest rates. This is a flawed methodology and does not produce accurate or reliable risk premium estimates. His results should be rejected by the Commission.

Q CAN DR. MORIN'S RISK PREMIUM ANALYSES BASED ON PROJECTED YIELDS BE MODIFIED TO PRODUCE MORE REASONABLE RESULTS?

A Yes. Eliminating the reliance on a regression formula to estimate the equity risk premium and relying on an updated consensus economists' projection of Treasury bond yield of 3.8% and Dr. Morin's risk premium of 5.57% will result in a return on equity risk premium cost estimate of 9.4%.

VI.F. Flotation Costs

Q DID DR. MORIN INCLUDE A FLOTATION COST ADJUSTMENT IN HIS RECOMMENDED RETURN FOR MAWC?

A Yes. Dr. Morin asserts that it is appropriate to include a flotation cost adjustment to historical equity issues regardless if the utility is planning on issuing additional shares of stock, or not, to support his position. Hence, he grows his proxy group's average dividend yield by a flotation cost of 5%. This produces a flotation-adjusted cost of equity return of approximately 20-30 basis points higher. This flotation cost adjustment is intended to recover the actual cost a utility incurs by issuing additional stock to the public.

Q WHY IS DR. MORIN'S FLOTATION COST ADJUSTMENT FLAWED?

A Dr. Morin's flotation cost adjustment is not based on the recovery of prudent and reasonable flotation expenses for MAWC. Rather, as discussed at pages 53-58 of Dr. Morin's direct testimony, he derives a flotation cost adjustment based on generic cost information. Because he does not show that his adjustment is based on MAWC's actual and verifiable flotation expenses, there are no means of verifying whether Dr. Morin's proposal is reasonable or appropriate. Stated differently, Dr. Morin's flotation cost adder is not based on known and measurable MAWC costs. Therefore, the Commission should reject Dr. Morin's proposed flotation expense return on equity adder.

Q **DO YOU HAVE ANY OTHER ISSUES WITH DR. MORIN'S RECOMMENDED RETURN RANGE?**

A Yes. Dr. Morin's proposal to set the return on equity for MAWC at the upper end of his range will place an unreasonable burden on the ratepayers and should be rejected. As discussed below, MAWC's relative risk is comparable to the risk of the utility companies included in his proxy group.

Q **WHY DO YOU BELIEVE THAT MAWC FACES RISKS THAT ARE COMPARABLE TO THE RISKS FACED BY DR. MORIN'S PROXY GROUP COMPANIES?**

A The relative risks discussed on pages 60-62 of Dr. Morin's testimony are already incorporated in the credit ratings of the proxy group companies. As described above in regard to my proxy groups, the average credit rating of Dr. Morin's and my water proxy group is almost identical to the credit rating of MAWC. S&P and other credit rating agencies go through great detail in assessing a utility's business risk and financial risk in order to evaluate their assessment of its total investment risk. Therefore, this total risk investment assessment of MAWC, in comparison to a proxy group, is fully absorbed into the market's perception of MAWC's risk and the proxy group fully captures the investment risk of MAWC.

Q **HOW DOES S&P ASSIGN CORPORATE CREDIT RATINGS FOR REGULATED UTILITIES?**

A In assigning corporate credit ratings the credit rating agency considers both business and financial risks. Business risks among others include a company's size and competitive position, generation portfolio, as well as a consideration of the regulatory

environment, current state of the industry and the economy as whole. Specifically, S&P states:

> To determine the assessment for a corporate issuer's business risk profile, the criteria combine our assessments of industry risk, country risk, and competitive position. Cash flow/leverage analysis determines a company's financial risk profile assessment. The analysis then combines the corporate issuer's business risk profile assessment and its financial risk profile assessment to determine its anchor. In general, the analysis weighs the business risk profile more heavily for investment-grade anchors, while the financial risk profile carries more weight for speculative-grade anchors.[61]

Therefore, Dr. Morin's recommendation to allow MAWC a return on equity at the upper end of his range should be rejected.

Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A Yes.

[61] *Standard & Poor's RatingsDirect*: "Criteria/Corporates/General: Corporate Methodology," November 19, 2013.

Qualifications of Michael P. Gorman

Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140, Chesterfield, MO 63017.

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. ("BAI"), 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. ("DBA"). In April 1995, the firm of Brubaker & Associates, Inc. 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 to 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 participated in rate cases on rate

design and class cost of service for electric, natural gas, water and wastewater utilities. I have also analyzed commodity pricing indices and forward pricing methods for third party supply agreements, and 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 and Corpus Christi, 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 Federal Energy Regulatory Commission and numerous state regulatory commissions including: Arkansas, Arizona, California, Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Mississippi, Missouri, Montana, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, 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 CFA 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 the CFA Institute's Financial Analyst Society.

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Missouri-American Water Company

Rate of Return
(January 31, 2016)

Line	Description		Amount (1)	Weight (2)	Cost (3)	Weighted Cost (4)
1	Long-Term Debt*	$	498,608,750	49.28%	5.42%	2.67%
2	Preferred Stock	$	1,227,850	0.12%	9.46%	0.01%
3	Common Equity**	$	511,870,981	50.59%	**9.00%**	4.55%
4	**Total**	**$**	**1,011,707,581**	**100.00%**		**7.24%**

Source:
Schedule SWR-1, Page 1 of 4.
* Page 2.
** Page 3.

Missouri-American Water Company

Long-Term Debt

Line	Subledger	Rate (1)	Issue Date (2)	Maturity Date (3)	Principal Amount (4)	Amount Outstanding @ 12/31/14 (5)	Pro Forma Adjustments (6)	Pro Forma Amount Outstanding @ 12/31/18 (7)	Unamortized Issuance Expense @ 12/31/14 (8)	Pro Forma Adjustments (9)	Monthly Amortization Debt Expense (10)	Unamortized Issuance Expense @ 12/31/18 (11)	Unamortized Debt Discount @ 12/31/14 (12)	Pro Forma Adjustments (13)	Monthly Amortization Debt Discount (14)	Unamortized Debt Discount @ 12/31/18 (15)	Carrying Value @ 12/31/18 (16)	Annual Amortization Debt Expense (17)	Annual Amortization Debt Discount (18)	Annual Interest Expense (19)	Total Cost (20)
1	New Taxable	4.000%	05/15/15	05/15/45	$0	$0	$34,000,000	$34,000,000	$0		$1,057	$366,400					$37,614,583	$13,047	$0	$1,520,000	$1,533,047
2	BD170005	7.790%	06/01/97	06/01/27	8,000,000	8,000,000		8,000,000	47,172		317	43,057					7,956,943	3,723	0	623,200	626,923
3	BD170006	8.580%	04/01/95	03/01/25	3,000,000	3,000,000		3,000,000	26,574		216	23,564					2,976,436	2,593	0	257,400	259,993
4	BD170007	7.140%	03/15/04	03/01/34	12,500,000	12,500,000		12,500,000	169,453		598	151,358					12,348,615	8,372	0	892,500	900,872
5	BD170017	4.600%	12/20/06	12/01/36	57,460,000	57,460,000		57,460,000	1,116,825		4,243	1,061,706					56,418,294	59,879	0	2,644,660	2,704,539
6	BD170018	6.593%	12/22/07	10/15/37	103,000,000	103,000,000		103,000,000	759,830		2,853	752,258					102,247,712	34,654	0	6,790,790	6,825,444
7	BD170019	6.550%	06/01/08	05/31/23	70,000,000	70,000,000		70,000,000	147,541		1,468	129,456					69,871,544	17,617	0	4,585,000	4,602,617
8	BD170021	5.050%	11/21/11	10/15/37	25,000,000	25,000,000		25,000,000	0		0	0					25,000,000	0	0	1,262,500	1,262,500
9	BD170024	4.650%	05/11/12	10/15/37	15,292,000	15,292,000		15,292,000	0		0	0					15,292,000	0	0	900,841	900,841
10	BD170025	4.525%	05/11/12	10/15/37	13,944,000	13,944,000		13,944,000	0		0	0					13,944,000	0	0	538,992	538,992
11	BD170026	2.650%	05/11/12	10/15/17	13,443,000	13,443,000		13,443,000	0		0	0					13,443,000	0	0	276,740	276,740
12	BD170027	2.650%	05/11/12	10/15/17	3,826,000	3,826,000		3,826,000	0		0	0					3,826,000	0	0	101,389	101,389
13	BD170032	2.800%	07/02/12	10/15/17	2,069,000	2,069,000		2,069,000	0		0	0					2,069,000	0	0	57,932	57,932
14	BD170033	2.800%	07/02/12	10/15/17	7,936,000	7,936,000		7,936,000	0		0	0					7,936,000	0	0	221,368	221,368
15	BD170034	2.800%	07/02/12	10/15/17	11,429,000	11,429,000		11,429,000	0		0	0					11,429,000	0	0	320,012	320,012
16	BD170035	2.800%	07/02/12	10/15/17	16,198,000	16,198,000		16,198,000	0		0	0					16,198,000	0	0	453,544	453,544
17	BD170036	4.900%	07/02/12	10/15/37	2,331,000	2,331,000		2,331,000	0		0	0					2,331,000	0	0	114,219	114,219
18	BD170029	4.900%	07/02/12	10/15/37	13,364,000	13,364,000		13,364,000	0		0	0					13,364,000	0	0	507,832	507,832
19	BD170030	4.900%	07/02/12	10/15/37	13,081,000	13,081,000		13,081,000	0		0	0					13,081,000	0	0	640,969	640,969
20	BD170031	4.900%	07/02/12	10/15/37	22,712,000	22,712,000		22,712,000	0		0	0					22,712,000	0	0	1,112,888	1,112,888
21	BD170028	4.300%	12/07/12	12/01/42	15,000,000	15,000,000		15,000,000	142,570		425	137,038	27,300		76	25,314	14,835,648	5,136	910	645,000	651,046
22	BD170037	3.450%	07/01/13	12/21/51	20,000,000	20,000,000		20,000,000	0		0	0					20,000,000	0	0	690,000	690,000
23	BD170038	3.850%	11/20/13	03/01/24	25,000,000	25,000,000		25,000,000	174,558		1,566	153,535	87,046		809	78,535	24,769,931	19,937	9,703	962,500	991,240
24	BD170003	5.500%	05/18/93	01/01/23	4,950,000	0		0	103,846		1,082	89,784					-89,784	12,561	0	0	12,561
25	BD170009	5.000%	02/01/58	02/01/28	4,500,000	0		0	166,414		606	158,504					-158,504	7,302	0	0	7,302
26	BD170010	5.550%	07/06/56	07/01/26	6,000,000	0		0	171,219		1,241	155,089					-155,089	14,629	0	0	14,629
27	BD170011	5.000%	11/01/56	11/30/26	13,000,000	0		0	370,130		13,686	229,610					-229,610	130,634	0	0	130,634
28	BD170012	5.900%	03/01/60	03/01/30	29,000,000	0		0	789,192		2,889	751,680					-751,680	34,629	0	0	34,629
29	BD170014	5.200%	04/01/02	04/01/32	15,000,000	0		0	315,732		9,315	196,629					-196,629	111,768	0	0	111,768
30	BD170020	8.250%	02/04/09	12/01/38	25,000,000	0		0	745,172		6,772	657,133					-657,133	81,266	0	0	81,266
31	BD350006 - C	0.000%	01/01/05	11/30/29	0	0		0	425,125		2,375	354,263					-354,263	28,500	0	0	28,500
32	BD350007 - R	0.000%	01/01/01	01/01/21	0	0		0	402,614		5,518	331,053					-331,053	66,215	0	0	66,215
33	BD350008 - S	0.000%	01/01/05	01/01/21	0	0		0	493,955		5,423	392,456					-392,456	65,078	0	0	65,078
34	BD350009 - T	5.500%	02/01/93	02/01/23	15,000,000	0		0	213,194		2,167	182,024					-182,024	29,003	0	0	29,003
35	BD350013 - L	5.700%	09/01/95	09/01/25	12,000,000	0		0	205,563		1,645	184,185					-184,185	19,734	0	0	19,734
36	BD350011 - V	5.500%	11/01/55	11/01/25	13,000,000	0		0	375,745		2,696	341,349					-341,349	31,753	0	0	31,753
37	BD350013 - X	5.100%	03/01/58	03/01/28	25,000,000	0		0	295,044		8,413	176,674					-176,674	100,957	0	0	100,957
38	BD350014 - Y	5.000%	03/01/93	03/01/23	40,000,000	0		0	829,466		3,027	790,112					-790,112	35,327	0	0	35,327
39	Total				$563,905,000	$458,575,000	$34,000,000	$536,575,000	$8,463,533	$0	$76,929	$7,863,401	$114,346	$0	$924	$103,849	[$466,608,753]	$323,153	$10,613	$25,109,743	$27,043,506

Cost of Long-Term Debt = [Total Cost / Carrying Value]

5.42%

Source:
Schedule SWR-1, Page 2 of 4.

Missouri-American Water Company

Common Equity

Line	Description	Balance @ 12/31/14 (1)	Equity Infusion (2)	Net Income (3)	Dividend Paid (4)	Balance @ 1/31/16 (5)
1	Common Stock	$95,994,075		-	-	$95,994,075
2	Paid-in Capital*	196,529,923	$12,000,000	-	-	208,529,923
3	Retained Earnings	192,797,508	-	$50,432,287	($35,882,812)	207,346,984
4	Total Common Equity	$485,321,506	$12,000,000	$50,432,287	($35,882,812)	$511,870,981

Source:
Schedule SWR-1, Page 4 of 4.

Missouri-American Water Company

Proxy Group
Water Utilities

Line	Company	Credit Ratings[1] S&P (1)	Credit Ratings[1] Moody's (2)	Common Equity Ratios AUS[1] (3)	Common Equity Ratios Value Line[2] (4)
1	American States Water	A+	A2	59.4%	60.9%
2	American Water Works	A+	A3	44.4%	47.4%
3	Aqua America	AA-	N/A	49.5%	51.5%
4	California Water	AA-	N/A	53.1%	59.9%
5	Connecticut Water Service	A	N/A	54.1%	54.1%
6	Middlesex Water	A	N/A	55.3%	58.8%
7	SJW Corporation	A	N/A	47.4%	48.4%
8	York Water Company (The)	A-	N/A	55.8%	55.2%
9	**Average**	**A+**	**A2**	**52.4%**	**54.5%**
10	**Missouri-American Water Company**	**A+[3]**	**A3[3]**	**50.6%[4]**	

Sources:

[1] *AUS Monthly Utility Reports*, November 2015.

[2] *The Value Line Investment Survey,* October 16, 2015.

[3] Ratings for American Water Works Company.

[4] Schedule MPG-1.

Missouri-American Water Company

Proxy Group
Gas Utilities

Line	Company	Credit Ratings[1] S&P (1)	Credit Ratings[1] Moody's (2)	Common Equity Ratios AUS[1] (3)	Common Equity Ratios Value Line[2] (4)
1	Atmos Energy Corporation	A-	A2	54.5%	55.7%
2	Laclede Group, Inc. (The)	A+	A3	44.2%	44.9%
3	New Jersey Resources Corporation	A+	Aa2	56.0%	61.8%
4	NiSource Inc.	BBB-	Baa1	38.4%	43.1%
5	Northwest Natural Gas Company	AA-	A1	48.9%	55.2%
6	Piedmont Natural Gas Company, Inc.	A	A2	43.9%	47.9%
7	South Jersey Industries, Inc.	A	A2	42.5%	52.0%
8	Southwest Gas Corporation	A-	A3	50.2%	47.6%
9	UGI Corporation	N/A	A2	36.6%	43.6%
10	WGL Holdings, Inc.	A+	A1	51.8%	63.8%
11	**Average**	**A**	**A2**	**46.7%**	**51.6%**
12	**Missouri-American Water Company**	**A+[3]**	**A3[3]**	**50.6%[4]**	

Sources:

[1] *AUS Monthly Utility Reports*, November 2015.

[2] *The Value Line Investment Survey*, September 4, 2015.

[3] Ratings for American Water Works Company.

[4] Schedule MPG-1.

Missouri-American Water Company

Consensus Analysts' Growth Rates
Water Utilities

Line	Company	Zacks		Yahoo! Finance		Reuters		Average of Growth Rates
		Estimated Growth %[1]	Number of Estimates	Estimated Growth %[2]	Number of Estimates	Estimated Growth %[3]	Number of Estimates	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	American States Water	5.00%	N/A	4.00%	N/A	4.00%	1	4.33%
2	American Water Works	7.20%	N/A	7.34%	N/A	7.30%	4	7.28%
3	Aqua America	6.00%	N/A	5.55%	N/A	5.50%	2	5.68%
4	California Water	5.00%	N/A	5.00%	N/A	5.00%	1	5.00%
5	Connecticut Water Service	5.00%	N/A	5.00%	N/A	5.00%	1	5.00%
6	Middlesex Water	5.70%	N/A	2.70%	N/A	N/A	N/A	4.20%
7	SJW Corporation	N/A	N/A	14.00%	N/A	N/A	N/A	14.00%
8	York Water Company (The)	N/A	N/A	4.90%	N/A	N/A	N/A	4.90%
9	**Average**	**5.65%**	**N/A**	**6.06%**	**N/A**	**5.36%**	**2**	**6.30%**

Sources:

[1] Zacks, http://www.zacks.com/, downloaded on November 20, 2015.

[2] Yahoo! Finance, http://finance.yahoo.com/, downloaded on November 20, 2015.

[3] Reuters, http://www.reuters.com/, downloaded on November 20, 2015.

Missouri-American Water Company

Consensus Analysts' Growth Rates
Gas Utilities

Line	Company	Zacks		Yahoo Finance		Reuters		Average of Growth Rates
		Estimated Growth %[1]	Number of Estimates	Estimated Growth %[2]	Number of Estimates	Estimated Growth %[3]	Number of Estimates	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Atmos Energy Corporation	7.00%	N/A	7.00%	N/A	7.00%	1	7.00%
2	Laclede Group, Inc. (The)	4.80%	N/A	4.44%	N/A	4.44%	4	4.56%
3	New Jersey Resources Corporation	6.00%	N/A	6.00%	N/A	6.00%	1	6.00%
4	NiSource Inc.	-0.80%	N/A	-2.27%	N/A	-2.27%	3	N/A
5	Northwest Natural Gas Company	4.00%	N/A	4.00%	N/A	N/A	N/A	4.00%
6	Piedmont Natural Gas Company, Inc.	5.00%	N/A	5.00%	N/A	6.00%	1	5.33%
7	South Jersey Industries, Inc.	N/A	N/A	6.00%	N/A	N/A	N/A	6.00%
8	Southwest Gas Corporation	5.00%	N/A	4.00%	N/A	N/A	N/A	4.50%
9	UGI Corporation	7.70%	N/A	8.00%	N/A	8.00%	2	7.90%
10	WGL Holdings, Inc.	6.50%	N/A	7.00%	N/A	7.00%	1	6.83%
11	**Average**	**5.75%**	**N/A**	**5.72%**	**N/A**	**6.41%**	**2**	**5.79%**

Sources:
[1] Zacks, http://www.zacks.com/, downloaded on November 20, 2015.
[2] Yahoo! Finance, http://finance.yahoo.com/, downloaded on November 20, 2015.
[3] Reuters, http://www.reuters.com/, downloaded on November 20, 2015.

Missouri-American Water Company

Constant Growth DCF Model
(Consensus Analysts' Growth Rates)
Water Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Analysts' Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	American States Water	$40.03	4.33%	$0.90	2.34%	6.67%
2	American Water Works	$55.07	7.28%	$1.36	2.65%	9.93%
3	Aqua America	$26.99	5.68%	$0.71	2.79%	8.47%
4	California Water	$21.81	5.00%	$0.67	3.23%	8.23%
5	Connecticut Water Service	$40.03	5.00%	$1.07	2.81%	7.81%
6	Middlesex Water	$24.26	4.20%	$0.77	3.31%	7.51%
7	SJW Corporation	$30.26	14.00%	$0.78	2.94%	16.94%
8	York Water Company (The)	$22.23	4.90%	$0.60	2.82%	7.72%
9	**Average**	**$32.58**	**6.30%**	**$0.86**	**2.86%**	**9.16%**
10	**Median**					**8.02%**

Sources:
[1] Nasdaq.com, Downloaded November 23, 2015.
[2] Schedule MPG-3, page 1.
[3] *The Value Line Investment Survey*, October 16, 2015.

Missouri-American Water Company

Constant Growth DCF Model
(Consensus Analysts' Growth Rates)
Gas Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Analysts' Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	Atmos Energy Corporation	$58.25	7.00%	$1.56	2.87%	9.87%
2	Laclede Group, Inc. (The)	$55.01	4.56%	$1.84	3.50%	8.06%
3	New Jersey Resources Corporation	$29.54	6.00%	$0.92	3.30%	9.30%
4	NiSource Inc.	$18.28	N/A	$0.62	N/A	N/A
5	Northwest Natural Gas Company	$45.71	4.00%	$1.86	4.23%	8.23%
6	Piedmont Natural Gas Company, Inc.	$44.97	5.33%	$1.32	3.09%	8.43%
7	South Jersey Industries, Inc.	$24.79	6.00%	$1.00	4.29%	10.29%
8	Southwest Gas Corporation	$57.48	4.50%	$1.62	2.95%	7.45%
9	UGI Corporation	$34.77	7.90%	$0.92	2.85%	10.75%
10	WGL Holdings, Inc.	$57.68	6.83%	$1.85	3.43%	10.26%
11	**Average**	**$42.65**	**5.79%**	**$1.35**	**3.39%**	**9.18%**
12	**Median**					**9.30%**

Sources:
[1] Nasdaq.com, Downloaded November 23, 2015.
[2] Schedule MPG-3, page 2.
[3] *The Value Line Investment Survey*, September 4, 2015.

Missouri-American Water Company

Payout Ratios
Water Utilities

Line		Dividends Per Share		Earnings Per Share		Payout Ratio	
		2014	Projected	2014	Projected	2014	Projected
		(1)	(2)	(3)	(4)	(5)	(6)
1	American States Water	$0.83	$1.15	$1.57	$2.15	52.87%	53.49%
2	American Water Works	$1.21	$1.75	$2.39	$3.25	50.63%	53.85%
3	Aqua America	$0.63	$1.00	$1.20	$1.85	52.50%	54.05%
4	California Water	$0.65	$0.97	$1.19	$1.55	54.62%	62.58%
5	Connecticut Water Service	$1.01	$1.30	$1.92	$2.25	52.60%	57.78%
6	Middlesex Water	$0.76	$0.85	$1.13	$1.35	67.26%	62.96%
7	SJW Corporation	$0.75	$1.05	$2.54	$1.75	29.53%	60.00%
8	York Water Company (The)	$0.57	$0.80	$0.89	$1.15	64.04%	69.57%
9	**Average**	**$0.80**	**$1.11**	**$1.60**	**$1.91**	**53.01%**	**59.28%**

Source:
The Value Line Investment Survey, October 16, 2015.

Missouri-American Water Company

Payout Ratios
Gas Utilities

Line		Dividends Per Share		Earnings Per Share		Payout Ratio	
		2014	Projected	2014	Projected	2014	Projected
		(1)	(2)	(3)	(4)	(5)	(6)
1	Atmos Energy Corporation	$1.48	$1.90	$2.96	$3.80	50.00%	50.00%
2	Laclede Group, Inc. (The)	$1.76	$2.20	$2.35	$4.20	74.89%	52.38%
3	New Jersey Resources Corporation	$0.86	$0.98	$2.10	$2.00	40.95%	49.00%
4	NiSource Inc.	$1.02	$0.80	$1.67	$1.40	61.08%	57.14%
5	Northwest Natural Gas Company	$1.85	$2.10	$2.16	$3.30	85.65%	63.64%
6	Piedmont Natural Gas Company, Inc.	$1.27	$1.47	$1.84	$2.10	69.02%	70.00%
7	South Jersey Industries, Inc.	$0.96	$1.35	$1.57	$2.35	61.15%	57.45%
8	Southwest Gas Corporation	$1.46	$2.10	$3.01	$4.50	48.50%	46.67%
9	UGI Corporation	$0.79	$1.01	$1.92	$2.65	41.15%	38.11%
10	WGL Holdings, Inc.	$1.72	$1.99	$2.68	$3.55	64.18%	56.06%
11	**Average**	**$1.32**	**$1.59**	**$2.23**	**$2.99**	**59.66%**	**54.04%**

Source:
The Value Line Investment Survey, September 4, 2015.

Missouri-American Water Company

Sustainable Growth Rate
Water Utilities

Line		3 to 5 Year Projections										Sustainable Growth Rate
		Dividends Per Share (1)	Earnings Per Share (2)	Book Value Per Share (3)	Book Value Growth (4)	ROE (5)	Adjustment Factor (6)	Adjusted ROE (7)	Payout Ratio (8)	Retention Rate (9)	Internal Growth Rate (10)	(11)
1	American States Water	$1.15	$2.15	$14.85	2.32%	14.48%	1.01	14.64%	53.49%	46.51%	6.81%	6.81%
2	American Water Works	$1.75	$3.25	$36.75	6.06%	8.84%	1.03	9.10%	53.85%	46.15%	4.20%	4.72%
3	Aqua America	$1.00	$1.85	$11.75	4.86%	15.74%	1.02	16.12%	54.05%	45.95%	7.41%	7.41%
4	California Water	$0.97	$1.55	$16.00	4.06%	9.69%	1.02	9.88%	62.58%	37.42%	3.70%	4.19%
5	Connecticut Water Service	$1.30	$2.25	$23.35	4.40%	9.64%	1.02	9.84%	57.78%	42.22%	4.16%	5.59%
6	Middlesex Water	$0.85	$1.35	$14.30	3.16%	9.44%	1.02	9.59%	62.96%	37.04%	3.55%	4.42%
7	SJW Corporation	$1.05	$1.75	$22.60	4.95%	7.74%	1.02	7.93%	60.00%	40.00%	3.17%	4.66%
8	York Water Company (The)	$0.80	$1.15	$9.50	3.11%	12.11%	1.02	12.29%	69.57%	30.43%	3.74%	3.74%
9	**Average**	**$1.11**	**$1.91**	**$18.64**	**4.11%**	**10.96%**	**1.02**	**11.17%**	**59.28%**	**40.72%**	**4.59%**	**5.19%**

Sources and Notes:
Cols. (1), (2) and (3): *The Value Line Investment Survey*, October 16, 2015.
Col. (4): [Col. (3) / Page 2 Col. (2)] ^ (1/5) - 1.
Col. (5): Col. (2) / Col. (3).
Col. (6): [2 * (1 + Col. (4))] / (2 + Col. (4)).
Col. (7): Col. (6) * Col. (5).
Col. (8): Col. (1) / Col. (2).
Col. (9): 1 - Col. (8).
Col. (10): Col. (9) * Col. (7).
Col. (11): Col. (10) + Page 2 Col. (9).

Missouri-American Water Company

Sustainable Growth Rate
Water Utilities

Line	Company	13-Week Average Stock Price[1] (1)	2014 Book Value Per Share[2] (2)	Market to Book Ratio (3)	Common Shares Outstanding (in Millions)[2] 2013 (4)	Common Shares Outstanding (in Millions)[2] 3-5 Years (5)	Growth (6)	S Factor[3] (7)	V Factor[4] (8)	S * V (9)
1	American States Water	$40.03	$13.24	3.02	38.29	37.00	-0.57%	-1.72%	66.92%	-1.15%
2	American Water Works	$55.07	$27.39	2.01	179.46	185.00	0.51%	1.02%	50.27%	0.51%
3	Aqua America	$26.99	$9.27	2.91	178.59	170.00	-0.82%	-2.38%	65.65%	-1.56%
4	California Water	$21.81	$13.11	1.66	47.81	50.00	0.75%	1.25%	39.88%	0.50%
5	Connecticut Water Service	$40.03	$18.83	2.13	11.12	12.00	1.28%	2.72%	52.96%	1.44%
6	Middlesex Water	$24.26	$12.24	1.98	16.12	17.00	0.89%	1.76%	49.54%	0.87%
7	SJW Corporation	$30.26	$17.75	1.70	20.29	23.00	2.11%	3.60%	41.34%	1.49%
8	York Water Company (The)	$22.23	$8.15	2.73	12.83	12.00	-1.11%	-3.02%	63.33%	-1.91%
9	**Average**	**$32.58**	**$15.00**	**2.27**	**63.06**	**63.25**	**1.11%**	**2.07%**	**53.74%**	**0.96%**

Sources and Notes:

[1] Nasdaq.com, Downloaded November 23, 2015.

[2] *The Value Line Investment Survey*, October 16, 2015.

[3] Expected Growth in the Number of Shares, Column (3) * Column (6).

[4] Expected Profit of Stock Investment, [1 - 1 / Column (3)].

Missouri-American Water Company

Sustainable Growth Rate
Gas Utilities

Line		3 to 5 Year Projections										Sustainable Growth Rate
		Dividends Per Share (1)	Earnings Per Share (2)	Book Value Per Share (3)	Book Value Growth (4)	ROE (5)	Adjustment Factor (6)	Adjusted ROE (7)	Payout Ratio (8)	Retention Rate (9)	Internal Growth Rate (10)	(11)
1	Atmos Energy Corporation	$1.90	$3.80	$36.65	3.58%	10.37%	1.02	10.55%	50.00%	50.00%	5.28%	7.98%
2	Laclede Group, Inc. (The)	$2.20	$4.20	$48.10	6.61%	8.73%	1.03	9.01%	52.38%	47.62%	4.29%	4.69%
3	New Jersey Resources Corporation	$0.98	$2.00	$16.25	7.22%	12.31%	1.03	12.74%	49.00%	51.00%	6.50%	6.74%
4	NiSource Inc.	$0.80	$1.40	$24.90	4.97%	5.62%	1.02	5.76%	57.14%	42.86%	2.47%	2.47%
5	Northwest Natural Gas Company	$2.10	$3.30	$33.85	3.78%	9.75%	1.02	9.93%	63.64%	36.36%	3.61%	3.88%
6	Piedmont Natural Gas Company, Inc.	$1.47	$2.10	$20.30	3.86%	10.34%	1.02	10.54%	70.00%	30.00%	3.16%	3.91%
7	South Jersey Industries, Inc.	$1.35	$2.35	$18.40	6.15%	12.77%	1.03	13.15%	57.45%	42.55%	5.60%	7.06%
8	Southwest Gas Corporation	$2.10	$4.50	$39.40	4.28%	11.42%	1.02	11.66%	46.67%	53.33%	6.22%	7.72%
9	UGI Corporation	$1.01	$2.65	$22.85	8.23%	11.60%	1.04	12.06%	38.11%	61.89%	7.46%	8.33%
10	WGL Holdings, Inc.	$1.99	$3.55	$29.80	4.35%	11.91%	1.02	12.17%	56.06%	43.94%	5.35%	5.35%
11	**Average**	**$1.59**	**$2.99**	**$29.05**	**5.30%**	**10.48%**	**1.03**	**10.76%**	**54.04%**	**45.96%**	**4.99%**	**5.81%**

Sources and Notes:
Cols. (1), (2) and (3): *The Value Line Investment Survey*, September 4, 2015.
Col. (4): [Col. (3) / Page 2 Col. (2)] ^ (1/5) - 1.
Col. (5): Col. (2) / Col. (3).
Col. (6): [2 * (1 + Col. (4))] / (2 + Col. (4)).
Col. (7): Col. (6) * Col. (5).
Col. (8): Col. (1) / Col. (2).
Col. (9): 1 - Col. (8).
Col. (10): Col. (9) * Col. (7).
Col. (11): Col. (10) + Page 2 Col. (9).

Missouri-American Water Company

Sustainable Growth Rate
Gas Utilities

Line	Company	13-Week Average Stock Price[1] (1)	2014 Book Value Per Share[2] (2)	Market to Book Ratio (3)	Common Shares Outstanding (in Millions)[2] 2013 (4)	Common Shares Outstanding (in Millions)[2] 3-5 Years (5)	Growth (6)	S Factor[3] (7)	V Factor[4] (8)	S * V (9)
1	Atmos Energy Corporation	$58.25	$30.74	1.89	100.39	120.00	3.02%	5.72%	47.23%	2.70%
2	Laclede Group, Inc. (The)	$55.01	$34.93	1.57	43.18	45.00	0.69%	1.09%	36.51%	0.40%
3	New Jersey Resources Corporation	$29.54	$11.47	2.58	84.20	85.00	0.16%	0.41%	61.18%	0.25%
4	NiSource Inc.	$18.28	$19.54	0.94	316.04	325.00	0.47%	0.44%	-6.89%	-0.03%
5	Northwest Natural Gas Company	$45.71	$28.12	1.63	27.28	28.00	0.44%	0.71%	38.48%	0.27%
6	Piedmont Natural Gas Company, Inc.	$44.97	$16.80	2.68	77.88	80.00	0.45%	1.20%	62.64%	0.75%
7	South Jersey Industries, Inc.	$24.79	$13.65	1.82	68.33	76.00	1.79%	3.25%	44.94%	1.46%
8	Southwest Gas Corporation	$57.48	$31.95	1.80	46.52	52.00	1.87%	3.37%	44.42%	1.50%
9	UGI Corporation	$34.77	$15.39	2.26	172.73	180.00	0.69%	1.56%	55.74%	0.87%
10	WGL Holdings, Inc.	$57.68	$24.08	2.40	51.76	50.00	-0.57%	-1.38%	58.25%	-0.80%
11	**Average**	**$42.65**	**$22.67**	**1.96**	**98.83**	**104.10**	**1.06%**	**1.97%**	**49.93%**	**1.02%**

Sources and Notes:

[1] Nasdaq.com, Downloaded November 23, 2015.

[2] *The Value Line Investment Survey*, September 4,2015.

[3] Expected Growth in the Number of Shares, Column (3) * Column (6).

[4] Expected Profit of Stock Investment, [1 - 1 / Column (3)].

Missouri-American Water Company

Constant Growth DCF Model
(Sustainable Growth Rate)
Water Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Sustainable Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	American States Water	$40.03	6.81%	$0.90	2.39%	9.20%
2	American Water Works	$55.07	4.72%	$1.36	2.59%	7.30%
3	Aqua America	$26.99	7.41%	$0.71	2.83%	10.24%
4	California Water	$21.81	4.19%	$0.67	3.20%	7.40%
5	Connecticut Water Service	$40.03	5.59%	$1.07	2.82%	8.42%
6	Middlesex Water	$24.26	4.42%	$0.77	3.32%	7.74%
7	SJW Corporation	$30.26	4.66%	$0.78	2.70%	7.36%
8	York Water Company (The)	$22.23	3.74%	$0.60	2.79%	6.53%
9	**Average**	**$32.58**	**5.19%**	**$0.86**	**2.83%**	**8.02%**
10	**Median**					**7.57%**

Sources:

[1] Nasdaq.com, Downloaded November 23, 2015.

[2] Schedule MPG-6, page 1.

[3] *The Value Line Investment Survey*, October 16, 2015.

Missouri-American Water Company

Constant Growth DCF Model
(Sustainable Growth Rate)
Gas Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Sustainable Growth[2] (2)	Annualized Dividend[3] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	Atmos Energy Corporation	$58.25	7.98%	$1.56	2.89%	10.87%
2	Laclede Group, Inc. (The)	$55.01	4.69%	$1.84	3.50%	8.19%
3	New Jersey Resources Corporation	$29.54	6.74%	$0.92	3.32%	10.07%
4	NiSource Inc.	$18.28	2.47%	$0.62	3.48%	5.94%
5	Northwest Natural Gas Company	$45.71	3.88%	$1.86	4.23%	8.11%
6	Piedmont Natural Gas Company, Inc.	$44.97	3.91%	$1.32	3.05%	6.96%
7	South Jersey Industries, Inc.	$24.79	7.06%	$1.00	4.34%	11.39%
8	Southwest Gas Corporation	$57.48	7.72%	$1.62	3.04%	10.75%
9	UGI Corporation	$34.77	8.33%	$0.92	2.87%	11.20%
10	WGL Holdings, Inc.	$57.68	5.35%	$1.85	3.38%	8.73%
11	**Average**	**$42.65**	**5.81%**	**$1.35**	**3.41%**	**9.22%**
12	**Median**					**9.40%**

Sources:

[1] Nasdaq.com, Downloaded November 23, 2015.

[2] Schedule MPG-6, page 3.

[3] *The Value Line Investment Survey*, September 4, 2015.

Missouri-American Water Company

Multi-Stage Growth DCF Model
Water Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Annualized Dividend[2] (2)	First Stage Growth[3] (3)	Second Stage Growth Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)	Third Stage Growth[4] (9)	Multi-Stage Growth DCF (10)
1	American States Water	$40.03	$0.90	4.33%	4.34%	4.36%	4.37%	4.38%	4.39%	4.40%	6.70%
2	American Water Works	$55.07	$1.36	7.28%	6.80%	6.32%	5.84%	5.36%	4.88%	4.40%	7.50%
3	Aqua America	$26.99	$0.71	5.68%	5.47%	5.26%	5.04%	4.83%	4.61%	4.40%	7.38%
4	California Water	$21.81	$0.67	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	7.73%
5	Connecticut Water Service	$40.03	$1.07	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	7.29%
6	Middlesex Water	$24.26	$0.77	4.20%	4.23%	4.27%	4.30%	4.33%	4.37%	4.40%	7.66%
7	SJW Corporation	$30.26	$0.78	14.00%	12.40%	10.80%	9.20%	7.60%	6.00%	4.40%	9.23%
8	York Water Company (The)	$22.23	$0.60	4.90%	4.82%	4.73%	4.65%	4.57%	4.48%	4.40%	7.29%
9	**Average**	**$32.58**	**$0.86**	**6.30%**	**5.98%**	**5.67%**	**5.35%**	**5.03%**	**4.72%**	**4.40%**	**7.60%**
10	Median										**7.44%**

Sources:
[1] Nasdaq.com, Downloaded November 23, 2015.
[2] *The Value Line Investment Survey*, October 16, 2015.
[3] Schedule MPG-4, page 1.
[4] *Blue Chip Economic Indicators*, October 10, 2015 at 14.

Missouri-American Water Company

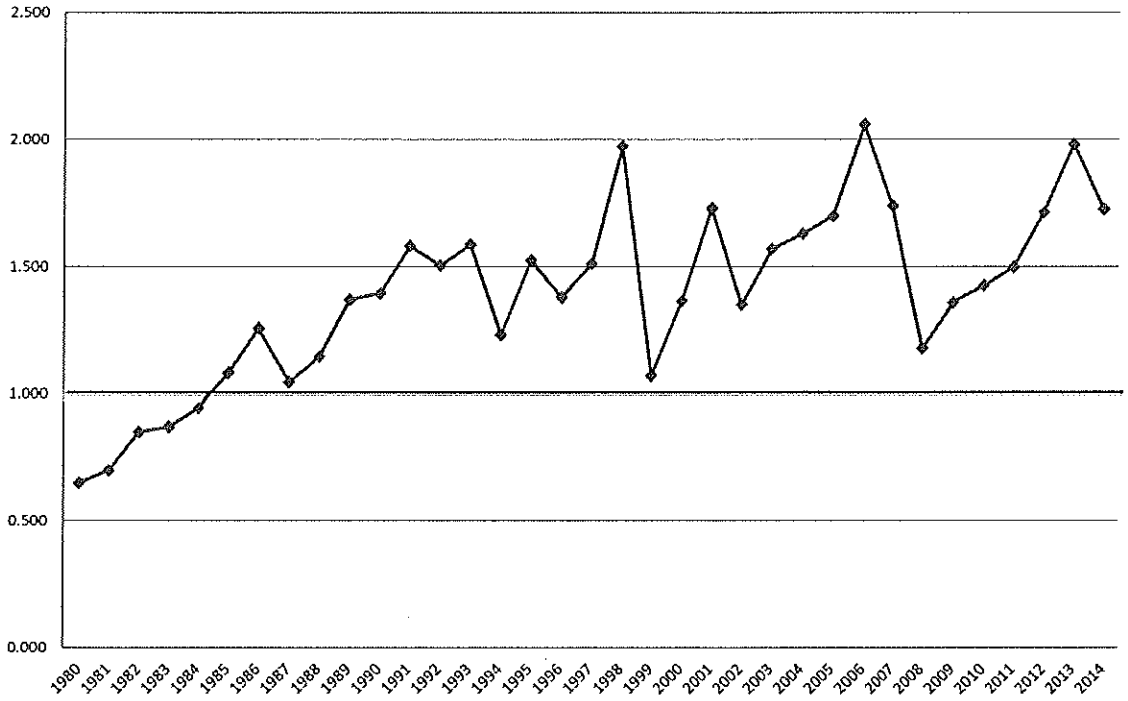
Multi-Stage Growth DCF Model
Gas Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Annualized Dividend[2] (2)	First Stage Growth[3] (3)	Second Stage Growth Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)	Third Stage Growth[4] (9)	Multi-Stage Growth DCF (10)
1	Atmos Energy Corporation	$58.25	$1.56	7.00%	6.57%	6.13%	5.70%	5.27%	4.83%	4.40%	7.70%
2	Laclede Group, Inc. (The)	$55.01	$1.84	4.56%	4.53%	4.51%	4.48%	4.45%	4.43%	4.40%	7.92%
3	New Jersey Resources Corporation	$29.54	$0.92	6.00%	5.73%	5.47%	5.20%	4.93%	4.67%	4.40%	8.00%
4	NiSource Inc.	$18.28	$0.62	N/A	N/A	N/A	N/A	N/A	N/A	4.40%	N/A
5	Northwest Natural Gas Company	$45.71	$1.86	4.00%	4.07%	4.13%	4.20%	4.27%	4.33%	4.40%	8.54%
6	Piedmont Natural Gas Company, Inc.	$44.97	$1.32	5.33%	5.18%	5.02%	4.87%	4.71%	4.56%	4.40%	7.65%
7	South Jersey Industries, Inc.	$24.79	$1.00	6.00%	5.73%	5.47%	5.20%	4.93%	4.67%	4.40%	9.07%
8	Southwest Gas Corporation	$57.48	$1.62	4.50%	4.48%	4.47%	4.45%	4.43%	4.42%	4.40%	7.35%
9	UGI Corporation	$34.77	$0.92	7.90%	7.32%	6.73%	6.15%	5.57%	4.98%	4.40%	7.85%
10	WGL Holdings, Inc.	$57.68	$1.85	6.83%	6.43%	6.02%	5.62%	5.21%	4.81%	4.40%	8.31%
11	**Average**	**$42.65**	**$1.35**	**5.79%**	**5.56%**	**5.33%**	**5.10%**	**4.86%**	**4.63%**	**4.40%**	**8.04%**
12	**Median**										**7.92%**

Sources:
[1] Nasdaq.com, Downloaded November 23, 2015.
[2] *The Value Line Investment Survey*, September 4, 2015.
[3] Schedule MPG-4, page 2.
[4] *Blue Chip Economic Indicators*, October 10, 2015 at 14.

Missouri-American Water Company

Common Stock Market/Book Ratio



* through Sep 2015

Source:
AUS Utility Reports, various dates.

Exhibit MPG-9

Missouri-American Water Company

Equity Risk Premium - Treasury Bond

Line	Year	Authorized Gas Returns[1] (1)	30 yr. Treasury Bond Yield[2] (2)	Indicated Risk Premium (3)	Rolling 5 - Year Average (4)	Rolling 10 - Year Average (5)
1	1986	13.46%	7.80%	5.66%		
2	1987	12.74%	8.58%	4.16%		
3	1988	12.85%	8.96%	3.89%		
4	1989	12.88%	8.45%	4.43%		
5	1990	12.67%	8.61%	4.06%	4.44%	
6	1991	12.46%	8.14%	4.32%	4.17%	
7	1992	12.01%	7.67%	4.34%	4.21%	
8	1993	11.35%	6.60%	4.75%	4.38%	
9	1994	11.35%	7.37%	3.98%	4.29%	
10	1995	11.43%	6.88%	4.55%	4.39%	4.42%
11	1996	11.19%	6.70%	4.49%	4.42%	4.30%
12	1997	11.29%	6.61%	4.68%	4.49%	4.35%
13	1998	11.51%	5.58%	5.93%	4.73%	4.55%
14	1999	10.66%	5.87%	4.79%	4.89%	4.59%
15	2000	11.39%	5.94%	5.45%	5.07%	4.73%
16	2001	10.95%	5.49%	5.46%	5.26%	4.84%
17	2002	11.03%	5.43%	5.60%	5.45%	4.97%
18	2003	10.99%	4.96%	6.03%	5.47%	5.10%
19	2004	10.59%	5.05%	5.54%	5.62%	5.25%
20	2005	10.46%	4.65%	5.81%	5.69%	5.38%
21	2006	10.43%	4.99%	5.44%	5.69%	5.47%
22	2007	10.24%	4.83%	5.41%	5.65%	5.55%
23	2008	10.37%	4.28%	6.09%	5.66%	5.56%
24	2009	10.19%	4.07%	6.12%	5.77%	5.69%
25	2010	10.08%	4.25%	5.83%	5.78%	5.73%
26	2011	9.92%	3.91%	6.01%	5.89%	5.79%
27	2012	9.94%	2.92%	7.02%	6.21%	5.93%
28	2013	9.68%	3.45%	6.23%	6.24%	5.95%
29	2014	9.78%	3.34%	6.44%	6.31%	6.04%
30	2015 [3]	9.49%	2.80%	6.69%	6.48%	6.13%
31	**Average**	**11.11%**	**5.81%**	**5.31%**	**5.26%**	**5.25%**
32	**Minimum**				**4.17%**	**4.30%**
	Maximum				**6.48%**	**6.13%**

Sources:

[1] Regulatory Research Associates, Inc., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 through Oct. 2015.

[2] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/. The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.

[3] The data includes the period Jan - Sep 2015.

Missouri-American Water Company

Equity Risk Premium - Utility Bond

Line	Year	Authorized Gas Returns[1] (1)	Average "A" Rated Utility Bond Yield[2] (2)	Indicated Risk Premium (3)	Rolling 5 - Year Average (4)	Rolling 10 - Year Average (5)
1	1986	13.46%	9.58%	3.88%		
2	1987	12.74%	10.10%	2.64%		
3	1988	12.85%	10.49%	2.36%		
4	1989	12.88%	9.77%	3.11%		
5	1990	12.67%	9.86%	2.81%	2.96%	
6	1991	12.46%	9.36%	3.10%	2.80%	
7	1992	12.01%	8.69%	3.32%	2.94%	
8	1993	11.35%	7.59%	3.76%	3.22%	
9	1994	11.35%	8.31%	3.04%	3.21%	
10	1995	11.43%	7.89%	3.54%	3.35%	3.16%
11	1996	11.19%	7.75%	3.44%	3.42%	3.11%
12	1997	11.29%	7.60%	3.69%	3.49%	3.22%
13	1998	11.51%	7.04%	4.47%	3.64%	3.43%
14	1999	10.66%	7.62%	3.04%	3.64%	3.42%
15	2000	11.39%	8.24%	3.15%	3.56%	3.45%
16	2001	10.95%	7.76%	3.19%	3.51%	3.46%
17	2002	11.03%	7.37%	3.66%	3.50%	3.50%
18	2003	10.99%	6.58%	4.41%	3.49%	3.56%
19	2004	10.59%	6.16%	4.43%	3.77%	3.70%
20	2005	10.46%	5.65%	4.81%	4.10%	3.83%
21	2006	10.43%	6.07%	4.36%	4.33%	3.92%
22	2007	10.24%	6.07%	4.17%	4.44%	3.97%
23	2008	10.37%	6.53%	3.84%	4.32%	3.91%
24	2009	10.19%	6.04%	4.15%	4.27%	4.02%
25	2010	10.08%	5.46%	4.62%	4.23%	4.16%
26	2011	9.92%	5.04%	4.88%	4.33%	4.33%
27	2012	9.94%	4.13%	5.81%	4.66%	4.55%
28	2013	9.68%	4.48%	5.20%	4.93%	4.63%
29	2014	9.78%	4.28%	5.50%	5.20%	4.73%
30	2015 [3]	9.49%	4.04%	5.45%	5.37%	4.80%
31	**Average**	**11.11%**	**7.18%**	**3.93%**	**3.87%**	**3.85%**
32	**Minimum**				**2.80%**	**3.11%**
33	**Maximum**				**5.37%**	**4.80%**

Sources:

[1] Regulatory Research Associates, Inc., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 through Oct. 2015.

[2] Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record. The utility yields from 2010-2015 were obtained from http://credittrends.moodys.com/.

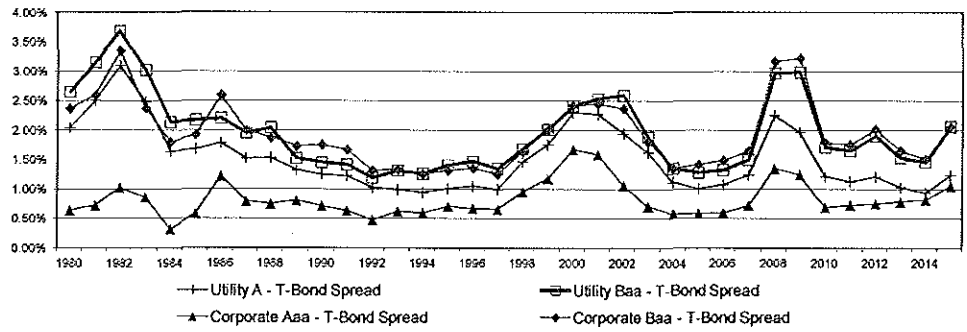
[3] The data includes the period Jan - Sep 2015.

Missouri-American Water Company

Bond Yield Spreads

Line	Year	T-Bond Yield[1] (1)	Public Utility Bond A[2] (2)	Public Utility Bond Baa[2] (3)	Public Utility Bond A-T-Bond Spread (4)	Public Utility Bond Baa-T-Bond Spread (5)	Corporate Bond Aaa[1] (6)	Corporate Bond Baa[1] (7)	Corporate Bond Aaa-T-Bond Spread (8)	Corporate Bond Baa-T-Bond Spread (9)	Utility to Corporate Baa Spread (10)	Utility to Corporate A-Aaa Spread (11)
1	1980	11.30%	13.34%	13.95%	2.04%	2.65%	11.94%	13.67%	0.64%	2.37%	0.28%	1.40%
2	1981	13.44%	15.95%	16.60%	2.51%	3.16%	14.17%	16.04%	0.73%	2.60%	0.56%	1.78%
3	1982	12.76%	15.86%	16.45%	3.10%	3.69%	13.79%	16.11%	1.03%	3.35%	0.34%	2.07%
4	1983	11.18%	13.66%	14.20%	2.48%	3.02%	12.04%	13.55%	0.86%	2.38%	0.65%	1.62%
5	1984	12.39%	14.03%	14.53%	1.64%	2.14%	12.71%	14.19%	0.32%	1.80%	0.34%	1.32%
6	1985	10.79%	12.47%	12.96%	1.68%	2.17%	11.37%	12.72%	0.58%	1.93%	0.24%	1.10%
7	1986	7.80%	9.58%	10.00%	1.78%	2.20%	9.02%	10.39%	1.22%	2.59%	-0.39%	0.56%
8	1987	8.58%	10.10%	10.53%	1.52%	1.95%	9.38%	10.58%	0.80%	2.00%	-0.05%	0.72%
9	1988	8.96%	10.49%	11.00%	1.53%	2.04%	9.71%	10.83%	0.75%	1.87%	0.17%	0.78%
10	1989	8.45%	9.77%	9.97%	1.32%	1.52%	9.26%	10.18%	0.81%	1.73%	-0.21%	0.51%
11	1990	8.61%	9.86%	10.06%	1.25%	1.45%	9.32%	10.36%	0.71%	1.75%	-0.29%	0.54%
12	1991	8.14%	9.36%	9.55%	1.22%	1.41%	8.77%	9.80%	0.63%	1.67%	-0.25%	0.59%
13	1992	7.67%	8.69%	8.86%	1.02%	1.19%	8.14%	8.98%	0.47%	1.31%	-0.12%	0.55%
14	1993	6.60%	7.59%	7.91%	0.99%	1.31%	7.22%	7.93%	0.62%	1.33%	-0.02%	0.37%
15	1994	7.37%	8.31%	8.63%	0.94%	1.26%	7.96%	8.62%	0.59%	1.25%	0.01%	0.35%
16	1995	6.88%	7.89%	8.29%	1.01%	1.41%	7.59%	8.20%	0.71%	1.32%	0.09%	0.30%
17	1996	6.70%	7.75%	8.17%	1.05%	1.47%	7.37%	8.05%	0.67%	1.35%	0.12%	0.38%
18	1997	6.61%	7.60%	7.95%	0.99%	1.34%	7.26%	7.86%	0.66%	1.26%	0.09%	0.34%
19	1998	5.58%	7.04%	7.26%	1.46%	1.68%	6.53%	7.22%	0.95%	1.64%	0.04%	0.51%
20	1999	5.87%	7.62%	7.88%	1.75%	2.01%	7.04%	7.87%	1.18%	2.01%	0.01%	0.58%
21	2000	5.94%	8.24%	8.36%	2.30%	2.42%	7.62%	8.36%	1.68%	2.42%	-0.01%	0.62%
22	2001	5.49%	7.76%	8.03%	2.27%	2.54%	7.08%	7.95%	1.59%	2.45%	0.08%	0.68%
23	2002	5.43%	7.37%	8.02%	1.94%	2.59%	6.49%	7.80%	1.06%	2.37%	0.22%	0.88%
24	2003	4.96%	6.58%	6.84%	1.62%	1.89%	5.67%	6.77%	0.71%	1.81%	0.08%	0.91%
25	2004	5.05%	6.16%	6.40%	1.11%	1.35%	5.63%	6.39%	0.58%	1.35%	0.00%	0.53%
26	2005	4.65%	5.65%	5.93%	1.00%	1.28%	5.24%	6.06%	0.59%	1.42%	-0.14%	0.41%
27	2006	4.99%	6.07%	6.32%	1.08%	1.32%	5.59%	6.48%	0.60%	1.49%	-0.16%	0.48%
28	2007	4.83%	6.07%	6.33%	1.24%	1.50%	5.56%	6.48%	0.72%	1.65%	-0.15%	0.52%
29	2008	4.28%	6.53%	7.25%	2.25%	2.97%	5.63%	7.45%	1.35%	3.17%	-0.20%	0.90%
30	2009	4.07%	6.04%	7.06%	1.97%	2.99%	5.31%	7.30%	1.24%	3.23%	-0.24%	0.72%
31	2010	4.25%	5.46%	5.96%	1.21%	1.71%	4.94%	6.04%	0.69%	1.79%	-0.08%	0.52%
32	2011	3.91%	5.04%	5.56%	1.13%	1.65%	4.64%	5.66%	0.73%	1.75%	-0.10%	0.40%
33	2012	2.92%	4.13%	4.83%	1.21%	1.91%	3.67%	4.94%	0.75%	2.01%	-0.11%	0.46%
34	2013	3.45%	4.48%	4.98%	1.03%	1.53%	4.24%	5.10%	0.79%	1.65%	-0.12%	0.24%
35	2014	3.34%	4.28%	4.80%	0.94%	1.46%	4.16%	4.85%	0.82%	1.51%	-0.06%	0.11%
36	2015[3]	2.80%	4.04%	4.86%	1.24%	2.06%	3.85%	4.86%	1.05%	2.06%	0.00%	0.19%
37	**Average**	**6.83%**	**8.36%**	**8.79%**	**1.52%**	**1.95%**	**7.66%**	**8.77%**	**0.83%**	**1.93%**	**0.02%**	**0.69%**

Yield Spreads
Treasury Vs. Corporate & Treasury Vs. Utility



Sources:

[1] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/.

[2] Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record. The utility yields from 2010-2015 were obtained from http://credittrends.moodys.com/.

[3] The data includes the period Jan - Sep 2015.

Missouri-American Water Company

Treasury and Utility Bond Yields

Line	Date	Treasury Bond Yield[1] (1)	"A" Rated Utility Bond Yield[2] (2)	"Baa" Rated Utility Bond Yield[2] (3)
1	11/20/15	3.00%	4.39%	5.58%
2	11/13/15	3.06%	4.43%	5.59%
3	11/06/15	3.09%	4.46%	5.62%
4	10/30/15	2.93%	4.32%	5.47%
5	10/23/15	2.90%	4.29%	5.46%
6	10/16/15	2.87%	4.27%	5.45%
7	10/09/15	2.94%	4.34%	5.50%
8	10/02/15	2.82%	4.25%	5.44%
9	09/25/15	2.96%	4.39%	5.45%
10	09/18/15	2.93%	4.36%	5.37%
11	09/11/15	2.95%	4.38%	5.38%
12	09/04/15	2.89%	4.32%	5.36%
13	08/28/15	2.92%	4.34%	5.39%
14	**Average**	**2.94%**	**4.35%**	**5.47%**
15	**Spread To Treasury**		**1.41%**	**2.53%**

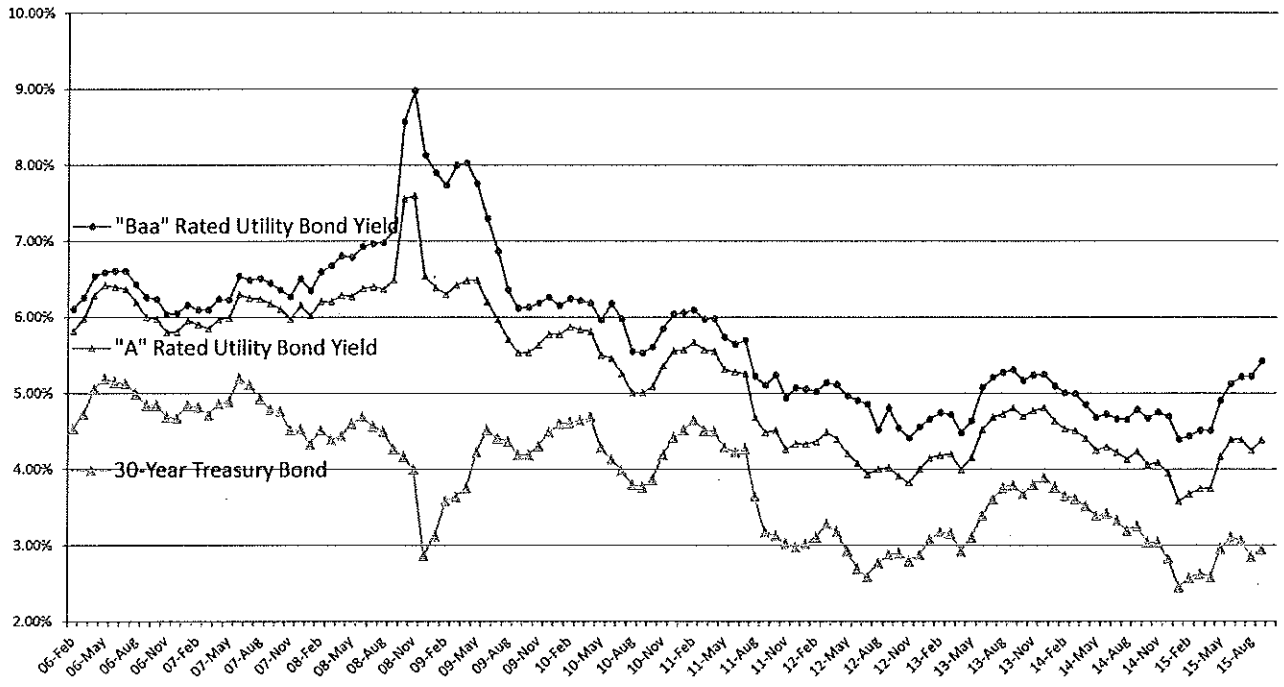
Sources:

[1] St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org.

[2] http://credittrends.moodys.com/.

Missouri-American Water Company

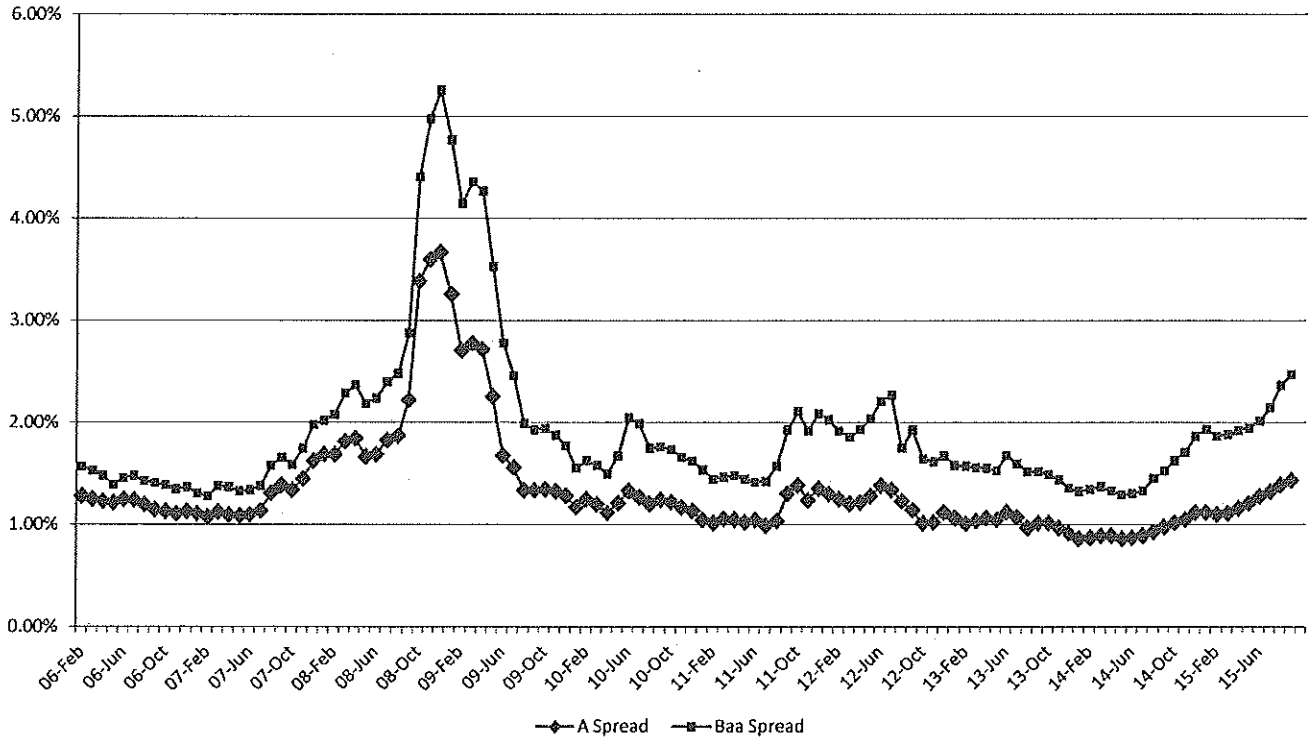
Trends in Bond Yields



Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/

Missouri-American Water Company

Yield Spread Between Utility Bonds and 30-Year Treasury Bonds



Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
St. Louis Federal Reserve: Economic Research, http://research.stlouisfed.org/

Missouri-American Water Company

Value Line Beta
Water Utilities

Line	Company	Beta
1	American States Water	0.70
2	American Water Works	0.70
3	Aqua America	0.75
4	California Water	0.75
5	Connecticut Water Service	0.65
6	Middlesex Water	0.75
7	SJW Corporation	0.75
8	York Water Company (The)	0.75
9	**Average**	**0.73**

Source:
The Value Line Investment Survey,
October 16, 2015.

Missouri-American Water Company

Value Line Beta
Gas Utilities

Line	Company	Beta
1	Atmos Energy Corporation	0.85
2	Laclede Group, Inc. (The)	0.70
3	New Jersey Resources Corporation	0.85
4	NiSource Inc.	NMF
5	Northwest Natural Gas Company	0.70
6	Piedmont Natural Gas Company, Inc.	0.80
7	South Jersey Industries, Inc.	0.85
8	Southwest Gas Corporation	0.85
9	UGI Corporation	0.95
10	WGL Holdings, Inc.	0.80
11	**Average**	**0.82**

Source:
The Value Line Investment Survey,
September 4, 2015.

Missouri-American Water Company

CAPM Return
Water Utilities

Line	Description	High Market Risk Premium (1)	Low Market Risk Premium (2)
1	Risk-Free Rate[1]	3.80%	3.80%
2	Risk Premium[2]	7.60%	6.00%
3	Beta[3]	0.73	0.73
4	**CAPM**	**9.31%**	**8.15%**

Sources:

[1] *Blue Chip Financial Forecasts*; November 1, 2015, at 2.

[2] Morningstar, Inc. *Ibbotson SBBI 2015 Classic Yearbook* at 91, 92 and 152.

[3] Schedule MPG-14, page 1.

Missouri-American Water Company

CAPM Return
Gas Utilities

Line	Description	High Market Risk Premium (1)	Low Market Risk Premium (2)
1	Risk-Free Rate[1]	3.80%	3.80%
2	Risk Premium[2]	7.60%	6.00%
3	Beta[3]	0.82	0.82
4	**CAPM**	**10.01%**	**8.70%**

Sources:

[1] *Blue Chip Financial Forecasts*; November 1, 2015, at 2.

[2] Morningstar, Inc. *Ibbotson SBBI 2015 Classic Yearbook* at 91, 92, and 152.

[3] Schedule MPG-14, page 2.

Missouri-American Water Company

Standard & Poor's Credit Metrics

Line	Description	Retail Cost of Service Amount (1)	S&P Benchmark (Low Volatility)[1/2] Modest (2)	Intermediate (3)	Significant (4)	Reference (5)
1	Rate Base	$ 1,082,646,851				Schedule CAS-1.
2	Weighted Common Return	4.55%				Page 2, Line 3, Col. 4.
3	Pre-Tax Rate of Return	10.16%				Page 2, Line 4, Col. 5.
4	Income to Common	$ 49,298,628				Line 1 x Line 2.
5	EBIT	$ 109,968,251				Line 1 x Line 3.
6	Depreciation & Amortization	$ 42,015,486				Schedule CAS-2.
7	Imputed Amortization	$ -				N/A
8	Deferred Income Taxes & ITC	$ 28,395,769				Schedule CAS-1.
9	Funds from Operations (FFO)	$ 119,709,883				Sum of Line 4 and Lines 6 through 8.
10	Imputed and Capitalized Interest Expens	$ -				N/A
11	EBITDA	$ 151,983,737				Sum of Lines 5 through 7 and Line 10.
12	Total Debt Ratio	49%				Page 3, Line 3, Col. 2.
13	Debt to EBITDA	3.5x	2.0x - 3.0x	3.0x - 4.0x	4.0x - 5.0x	(Line 1 x Line 12) / Line 11.
14	FFO to Total Debt	22%	23% - 35%	13% - 23%	9% - 13%	Line 9 / (Line 1 x Line 12).

Sources:

[1] Standard & Poor's RatingsDirect: "Criteria: Corporate Methodology," November 19, 2013.

[2] Standard & Poor's RatingsDirect: "Research Update: American Water Works Co. Inc. And Subsidiaries Ratings Raised To 'A' From 'A-' On Improved Financial Measures.," May 7, 2015.

Note:

Based on the May 2015 S&P report, AWWC has an "Excellent" business risk profile and an "Intermediate" financial risk profile, and falls under the "Low Volatility" matrix.

Missouri-American Water Company

Standard & Poor's Credit Metrics
(Pre-Tax Rate of Return)

Line	Description	Amount[1] (1)	Weight (2)	Cost (3)	Weighted Cost (4)	Pre-Tax Weighted Cost (5)
1	Long-Term Debt	$ 498,608,750	49.28%	5.42%	2.67%	2.67%
2	Preferred Stock	$ 1,227,850	0.12%	9.46%	0.01%	0.01%
3	Common Equity	$ 511,870,981	50.59%	9.00%	4.55%	7.47%
4	**Total**	**$ 1,011,707,581**	**100.00%**		**7.24%**	**10.16%**
5	Tax Conversion Factor*					1.6415

Sources:
[1] Schedule MPG-1.
* Schedule CAS-1.

Missouri-American Water Company

Standard & Poor's Credit Metrics
(Financial Capital Structure)

Line	Description	Amount (1)	Weight (2)
1	Long-Term Debt	$ 498,608,750	49.28%
2	Preferred Stock	$ 1,227,850	0.12%
3	**Total Debt**	**$ 499,836,600**	**49.41%**
4	Common Equity	511,870,981	50.59%
5	**Total**	**$ 1,011,707,581**	**100.00%**

Sources:
Page 2.

Missouri-American Water Company

Multi-Stage Growth DCF Model
Morin's Water Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Annualized Dividend[1] (2)	Value Line Growth[2] (3)	Second Stage Growth Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)	Third Stage Growth[3] (9)	Multi-Stage Growth DCF (10)
1	American States Water	$39.76	$0.88	6.50%	6.15%	5.80%	5.45%	5.10%	4.75%	4.40%	7.03%
2	American Water Works	$54.68	$1.33	7.50%	6.98%	6.47%	5.95%	5.43%	4.92%	4.40%	7.49%
3	Aqua America	$26.81	$0.71	8.00%	7.40%	6.80%	6.20%	5.60%	5.00%	4.40%	7.87%
4	California Water	$24.76	$0.67	7.50%	6.98%	6.47%	5.95%	5.43%	4.92%	4.40%	7.84%
5	Connecticut Water Service	$36.82	$1.05	6.50%	6.15%	5.80%	5.45%	5.10%	4.75%	4.40%	7.80%
6	Middlesex Water	$22.97	$0.77	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	8.03%
7	SJW Corporation	$30.62	$0.78	6.50%	6.15%	5.80%	5.45%	5.10%	4.75%	4.40%	7.44%
8	Consolidated Water	$12.43	$0.30	10.50%	9.48%	8.47%	7.45%	6.43%	5.42%	4.40%	8.10%
9	York Water Company (The)	$24.01	$0.60	6.50%	6.15%	5.80%	5.45%	5.10%	4.75%	4.40%	7.38%
10	Average	$30.32	$0.79	7.17%	6.71%	6.24%	5.78%	5.32%	4.86%	4.40%	7.67%
11	Median										7.80%

Sources:
[1] *The Value Line Investment Survey*, April 17, 2015.
[2] Schedule RAM-2, page 2.
[3] *Blue Chip Economic Indicators*, October 10, 2015 at 14.

Missouri-American Water Company

Multi-Stage Growth DCF Model
Morin's Water Utilities

Line	Company	13-Week AVG Stock Price[1] (1)	Annualized Dividend[1] (2)	Analysts' Growth[2] (3)	Second Stage Growth Year 6 (4)	Year 7 (5)	Year 8 (6)	Year 9 (7)	Year 10 (8)	Third Stage Growth[3] (9)	Multi-Stage Growth DCF (10)
1	American States Water	$39.76	$0.88	3.00%	3.23%	3.47%	3.70%	3.93%	4.17%	4.40%	6.46%
2	American Water Works	$54.68	$1.33	7.80%	7.23%	6.67%	6.10%	5.53%	4.97%	4.40%	7.55%
3	Aqua America	$26.81	$0.71	4.50%	4.48%	4.47%	4.45%	4.43%	4.42%	4.40%	7.17%
4	California Water	$24.76	$0.67	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	7.33%
5	Connecticut Water Service	$36.82	$1.05	5.00%	4.90%	4.80%	4.70%	4.60%	4.50%	4.40%	7.49%
6	Middlesex Water	$22.97	$0.77	2.70%	2.98%	3.27%	3.55%	3.83%	4.12%	4.40%	7.52%
7	SJW Corporation	$30.62	$0.78	14.00%	12.40%	10.80%	9.20%	7.60%	6.00%	4.40%	9.17%
8	Consolidated Water	$12.43	$0.30	9.00%	8.23%	7.47%	6.70%	5.93%	5.17%	4.40%	7.77%
9	York Water Company (The)	$24.01	$0.60	4.90%	4.82%	4.73%	4.65%	4.57%	4.48%	4.40%	7.08%
10	Average	$30.32	$0.79	6.21%	5.91%	5.61%	5.31%	5.00%	4.70%	4.40%	7.50%
11	Median										7.49%

Sources:
[1] *The Value Line Investment Survey*, April 17, 2015.
[2] Schedule RAM-3, page 1.
[3] *Blue Chip Economic Indicators*, October 10, 2015 at 14.