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Witness: *David Murray*
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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

OPERATIONAL ANALYSIS

FINANCIAL ANALYSIS

SURREBUTTAL TESTIMONY

OF

DAVID MURRAY

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2015-0301

Staff Ex 26

Jefferson City, Missouri
March 2016

** Denotes Highly Confidential Information **

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Q. Please state your name.

A. My name is David Murray.

Q. Are you the same David Murray who prepared the Rate of Return Section of the Staff's Cost of Service Report ("Staff Report"), Rebuttal Testimony and Rebuttal to Supplemental Direct Testimony in this case?

A. Yes, I am.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to Roger A. Morin's and Scott W. Rungren's rebuttal testimonies and to true-up my capital structure recommendation and corresponding embedded costs. Both witnesses sponsored rate-of-return (ROR) testimony on behalf of Missouri-American Water Company (MAWC). Dr. Morin's testimony primarily focused on a fair and reasonable allowed return on common equity ("ROE"). Mr. Rungren's testimony primarily focused on his disagreement with Staff's recommended use of American Water Works Company's ("American Water") consolidated capital structure for purposes of setting MAWC's allowed rate of return.

EXECUTIVE SUMMARY

Q. What are Dr. Morin's primary criticisms of your ROR testimony?

A. Dr. Morin claims my testimony has "major infirmities" and is "replete with inconsistencies and contradictions." I am not sure what Dr. Morin means by "infirmities". As to the inconsistencies and contradictions, I apologize if my testimony indicating utility companies' cost of common equity ("COE") is less than their allowed ROEs is confusing. Some ROR witnesses may be confused; however, it is not confusing to the investment community.

As far as Dr. Morin's confusion about a fair and reasonable perpetual growth rate to use in a multi-stage discounted cash flow (DCF) analysis, I believe my testimony may have been misread. I clearly indicate I am using projected long-term gross domestic product (GDP) growth rates for my multi-stage DCF analysis of the water utility proxy group, and I use an industry growth rate for the electric utility proxy group Staff used in the recent Ameren Missouri and Kansas City Power and Light Company ("KCP&L") rate cases, Case Nos. ER-2014-0258 and ER-2014-0370, respectively. I explained that investors recognize the water utility industry is growing its rate base at a somewhat faster rate than the electric utility industry, which explains its higher earnings retention rates and lower dividend yields.

Dr. Morin also indicates my testimony explaining the increase in average long-term utility bond yields contradicts my claim that the cost of capital has not changed much since the Missouri Public Service Commission ("Commission") made its allowed ROE determinations in the Ameren Missouri and KCP&L rate cases.

Staff recognized the capital market's mixed signals: utility stock prices are increasing, yet utility bond prices are either staying the same or decreasing for lower grade investment grade rated utilities. Although utility stock prices have been increasing during the

broader market selloff in recent weeks, utility bond yields have been steady for 'A'-rated bonds, but increasing for 'BBB'-rated bonds. If Staff were strictly focusing on utility equity prices, Staff would conclude that the COE has declined in recent weeks, but Staff notes that at least 'A'-rated utility bond yields have been steady, causing Staff to conclude that utility capital market conditions have not changed significantly since the Commission made its determinations in the Ameren Missouri and KCP&L rate cases. Consequently, Staff's lower recommended allowed ROE is simply due to lower implied costs of equity for the water utility industry as compared to the electric utility industry.

Dr. Morin also expresses concern about Staff's use of a "double leverage" approach for purposes of its capital structure recommendation. Staff did not use a "double leverage" approach. Staff simply recommended that American Water's consolidated capital structure and capital costs be used to set MAWC's allowed ROR.

Q. What are Mr. Rungren's primary criticisms of your ROR testimony?

A. Mr. Rungren addresses my recommended capital structure. He advocates for use of MAWC's per books capital structure because he claims it is managed as an independent entity. Staff has had difficulties understanding how debt assignments are being made to MAWC. Staff has been unable to identify the third-party debt transaction(s) underlying 13 of MAWC's debt assignments. Being that all transactions with American Water Capital Corporation (AWCC) and American Water are affiliate transactions, MAWC has the burden of proof to show how these affiliate transactions are prudent. Just the mere fact that MAWC has affiliate debt shows it is not a "stand-alone" entity.

Q. Does Staff recommend a true-up of the capital structure and embedded costs of capital?

A. Yes. MAWC has provided American Water financial information through December 31, 2015, to allow Staff to update its capital structure and embedded costs of capital inputs. Although the agreed-to true-up date is through January 31, 2016, because MAWC was only able to provide American Water information through year-end, Staff used this data for its true-up recommendation.

RESPONSE TO DR. MORIN'S REBUTTAL TESTIMONY

Q. Does Dr. Morin's rebuttal testimony help the Commission compare, contrast, interpret and understand the current economic and capital market environment and how it affects the cost of capital for the various segments of the utility industry?

A. No. Dr. Morin does not provide insightful testimony about the current capital market environment and whether the Commission should allow an ROE much different than its recent authorizations for Missouri's electric utilities.

Q. Did you provide and discuss a considerable amount of market and financial data on the water and electric utility industries in the Staff Report?

A. Yes. Staff understands that the models used by ROR witnesses are very much a matter of judgment and interpretation and that each utility rate case that the Commission hears usually involves the same methodologies and the same arguments. This case is no different. Less than a year has passed since the Commission heard utility cost of capital evidence in the most recent electric utility rate cases. The main difference in this case is the Commission would be setting an allowed ROE for water and sewer utility operations rather than electric utility operations. Consequently, Staff believes a much more efficient and effective use of its and the Commission's time is to compare and contrast water and electric utilities' capital market and financial data as well as evaluating any changes in utility equity

valuation levels since the Commission determined an approximate 9.5% ROE was fair and reasonable.

Q. Do recent capital market events support the Commission maintaining its view that an allowed ROE of no higher than 9.5% is fair and reasonable for Ameren Missouri and KCP&L?

A. Yes. Although broader capital markets have been very turbulent since the beginning of this year, utility stocks have been doing very well during this period of turbulence. Through February 29, 2016, the year-to-date (YTD) total return for water utilities, electric utilities and gas utilities was 4.8%, 4.0% and 6.7%, respectively. This compares to a YTD total return for the same period for the S&P 500, Dow Jones Industrial Average and the NASDAQ of -4.3%, -4.0% and -8.1%, respectively.[1] The fact that utilities are doing so well during a period of global economic uncertainty confirms that the utility industry is able to attract capital with little difficulty and it appears they are able to do so at even lower costs than as recently as the end of 2015. If anything, Staff believes this supports the Commission authorizing MAWC an ROE lower than the 9.5% it recently authorized its electric utilities.

Q. What has happened to water and electric utility P/E ratios and dividend yields since you prepared the ROR Section of the Staff Report in this case?

A. Water and electric utility P/E ratios have increased, while dividend yields have decreased. To the extent these changes can't be explained by fundamental changes in growth patterns for either industry over the last three months, the changes are due to a decline in the COE. Because long-term US Treasury bond yields have been declining, it appears to be due to the latter. According to data from the February 29, 2016, edition of

[1] Daniel M. Fidell, "USCA Weekly Downstream Utility Update," U.S. Capital Advisors, February 29, 2016.

U.S. Capital Advisors' "USCA Weekly Downstream Utility Update," the average dividend yield on Staff's water utility proxy group was 2.44% as of February 26, 2016. This compares to the average for Staff's water utility proxy group of 2.63% as of December 4, 2015. According to the same publication, the average P/E ratio for Staff's proxy group was 22.88x as of February 26, 2016, whereas the average P/E ratio for Staff's proxy group was 20.86x as of the December 4, 2015. The decrease in the dividend yields and the increased in the P/E ratios all occurred despite no change in the fundamentals of the industry, which indicates the cause of the price increase was due to macroeconomic factors, i.e., lower interest rates.

As of February 26, 2016, the average dividend yield for Staff's 2014 electric utility proxy group was 3.42%. This compares to the average for Staff's 2014 electric utility proxy group of 3.60% as of December 4, 2015. According to the same publication, the average P/E ratio for Staff's 2014 electric utility proxy group was 17.72x as of February 26, 2016, whereas the average P/E ratio for Staff's proxy group was 16.14x as of the December 4, 2015 publication.

The fact that the P/E ratios for both the electric and water utility industries have gone up and dividend yields have come down implies that the COE for utility companies has declined since Staff performed its analysis for purposes of the Staff Report. Consequently, Staff's recommended allowed ROE of 9.25% for MAWC continues to be fair and reasonable.

Q. Does Dr. Morin appear to be confused about how you approached your testimony in this case?

A. Yes. Staff has taken a different approach since Dr. Morin last sponsored ROR testimony in Missouri for the Union Electric rate case, Case No. ER-2010-0036. This is due to Staff's logical and supported position that the utility industries' COE is lower than

allowed ROE. To the extent Dr. Morin honestly believes MAWC's COE is 10.7%, Staff understands his confusion. Dr. Morin is also apparently confused about the purpose of Staff's inclusion of the electric proxy COE analysis. Staff included an updated analysis of the electric utility proxy group it used in the recent electric rate cases in order to give the Commission a frame of reference to judge whether capital markets had changed significantly since it recently allowed ROEs of approximately 9.5%.

Dr. Morin claims that my multi-stage DCF produces an "improbably low range" of 7.0% - 7.5% yet I recommend an ROE of 9.25%. Dr. Morin indicates he does not understand how I could recommend a 9.25% ROE if my COE estimates are in the 7% range. I believe I explained in the Staff Report that I was making my recommendation based on my estimate of what I believe a fair allowed ROE would be for MAWC as compared to the Commission's recent decisions in the Ameren Missouri and KCP&L rate cases. Also, obviously I do not agree with Dr. Morin that a 7% to 7.5% COE estimate is "improbably low." In fact, Staff has repeatedly provided examples from the investment community that a COE for water utilities is not higher than the 7% range and is more likely in the 6% range in the current low-interest rate, low-return environment. Consequently, Dr. Morin and I have a fundamental disagreement about the probable level of a COE for utilities in the current markets.

Q. Dr. Morin also takes issue with the many different estimates you give for the COE differences between the water and electric utility industries. How do you respond to this?

A. First, I think it's important to point out that Dr. Morin does not even attempt to quantify the difference in the COE for electric and water utilities as Staff did. Second, obviously estimating the COE is not an exact science so it really should not be surprising that

Staff's analysis shows a range of differences in COE estimates. Although Staff estimated the difference in COE between electric and water utilities could be as much as 100 basis points, because debt yields were not widely divergent between American Water and Ameren Missouri, Staff chose to recommend only a 25 basis point reduction to the Commission's recent allowed ROEs of approximately 9.5%.

Q. On page 6, line 20 through page 7, line 2, of his rebuttal testimony, Dr. Morin indicates that you argue that utilities' costs of capital are higher since the Commission authorized an approximate 9.5% allowed ROE for Ameren Missouri and KCP&L. Did Dr. Morin accurately paraphrase your testimony?

A. No. While Dr. Morin is correct that Staff's analysis of average utility bond yields (inclusive of all 'Aa,' 'A' and 'Baa' rated utilities) published in the Mergent Bond Record ("Mergent") showed an increase in average utility bond yields since the Commission determined a 9.5% allowed ROE was fair and reasonable, he did not mention Staff's more detailed analysis on specific utility bond rating categories, which Staff discussed in its testimony immediately after the discussion on aggregate bond yield changes.

As Staff went on to explain, the spread between 'A'-rated utility bonds and 'BBB'- rated utility bonds has recently doubled from its long-term historical average spread of about 50 basis points. Staff discussed how the increase in the spread was consistent with investors' increased risk aversion that is causing the yields on junk bonds and lower-grade investment grade bonds to increase. However, this was not evident for bonds with stronger credit ratings, such as the 'A' rating assigned to American Water's bonds. At the time Staff wrote its rebuttal testimony, the yield-to-maturity (YTM) on American Water's debt seemed to be fairly consistent with the YTM on American Water's debt during the fall of 2014.

Q. How have American Water's bonds been trading in the last few weeks?

A. Over-the-counter (OTC) trades on American Water's utility bonds have bid up the price of these bonds, which resulted in a lower YTM on the bonds. Consequently, this implies that due to the flight to safety in US Government bonds and other safe haven securities, the cost of capital for safer investments has declined in recent weeks. In fact, 10-year US Treasury bond yields are once again below 2%, which was not expected as recently as the end of last year. This is having a positive impact (lower cost of capital) on utility securities.

Q. What has happened to American Water's bond yields since Staff filed its rebuttal testimony?

A. They have declined slightly; however, this is only based on a few trades. Although this is informative, Staff is not comfortable recommending a lower allowed ROE based on just a few bond trades. However, this does give Staff confidence that an allowed ROE of 9.25% is fair and reasonable for MAWC.

Q. Has Staff discovered any important information since it performed its analysis and sponsored both direct (via the Staff Report) and rebuttal testimony for this case?

A. Yes. Although the increase in the spread between 'BBB'-rated utility bond and 'A'-rated utility bonds published in the Mergent seemed consistent with Staff's understanding of issues causing lower grade bonds to have a much higher YTM, the spread was much higher than what seemed to be reasonable for fairly stable utility bonds, especially considering the mixed message of increases in utility stock prices but declines in utility bond prices at least as implied by the Moody's public utility bond yield averages. Staff also understood that the energy sector, which includes energy pipeline operators and merchant

generation operators, have been experiencing significant volatility in capital market prices. Often, many of these energy companies are broadly classified as "utilities" for purposes of various stock and bond indices.

Consequently, Staff pursued additional information from Mergent as to the underlying bonds that make up the current Moody's public utility bond averages. The information provided by Mergent showed that energy pipeline companies, with significant exposure to commodity price volatility, were classified as "utilities" and were still rated 'Baa' (Moody's equivalent of S&P's 'BBB' rating). A few examples of the energy companies' bonds that are included the Moody's 'Baa' public utility bond yield index are: El Paso Pipeline Partners, Energy Transfer Partners LP, Enlink Midstream Partners LP, Kinder Morgan Energy Partners, and Williams Partners LP. It has been fairly widely recognized in the financial community that these companies' security prices have been very volatile and declined significantly. For example, El Paso Pipeline Partners' bond[2] has traded at YTM's of around 7% during February 2016; Energy Transfer Partners LP's bond[3] has traded at YTM's of around 8% during February 2016; Williams Partners LP's bond[4] has traded at YTM's of around 8.5% during February 2016; and Enlink Midstream Partners LP's bond[5] has traded at YTM's close to 11% around February 24, 2016 (this is the highest YTM of the bonds in the index).

The energy company bonds in the Moody's "utility" index make up seven (7) of the 18 bonds in the index. Staff requested Mergent provide information on the methodology it uses to calculate its utility bond yield averages; however, Mergent considered this

[2] CUSIP: 28370TAF6
[3] CUSIP: 29273RAZ2
[4] CUSIP: 96950FAN4
[5] CUSIP: 29336UAC1

information to be proprietary. However, removing these energy related "utility" bonds from the index would cause the average utility bond yield average to decrease since the rest of the bonds in the index trade in the 4.5% to 5.0% range, which is much more typical of investment grade regulated utility bonds.

Q. Dr. Morin claims that you contradict yourself by claiming that the recent Federal Reserve ("Fed") Funds rate increase will not necessarily cause an increase in long-term rates. How do you respond?

A. While Staff certainly did not predict long-term rates would decrease after the Fed increased the Fed Funds rate. This has happened. While the Fed's action in December 2015 had a direct impact on short-term rates, long-term rates are a function of market forces. Long-term rates have declined significantly since the Fed increased the Fed Funds rate at its December 15-16, 2015 meeting. Ten-year US Treasury Bond yields have declined by approximately 50 basis points since the Feds lowered the Fed Funds rate. Thirty-Year US Treasury Bond yields have declined by approximately 40 basis points for the same period.

Q. Have long-term corporate bond yields also declined?

A. No. 'A'-rated corporate bond yields have held fairly steady, while 'BBB'-rated corporate bond yields have increased slightly.

Q. Why haven't corporate bonds yields declined along with US Treasuries?

A. This is mainly due to increased risk aversion. This is explained by the fact that low-risk investments, such as utility stocks, have been bid up in price, while higher-risk investments have experienced price declines.

Q. Does Dr. Morin attempt to explain any of these relationships in his rebuttal testimony?

A. No. Dr. Morin's testimony does nothing to assist the Commission with understanding the events occurring in the capital and economic environment. Although the purpose of his rebuttal testimony is to attempt to discredit my testimony, his lack of analysis of various capital market ratios, such as comparing and contrasting dividend yields and P/E ratios either over time or across utility sectors, does nothing to provide the Commission with any basis to authorize an ROE any higher than it recently allowed for KCP&L and Ameren Missouri.

Q. What do you mean?

A. For instance, Staff compared and contrasted valuation metrics for the water utility industry, as compared to the electric utility industry, to attempt to determine if there was a rational explanation for the differences other than a lower required return for water utility stocks as compared to electric utility stocks. If one were to simply compare the P/E ratios of the water and electric utility industry, because the water utility industry's P/E ratios are significantly higher than that of the electric utility industry, this would seem to imply that equity investors are willing to accept lower returns for investments in water utility stocks. However, in order for this to be a reliable conclusion, one would also have to assume that water utility stock prices will grow at the same rate as stocks in the electric utility industry. As Staff discussed in the Staff Report, this has not historically been the case. Consequently, the water utility industry's higher P/E ratios can be explained in part by higher expected growth.

Q. Did Dr. Morin provide any meaningful insight about the valuation differences for the water utility industry as compared to other utilities?

A. No. Dr. Morin seems to believe that his use of theoretical models that rely on abstract assumptions provide the Commission with sufficient evidence that the water utility industry's COE is in the 10% range, even when there is a wealth of evidence from actual capital market practitioners that indicates otherwise. If capital market participants use a COE that is over 300 basis points lower than an estimate, this would certainly cause most practitioners/academics to reevaluate whether they are using rational inputs in their models.

Q. Dr. Morin claims that you used GDP growth rates in the range of 3% to 4.5% in your analysis and testimony. Did he understand your testimony correctly?

A. No. I clearly indicate in the Staff Report that the premise for the perpetual growth rate for the multi-stage DCF analysis of the water utility proxy group is an expected GDP growth rate of 4% to 4.5%.[6] However, for purposes of estimating the difference in the COE between the electric and water utility industries, I use the same GDP growth rate, 4.4%, I used in the recent Ameren Missouri rate case.[7]

When Dr. Morin claims that I used a GDP growth rate of 3% to 4% for purposes of my analysis of the electric utility industry, he clearly either did not read my testimony or perhaps did not understand it. Staff specifically stated the following on page 39 of the Staff's Cost of Service Report:

> Staff's multi-stage DCF analysis of the electric utility industry assumed a perpetual growth rate of 3% to 4% based on Staff's compilation and calculation of rolling 10-year compound growth rates for the electric utility industry for the period 1968 through 1999. Staff also used a perpetual growth rate of 4.4% based on the

[6] Staff Report-Revenue Requirement Cost of Service, p. 33, ll. 16-19.
[7] *Id.* p. 33, ll. 20-24.

> assumption that the electric utility industry could grow in perpetuity at the same rate as the expected long-term growth rate in the U.S. economy as measured by GDP.

Q. Dr. Morin claims that you offer no foundation or support for your testimony which indicates that investors in utility companies tend to assume perpetual growth rates for utilities closer to the expected rate of inflation rather than an expected growth rate in the economy. Did you provide a response to a data request in when Dr. Morin inquired about these statements?

A. Yes. Dr. Morin issued Data Request No. 390 to request Staff's support for this statement in its testimony. Staff responded as follows:

> Staff's statement is based on Staff's analysis of many utility stock research reports and companies' internal investment analyses over the last several years. While Staff has not kept a central archive of such analyses (and in some cases these analyses were marked Highly Confidential by the company providing the analyses involving internal valuation), Staff has cited this information in various testimonies in the past. Specifically, Staff cited this information in testimony in the following cases: Case Nos. ER-2014-0258, ER-2012-0174, ER-2012-0175, ER-2012-0166, ER-2011-0128, ER-2010-0036, ER-2010-0355, ER-2010-0356, WR-2010-0131, GR-2009-0355, ER-2009-0089, ER-2009-0090. Staff has frequently come across this information so Staff cannot be sure that it has cited all testimonies in which it has cited these examples. To the extent the Company wants copies of any of the specific examples cited in these testimonies, please list the specific examples and Staff will provide copies to the extent they were not marked HC.

Q. Did Dr. Morin follow-up to request specific examples from these testimonies?

A. No.

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Q. Do you have any other examples from research reports provided by the investment community?

A. Yes. In fact, Staff discussed these examples in an electric rate case in which Dr. Morin sponsored ROR testimony on behalf of the utility company. In Union Electric's rate case in 2010, Case No. ER-2010-0036, Staff cited to Goldman Sachs' equity research reports that assumed a perpetual growth rate of 2.5%, which was consistent with inflation expectations at the time.

Q. Is there anything else Dr. Morin should have learned from the testimony and hearings in Case No. ER-2010-0036 that should have affected his testimony in this case?

A. Yes. Dr. Morin increased his ROE recommendation in Case No. ER-2010-0036 for purposes of flotation costs. During that case, Dr. Morin was informed that Missouri allows for stock issuance costs through an amortization expense of actual stock

[8] MAWC's response to Staff Data Request No. 191.

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issuance costs. After Dr. Morin learned that this is how the Commission accounts for stock issuance costs, he no longer advocated for an adjustment to the allowed ROE.[9]

Q. Dr. Morin claims that your use of a multi-stage DCF analysis causes you to recommend an ROE that is "well below investors' required returns." Has Dr. Morin provided any corroborating information from investors that support his belief that investors require a return higher than your recommended allowed ROE of 9.25%?

A. No. Dr. Morin seems fairly confident that he knows that investors require returns above 10% for water utility stocks. However, he cannot provide even one practical investment example of investors and/or market participants using a COE anywhere near his estimate. Staff has repeatedly provided investor information that clearly contradicts Dr. Morin's lofty estimates. Although Dr. Morin hasn't filed ROR testimony in Missouri since 2010, he still is fairly steadfast that his estimates represent investor expectations even when Staff has provided investor information that shows that investors use costs of equity that are at least 300 basis points lower than Dr. Morin's estimates.

Q. Were any investment reports entered as exhibits at the local public hearings that provide yet another example of a more realistic COE used by investors?

A. Yes. At the local public hearing held on February 4, 2016, Exhibit No. 4 was accepted by the Commission. This Exhibit is a Morningstar Equity Analyst Report on American Water Works, Inc. As can be seen on page 2 of this report, the third paragraph indicates American Water's stock value was determined based on a COE of 7.5%, which is actually the high end of Staff's multi-stage COE estimate. Consequently, although Staff recommends an allowed ROE higher than its COE estimate, which is corroborated by market

[9] Case No. ER-2010-0036, Roger A. Morin Rebuttal, p. 54.

participants that actually provide investment advice, Dr. Morin thinks that even Staff's higher allowed ROE recommendation of 9.25% is still not high enough.

Q. Is any of this discussion new?

A. No. Staff has consistently sponsored testimony discussing the disconnect between ROR witnesses' estimates of the COE and the markets' COE estimates. Staff discussed this disconnect in detail in the Union Electric rate case in 2010 in which Dr. Morin filed testimony. Although Staff understands the Commission needs to also consider allowed ROEs in other states when determining a fair and reasonable allowed ROE, cost of capital witnesses should still provide an accurate and reliable COE estimate. If an adder is deemed appropriate and necessary, then this can be added to the COE. Staff believes its recommended allowed ROE is at least 200 basis points over the COE, which is fairly consistent with what investors have come to expect from commissions with some commissions allowing ROEs over 300 basis points over the COE.

Q. Dr. Morin indicates that your recommended allowed ROE of 9.25% is not consistent with the awarded ROEs for the water utility companies in your proxy group. How do you respond to this criticism?

A. First, Staff notes that Dr. Morin did not provide the dates of the allowed ROEs he cited on page 13 of his rebuttal testimony. It has been Staff's experience that the source, on which Dr. Morin relied, provided the date on which these allowed ROEs were determined. Also, it is important to know if these allowed ROEs were the result of a settlement or full litigation because, ideally, allowed returns from litigation will be decided based on the merits of the arguments associated with that specific issue, whereas settlements involve concessions

and considerations of other issues, which may impact a headline number, such as a negotiated ROE.

Q. Dr. Morin claims that equity analysts' projected 5-year compound annual growth rate (CAGR) in earnings per share (EPS) should be used as the growth rate in a DCF analysis. How do you respond?

A. Again, the fact that the very equity analysts that provide projected five-year CAGR in EPS do not use them as a constant growth rate in their own dividend discount models (referred to as "the DCF" in utility ratemaking arena) is proof in and of itself that investors do not make the simplistic assumption that dividends will grow indefinitely at the same rate as projected five-year CAGR in EPS. Staff has repeatedly cited examples of practical investment analysis that disproves this over simplified assumption.

Q. But didn't Dr. Morin claim the financial literature supports this assumption?

A. Yes; however, Staff has reviewed much of the same literature, and Staff disagrees with Dr. Morin's conclusion that because equity analysts' projected five-year CAGR in EPS may cause changes in stock prices, this proves that investors use this growth rate as a constant/perpetual growth rate in a DCF analysis. The literature simply indicates that stock valuations may be influenced by equity analysts' projections and probably more importantly their ultimate expected target prices in their stock recommendations.

ROR witnesses advocating for the use of equity analysts' projected five-year CAGR in EPS often cite various academic studies to support the position that investors naïvely assume that dividends can grow in perpetuity at the same rate as equity analysts' estimates of the five-year annually compounded EPS growth rate. Although Staff believes the fact that the very equity analysts that provide these forecasts do not make this same assumption when

valuing utility stocks disproves this conclusion, it is important to understand the true conclusion of some of these studies. One of the studies often cited to support the use of equity analysts' five-year EPS growth rate forecasts in the DCF is that of Burton G. Malkiel and John G. Cragg, "Expectations and the Structure of Share Prices." The conclusion of this academic study was that equity analysts' expectations had a greater influence on stock prices compared to simple extrapolations of historical financial data. Staff believes this conclusion is logical considering the vast amounts of resources dedicated to the discipline of securities analysis. However, Staff is not sure how subsequent studies concluded that the results of this study somehow translated into a proof that investors use five-year EPS forecasts as a constant growth rate in the single-stage DCF methodology. In fact, Cragg and Malkiel did not even use the DCF valuation model when testing their hypothesis regarding the influence of analysts' projections on stock prices. It is more plausible to conclude that, because investors rely on equity analysts' expectations, they rely on their investment recommendations (e.g., buy, sell, or hold). Equity analysts' investment recommendations are based on their assessment of the intrinsic value of a given stock. Analysts' methodologies for estimating a fair price varies, but most at least assess the current price-to-forward earnings ratios both on a consensus basis and on the analysts' own estimates. If the analyst believes the company can grow its earnings faster than the consensus and/or the company deserves a higher P/E ratio than the consensus, then the analyst will expect a higher return than the consensus. In Staff's experience, this is the primary purpose for providing both absolute EPS forecasts and EPS growth rate forecasts. It allows investors to estimate a potential justified P/E multiple.

Cragg and Malkiel specifically indicated the following in their study:

> We would not argue that these estimates necessarily give an accurate picture of general market expectations.

> It would, however, seem reasonable to suggest that they are representative of opinions of some of the largest professional investment institutions and that they may not be wholly unrepresentative of more general expectations. **Since investors consult professional investment institutions in forming their own expectations, individuals' expectations may be strongly influenced—and so reflect—those of their advisers.** That several of our participating firms find it worthwhile to publish these projections and provide them to their customers provides prima facie evidence that a certain segment of the market places some reliance on such information in forming its own expectations. Also, insofar as other security analysts and investors follow the same sorts of procedures as those used by our sample analysts in forming expectations, general investors' expectations would resemble those of the analysts. Consequently, these predictions may well serve as acceptable proxies for general expectations and surely seem worthy of detailed analysis. (emphasis added)

Equity analysts often use the dividend discount model (DDM) to estimate a fair price to pay for the stock. The DDM is synonymous with the DCF in utility ratemaking settings. The DCF in utility ratemaking is simply solving for the required return/COE variable. In valuation, the goal is to solve for the fair price of the stock. Consequently, if equity analysts' are of value to their clients, then the stock prices will reflect their estimates of future dividends and the required return on these dividends. Consequently, if one accepts the studies that security analysts' expectations influence investors, which is the conclusion made by Malkiel and Cragg, then this means that stock prices reflect the COE used by these very same analysts. Staff's experience has been that these equity discount rates are usually much lower than COE estimates provided by ROR witnesses in utility rate cases. Staff has consistently cited examples in past rate cases that indicate equity analysts use equity discount rates in the 7% to 8% range. Considering the continued current low long-term interest rate

environment and high utility P/E ratios, Staff thinks it is probable that utility equity analysts are using costs of equity as low as in the 6% range to value utility stocks. However, this does not mean that these equity analysts expect commissions to allow an ROE equivalent to the COE. If allowed ROEs were set equal to the COE, this would cause downward pressure on the stock price of a company whose earnings rely primarily on the regulated utility operations. This is the case because utility stock prices currently reflect investors' expectations of regulators continuing to allow returns in the 9% to 10% range.

Considering the fact that the Cragg and Malkiel study is the foundation for other studies that are cited to support the use of five-year EPS forecasts in the constant growth DCF, it is important to understand how at least one of the authors has estimated required returns on stocks in his past studies and how he estimates required returns currently. In his May 1979 study, "The Capital Formation Problem in the United States," Malkiel estimated the required returns on the Dow Jones Industrial Average by using Value Line growth rates for the first five years. This growth rate was then reduced over time to that of the expected real growth rate of the economy, which was 3.6% at the time.[10]

In a January 5, 2012, editorial in the *Wall Street Journal,* "Where to Put Your Money in 2012," Burton G. Malkiel provided his opinion on the long-run return expectations for U.S. equities. Malkiel simplified his approach by simply indicating that earnings and dividends in the market have grown at an approximate 5% rate over the long run. He simply added this long-run growth rate to the 2% dividend yield at the time on the U.S. stock market to arrive at a long-run return estimate of 7% for the U.S. Stock Market. If one were to add the same growth rate to the current dividend yield on the S&P 500 of 2.32% as of

[10] The use of a real GDP growth rate for perpetual growth is consistent with Goldman Sachs' valuation approach discussed in the last rate case, Case No. ER-2011-0028.

February 18, 2016,[11] this results in an expected return of 7.32%. This compares to the 5.37% projected return on the S&P 500 estimated by professional forecasters in the First Quarter 2016 *Survey of Professional Forecasters*. If Malkiel believed investors' projected returns based on five-year EPS forecasts on the U.S. Stock Market, then a projected return for the S&P 500 as of today would be 12.75% (2.32% dividend yield plus 10.43% 5-year EPS growth forecasts for the S&P 500). While Malkiel and Cragg's studies certainly concluded that security analysts' estimates have an impact on share prices, they *did not* conclude that investors would assume security analysts' five-year EPS growth rate forecasts are a proxy for perpetual growth.

The focus on earnings growth rates is understandable considering that most security analysts' stock predictions are based on a multiple of P/E ratios, but security analysts provide this information to evaluate potential P/E ratios as they compare to consensus P/E ratios. The ability of the analyst to accurately project future earnings and justified P/E ratios will determine whether that analyst is successful. Consequently, the focus on analysts' EPS projections is understandable in this context.

Q. Does Dr. Morin take issue with the use of a current risk-free rate to estimate required returns?

A. Yes. Dr. Morin claims that the 2.96% 30-year Treasury bond rate is "far too low for purposes of applying the Capital Asset Pricing Model (CAPM)." He claims that "because investors price securities on the basis of long-term expectations, including interest rates," Staff should have relied on forecasted yields.

Q. Does Dr. Morin's proposition make sense from a market efficiency stand point?

[11] http://www.spindices.com/indices/equity/sp-500.

A. No. Dr. Morin's proposition means that investors buying 30-year Treasury bonds at current rates are doing so with the expectation that their investment will lose value because bonds in the future will offer higher interest rates. As interest rates increase, bond values decrease.

Q. Can you provide an example based on recent interest rate activity that helps illustrate the fallacy of Dr. Morin's position?

A. Yes. However, Staff's example will show the opposite of increasing 30-year US Treasury bond rates since interest rates have been declining in recent weeks. As of March 1, 2016, the 30-year US Treasury bond yield was approximately 2.7%. This would have caused the value of a $1,000 investment in a 30-year US Treasury bond at the end of November 2015, to have increased in value by approximately $61 three months later. This is due to the simple fact that because the current required return on a 30-year US Treasury bond is now 2.7% rather than 3%, the initial price of the bond had to be bid up to cause the bond to be in equilibrium with current required returns. While investors required a higher yield on the 30-year US Treasury bond on November 30, 2015, these investors understand that the value of their investment is likely to fluctuate over the period in which they hold the bond, but they don't expect the values to change so much that they still won't eventually receive the 3% return they required at the time. Actually, if they hold the bond until maturity, they will achieve exactly this 3% required return.

Staff's point is that the current yield already reflects investors' expectations of what they require for a return over the long-term in the current market environment. This is the basic premise for using current stock prices in a DCF analysis to estimate the COE.

The current stock prices already reflect investors' views about the risk of changes in interest rates in the future, whether they increase, decrease or both.

Q. Does Dr. Morin's own testimony claim that the current yield is the best estimate of an investors' required return?

A. Yes. When Dr. Morin argues that only the income portion of a US Treasury bond return should be used to estimate the risk premium, he recognizes that capital gains and/or losses on US Treasury bonds are unanticipated by the investor and therefore should not be considered the true risk-less required return. Specifically, Dr. Morin stated the following in his rebuttal testimony:

> ...the income component (i.e. the coupon rate) is a far better estimate of expected return than the total return (i.e., the coupon rate plus capital gains), because realized capital gains/losses are largely unanticipated by investors.[12]

The rationale that unexpected capital gains and losses should not be considered in measuring the risk premium is consistent with the argument that the current risk-free rate represents investors' current required return on a risk-free rate investment. Hence, this is the most appropriate input for a CAPM COE estimate.

Q. If Dr. Morin understands that capital gains and/or losses on an investment in Treasury bonds are largely unanticipated, what else should he have recognized when he estimated an equity risk premium for purposes of his CAPM analysis?

A. That the same holds true for investments in stocks and, specifically, utility stocks. Utility stock prices increase when interest rates decline for the same reason bond prices increase, which causes investors to realize capital gains they did not expect to achieve.

[12] Roger A. Morin's Rebuttal Testimony, p. 24, ll. 15-18.

While many utility investors had been factoring in an increase in interest rates into the price they were willing to pay for utility stocks through the summer and early fall of 2014, long-term rates actually declined which caused utility stocks to achieve returns well above the broader markets at the end of 2014 and into early 2015. While utility stock prices moderated through the rest of 2015, they have once again begun to increase in early 2016 while the broader markets have declined. Again, this appears to have been unanticipated due to a decline in long-term interest rates. Because the fundamentals of the utility industry have not changed in early 2016, the only explanation for the increase in utility stock prices is a decline in the utility industry's COE.

Q. If Dr. Morin understands that investors incur unanticipated capital gains and losses, what other step should he have taken to complete his risk premium analysis?

A. He should have removed unanticipated capital gains in stock returns as well. Although quantifying investors' actual required returns as compared to earned returns is a daunting task, nonetheless, if Dr. Morin is removing this information from the risk-free return, he must also do so for stock investments.

Q. Are you aware of any studies that have estimated the difference between achieved returns and expected returns for at least part of the historical period Dr. Morin analyzed?

A. Yes. Staff cited this study in its rebuttal testimony when explaining the fact that realized returns are not the same as required returns. Eugene Fama and Kenneth French studied the period from 1950 to 2000 and concluded that *earned* ROEs over the period of 1950 through 2000 were not consistent with *required* ROEs over the same period.[13] Fama and French arrived at this conclusion by using the DCF method to compare the COE to

[13] Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, (April 2002).

the market ROE over the same period. They attributed the higher earned returns as compared to required returns due to the unanticipated increase in P/E ratios in the market, which they attribute to a decline in the COE for the broader markets.

Q. At the end of the day, what's the most important thing to understand in order to select a fair and reasonable equity risk premium to use to estimate the cost of common equity?

A. Does it pass a reasonableness test. Dr. Morin's risk premium estimates assume the broader markets are going to achieve 11.4% returns. Staff knows of no reputable institutional investor that expects this high of a return for the US markets.

CAPITAL STRUCTURE

Q. Which MAWC witnesses sponsor testimony on the appropriate capital structure to use for setting MAWC's allowed ROR?

A. Dr. Morin and Mr. Rungren. I will first respond to Dr. Morin's testimony on capital structure and then I will reply to Mr. Rungren's testimony.

Q. Dr. Morin claims that because your recommended common equity ratio is not the same as the average of your proxy group, this makes your capital structure recommendation inappropriate. Do you agree?

A. No. Although a company's capital structure, i.e., financial risk, influences the credit rating it may be assigned, rating agencies also consider an entity's business risk when assigning a credit rating. In fact, Staff discussed this in its rebuttal testimony when evaluating Dr. Morin's argument that because Staff's recommended ratemaking capital structure contains more leverage than that assigned to MAWC, Staff's ROE recommendation needed to be adjusted upward. Staff explained that because Standard & Poor's evaluated

American Water's capital structure and business risk when it assigned American Water an 'A' rating, it is this capital structure that is associated with the capital costs incurred by MAWC. If American Water had a common equity ratio in the low to mid 50% range, then it is likely that American Water would be rated higher than its current 'A' rating. The average credit rating of Staff's proxy group is an 'A' so no adjustment is needed due to similar total risks. If the Commission determines MAWC's allowed ROR should be based on MAWC's allocated capital structure, then the Commission's authorized ROE should be below Staff's 9.25% recommendation.

Q. Dr. Morin claims that Staff recommended a "double leverage" approach. Is this an accurate representation of Staff's recommendation?

A. No. The "double leverage" approach determines the amount of equity infused into the subsidiary from debt proceeds and equity proceeds from the parent company. For example, if 10% of the equity ratio is determined to be from capital infused by the parent company, then the parent company's cost of capital is assigned to this part of the subsidiary's equity costs. This is not how Staff approached its capital structure and cost of capital recommendation. Staff simply used American Water's consolidated capital structure and consolidated capital costs because MAWC is not financed as a stand-alone entity. While it is entirely correct that Staff's capital structure and capital costs cannot be reconciled to actual rate base investments in MAWC's system, it is much more important to ensure that MAWC's allowed ROR is set based on American Water's market-tested capital structure because this is the capital structure investors evaluate to determine their required returns.

Q. Before going into the details of Mr. Rungren's rebuttal testimony about your recommended use of American Water's consolidated capital structure and capital costs to set

MAWC's ROR, has MAWC provided you sufficient data to true-up your recommended capital structure and capital costs?

A. Yes, but only through December 31, 2015. MAWC was unable to provide American Water data through January 31, 2016. Consequently, Staff's true-up recommended ROR is based on American Water's financial data through the end of 2015.

Q. What is your true-up recommendation for MAWC's allowed ROR?

A. Schedules DMs-1 through DMs-4 show Staff's recommended capital structure and corresponding capital costs. Staff is not recommending a true-up to its allowed ROE recommendation. However, based on recent declines in long-term interest rates and increases in water utility stock prices, Staff is even more confident that its recommended allowed ROE of 9.25% is fair.

Staff's recommended common equity ratio is now 45.48% as compared to the 46.99% ratio Staff recommended based on test year data. Staff is still recommending an amount of short-term debt be included in MAWC's ratemaking capital structure because American Water is still carrying a balance of short-term debt above its construction work in progress (CWIP) balance, which implies that a portion of long-term assets are financed by short-term capital. Staff also updated all of American Water's embedded capital costs to match the date of the updated capital structure.

Staff's recommended allowed ROR now ranges from 6.77% to 7.23%, with a point recommendation of 7.12%. This compares to Staff's initial recommended allowed ROR range of 6.94% to 7.41% with a point estimate of 7.29%.

Q. Why is your recommended allowed ROR for true-up lower than the test year case?

A. Mainly due to the fact that the common equity ratio has declined by approximately 1.5%, but also because American Water's embedded cost of debt has declined from 5.69% to 5.51%.

Q. Is American Water's common equity ratio still consistent with its historical level?

A. Yes. Page 71, of American Water's 2014 SEC Form 10-K filing, shows that American Water's common equity ratio has typically been around 45% over the last three years.

Q. Mr. Rungren maintains that MAWC is an autonomous entity with respect to the issuance of equity and debt and the management of its capital structure. Do you agree that MAWC is autonomous?

A. No. It is not clear to Staff why MAWC targets a common equity ratio in the low 50% range, while American Water targets a common equity ratio of around 45%. Because MAWC is not issuing its own debt to third parties, AWCC is doing this on behalf of American Waters' subsidiaries; there appears to be no ongoing consequential effects of MAWC's capital structure other than for ratemaking purposes.

Q. Did Staff request information about American Water's and MAWC's capital structure strategies?

A. Yes. Staff issued Data Request No. 452 to determine if there was any formalized documentation regarding their strategies. MAWC responded as follows:

> There are no corporate documents that delineate either MAWC's or American Water's strategy for managing each company's capital structure.

Q. Mr. Rungren claims that you made an unfounded claim that American Water manipulates MAWC and other subsidiaries' capital structures to achieve a higher revenue requirement. Is your assertion unsupported?

A. No. It is supported by the fact that there is no rational reason for MAWC to have a more equity-rich capital structure than its consolidated parent company. As Staff explained in its rebuttal testimony, MAWC's capital structure is of no consequence for purposes of raising third-party debt because it has not done so since 2006. MAWC has not provided any evidence to prove why it is necessary to maintain a capital structure that is less cost efficient (more costly to ratepayers) than its parent company's capital structure. The parent company's capital structure is of consequence to American Water's ability to raise debt through AWCC and that capital structure only contains approximately 45% equity.

Q. Can you demonstrate how American Water makes MAWC's capital structure more costly to Missouri ratepayers than it needs to be?

A. Yes. Based on true-up data for the period from December 31, 2014, through January 31, 2016, American Water provided an additional $30,178,387 million of additional capital to MAWC as an equity contribution. During the same period, American Water also received debt capital in the amount of $241.3 million from AWCC at a weighted average interest rate of 3.46% for capital infusions. There is no reason why MAWC should not have received the $30,178,387 in additional capital in the form of a loan from AWCC. If American Water had transferred the debt capital to MAWC as an affiliate loan, then MAWC's common equity ratio would be 47.19%.

Q. If MAWC would have been loaned this capital directly from AWCC, how much would Missouri ratepayers have to pay for this capital?

A. $1,044,172 ($30,178,387 x 3.46%).

Q. If the Commission accepts that this capital should be treated as equity, how much will Missouri ratepayers have to pay for this capital?

A. If Dr. Morin's recommended ROE is allowed; $5,241,067 ($30,178,387 x 10.7% x 1.62308), and if Staff's recommended ROE is allowed; $4,530,829 ($30,178,387 x 9.25% x 1.62308).

Q. Has Staff had difficulty verifying the original third-party debt certain MAWC affiliate debt transactions are tied to?

A. Yes. In response to Staff Data Request No. 187, Staff discovered 13 internal debt assignments to MAWC in which Staff could not match the costs of these internal debt assignments to the cost of the third-party debt issued by AWCC. Historically, Staff was always able to match the internal debt assignments to third-party debt issued by AWCC. Scott Rungren explained to Staff that it was his understanding that this assigned debt was transferred from American Water (not to be confused with AWCC) to MAWC, but AWCC determined the cost that it believed it could have received if it went to market.

Q. What does the above issue demonstrate to Staff?

A. That MAWC is not managed as a stand-alone entity. Clearly, American Water is assigning debt based on the needs/convenience of the consolidated entity. Staff understands the need to do so, but this lack of independence of American Water's subsidiaries should be recognized for purposes of assessing whether the subsidiary capital structures are market-tested and managed for purposes of attracting capital at a fair and reasonable cost.

Q. On page 11 of his rebuttal testimony, Mr. Rungren claims that MAWC is an independent legal entity responsible for making its own decisions regarding its financing sources and the composition of its capital structure. Assuming MAWC's Board of Director's were acting in the best interest of MAWC as a stand-alone entity, do you think it would target a capital structure with over 50% common equity?

A. No. It is in the best interest of MAWC to manage its capital structure to achieve a lower cost of capital. It is clear that American Water has determined that it can achieve the best value for its shareholders if it manages the consolidated capital structure to a common equity ratio of approximately 45%. American Water could still maintain this consolidated common equity ratio if it transferred all of the debt issued by AWCC straight down to its subsidiaries rather than transferring the debt to American Water to make equity infusions into the subsidiaries. Staff is not aware of any benefit MAWC's ratepayers are receiving by American Water taking this debt capital from AWCC and infusing it as equity rather than the debt capital being directly transferred to MAWC as debt capital. In fact, as is evident from this dispute, MAWC ratepayers are actually being charged more due to this arrangement.

Q. On page 13 of his rebuttal testimony, Mr. Rungren implies that because you use American Water's capital structure and capital costs as a proxy for MAWC, this implies that it would be acceptable to use any of the comparable companies' capital structures and capital costs as a proxy for MAWC's allowed ROR. How do you respond?

A. Mr. Rungren's suggestion is interesting. Basically, Mr. Rungren's point is that a hypothetical approach based on any water utility or proxy of water utilities could be used to estimate MAWC's overall cost of capital rather than just the COE component. This

is actually fairly consistent with how analysts typically approach valuing business enterprises. The analyst determines a COE without any debt (an unleveraged COE) and then determines the targeted capital structure for the subject unit and determines a cost of debt and COE based on the targeted capital structure.

Q. If American Water had a capital structure with a similar amount of equity as MAWC, how would this impact its COE?

A. It would cause it to be lower.

Q. Mr. Rungren claims that American Water does not guarantee the debt assigned to MAWC. How do you respond?

A. American Water indicates the following about its support for AWCC debt:

> AWCC, which is a wholly-owned subsidiary of the Company, has a strong support agreement with its parent that, under certain circumstances, is the functional equivalent of a guarantee.[14]

Q. But this isn't a guarantee of MAWC's internal loan agreement, right?

A. No, but there is no logical reason for American Water to guarantee an internal loan commitment that is owed to an affiliate, AWCC.

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your surrebuttal testimony.

A. Dr. Morin and I have a fundamental disagreement about the probable level of the COE. He believes the water utility industry has a COE above 10%, whereas I think it is 7% or lower. However, I believe an allowed ROE of 9.25% is reasonable when considering the Commission's recent allowed ROEs for Ameren Missouri and KCP&L.

[14] American Water's 2014 SEC Form 10-K Filing, p. 92.

Dr. Morin and Mr. Rungren argue that MAWC is managed financially as a stand-alone entity and therefore, its capital structure should be used for purposes of setting MAWC's allowed ROR. Because MAWC has several affiliate loans from AWCC and Staff cannot even determine what third-party loans these internal loan agreements are related to, Staff does not consider MAWC's capital structure to be independent. MAWC does not issue its own debt, and therefore, it doesn't have a separate credit rating. There is no logical reason for American Water to carry debt at the holding company level because that debt can simply be loaned directly to the subsidiaries so all subsidiaries maintain a capital structure consistent with American Water's targeted consolidated capital structure. This is the only true market-tested capital structure that is managed to achieve lower capital costs.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

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 No. WR-2015-0301

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DAVID MURRAY and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing SURREBUTTAL TESTIMONY; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

DAVID MURRAY

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 4th day of March, 2016.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2016
Commission Number: 12412070

Notary Public

Missouri-American Water Company
Case No. WR-2015-0301

Rate Making Capital Structure as of December 31, 2015
for Missouri American Water Company
(based on American Water Consolidated Capital Structure)

Capital Component	Amount *(in thousands)*	Percentage of Capital
Common Stock Equity	$5,049,000 [1]	45.48%
Preferred Stock	13,291 [2]	0.12%
Long-Term Debt	5,815,024 [3]	52.38%
Short-Term Debt	224,000 [4]	2.02%
Total Capitalization	**$11,101,315**	**100.00%**

Notes:

1. Based on common equity shown on American Water's December 31, 2015 balance sheet.
2. Net balance based on MAWC's updated response to Staff DR No. 187
3. Net balance based on MAWC's updated response to Staff DR No. 187.
4. Based on short-term debt shown in excess of construction work in progress balance as of December 31, 2015.

Source: MAWC's updated responses to Staff Data Request Nos. 186, 187 and 195.

Missouri-American Water Company
Case No. WR-2015-0301

Rate Making Cost of Long-Term Debt as of December 31, 2015
for Missouri American Water Company
(based on American Water's Consolidated Cost of Long-Term Debt)

Total Annual Cost:	$320,623,312	
Total Carrying Value:	$5,815,023,974	
Embedded Cost = Total Annual Cost/Total Carrying Value		5.51%

Source: Missouri-American Water Company's updated response to Staff's Data Request No. 187.

Missouri-American Water Company
Case No. WR-2015-0301

Rate Making Cost of Preferred Stock as of December 31, 2015
for Missouri American Water Company
(based on American Water's Consolidated Cost of Long-Term Debt)

Total Annual Cost:	$1,150,841	
Total Carrying Value:	$13,291,140	
Embedded Cost = Total Annual Cost/Total Carrying Value		8.66%

Source: Missouri-American Water Company's updated response to Staff's Data Request No. 0187.

Missouri-American Water Company
Case No. WR-2015-0301

Recommended Allowed Rate of Return as of December 31, 2015
for Missouri-American Water Company

Capital Component	Percentage of Capital	Embedded Cost	Allowed Rate of Return Common Equity Return of: 8.50%	9.25%	9.50%
Common Stock Equity	45.48%	-----	3.87%	4.21%	4.32%
Preferred Stock	0.12%	8.66%	0.01%	0.01%	0.01%
Long-Term Debt	52.38%	5.51%	2.89%	2.89%	2.89%
Short-Term Debt	2.02%	0.48%	0.01%	0.01%	0.01%
Total	**100.00%**		**6.77%**	**7.12%**	**7.23%**

Sources:
Updated responses to Staff Data Request Nos. 186, 187, 188 and 195