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MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL ANALYSIS

REBUTTAL TESTIMONY

OF

JEFFREY SMITH

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2018-0285

Jefferson City, Missouri
January 2018

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REBUTTAL TESTIMONY

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JEFFREY SMITH

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Q. Please state your name.

A. My name is Jeffrey Smith.

Q. Are you the same Jeffrey Smith who prepared the Rate of Return Section of the Staff's Cost of Service Report?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimony of Ann E. Bulkley, Michael P. Gorman, and Scott W. Rungren. Ms. Bulkley sponsored rate-of-return ("ROR") testimony on behalf of Missouri-American Water Company ("MAWC" or "Company"). Mr. Gorman sponsored ROR testimony on behalf of The Office of the Public Counsel ("OPC") and the Missouri Industrial Energy Consumers ("MIEC"), and Mr. Rungren sponsored Capital Structure testimony on behalf of MAWC. I will address the issues related to a fair and reasonable capital structure and allowed ROR to be applied to MAWC's water and sewer utility rate base for ratemaking purposes in this proceeding.

EXECUTIVE SUMMARY

Q. What are the fundamental disagreements you have with Ms. Bulkley's and Mr. Gorman's testimony?

A. Both witnesses assert that their allowed return on common equity ("ROE") recommendations are based on their estimates of MAWC's cost of equity. Ms. Bulkley's estimate of MAWC's cost of equity (COE) is 10.8% and Mr. Gorman's estimate of MAWC's COE is 9.0%. Using cost of capital models with reasonable inputs shows that the COE for water utility companies is no higher than the 7% range.

Q. Is Ms. Bulkley's recommended allowed ROE fair and reasonable when compared to the Commission's allowed ROE of approximately 9.5% in the recent Kansas City Power & Light Company ("KCPL") rate case, Case No. ER-2016-0285?

A. No. Ms. Bulkley provides no justification as to why the Commission should allow MAWC a 10.8% ROE, a 130 basis point increase compared to the recent allowed ROE granted by this Commission, and 123 basis points above the 2017 (as of September 30, 2017) average allowed ROE for water utilities.[1]

Q. Is Mr. Gorman's recommended allowed ROE fair and reasonable when compared to the Commission's recent decisions?

A. It is within the zone of reasonableness.

Q. What should the Commission evaluate within the witness's conflicting recommendations?

A. The Commission should evaluate the witnesses' evidence and opinions of the relative change, if any, in the utility industries' cost of capital environment since the Commission heard evidence in the KCPL rate case. Staff will attempt to highlight areas of each witness' testimony that may assist the Commission with this determination.

[1] RRA Water Advisory, *Major Rate Case Decisions January – September 2017,* November 27, 2017, spglobal.com/marketinelligence

Q. Have events in the capital markets since Staff conducted analysis presented in its Cost of Service report ("COS") caused a change in the utility industries' cost of capital?

A. No. The broader markets have maintained earnings momentum; cyclical rotation and repositioning has been minimal and have occurred in an orderly fashion, keeping investor confidence high and volatility low. Utility stocks have continued to do well. Additionally, utility bond yields have not changed significantly. Staff will provide more detail on the capital markets later in this testimony.

Q. What is the fundamental disagreement you have with Mr. Rungren's testimony?

A. Mr. Rungren asserts that the appropriate ratemaking capital structure to use for purposes of developing an allowed ROR is that of MAWC. He recommends the Commission adopt MAWC's pro forma future test year capital structure. Staff recommends the Commission adopt American Water's ("AWK") consolidated capital structure for setting MAWC's allowed ROR. Staff also recommends the Commission apply AWK's consolidated costs of long-term debt, preferred stock, and short-term debt to this capital structure. Staff explained in detail in the Staff Cost of Service Report why AWK's capital structure is most appropriate. Staff will address MAWC's capital structure recommendations in this rebuttal testimony.

Q. Are there any other areas of Ms. Bulkley's and Mr. Gorman's testimony that you will address to assist the Commission in determining a fair and reasonable allowed ROE?

A. Yes. MAWC proposes using a future test year, which it states will allow it to more closely earn its allowed ROR on an annual basis. As such, Ms. Bulkley's analysis

includes forward looking estimates that introduce excessive uncertainty to the models used to estimate the ROE. As discussed in the rebuttal testimony of Staff witness Mark Oligschlaeger, the more projections used in a model the less reliable the model becomes. Although Staff does not agree with the premise underlying Mr. Gorman's recommended allowed ROE, because his ROE recommendation is within the range of Staff's recommended allowed ROEs for MAWC, Staff will not delve into the details of Mr. Gorman's testimony.

SUMMARY OF MS. BULKLEY'S AND MR. GORMAN'S COST OF EQUITY ESTIMATES

Q. Please summarize Ms. Bulkley's estimated COE and the resulting recommended ROE.

A. Ms. Bulkley's recommended ROE is 10.8%, which is the high end of her range of COE estimates of 10.0% to 10.8%. Ms. Bulkley's COE methodologies included a Constant Growth Discounted Cash Flow model ("DCF"), a Forward-Looking DCF, and a Capital Asset Pricing model ("CAPM"). Ms. Bulkley's testimony states that she also considered the Value Line projected ROE's for the proxy group. Ms. Bulkley does not state the basis of the low or high end of her range. However, it appears that the high end of her range is based on the mean result of her CAPM analysis using Bloomberg Betas, where the market risk premium is based on her calculated expected total returns of 13.39% less the average of her three risk-free yield estimates using variants of 30-Year Treasury bond yields.

Ms. Bulkley applies her DCF and CAPM methods to a water utility proxy group. Staff accepts Ms. Bulkley's water utility proxy group.

Q. Please summarize Mr. Gorman's estimated COE and resulting recommended allowed ROE.

A. Mr. Gorman's recommended allowed ROE is 9.0 percent, based on applying three methodologies (DCF, CAPM and risk premium method) to both a water and gas proxy group. Mr. Gorman applied three variants of the DCF: a constant-growth DCF using consensus analysts' growth rate projections, a constant-growth DCF using sustainable growth rates, and a multi-stage DCF. Mr. Gorman's DCF analysis led him to arrive at a COE estimate of 8.6 percent; his CAPM analysis led him to arrive at a COE estimate of 9.4 percent; and his risk premium analysis led him to arrive at a COE estimate of 9.2 percent. Mr. Gorman used these results in developing his estimated COE range of 8.6 percent to 9.4 percent, with a mid-point estimate of 9.0 percent.

CAPITAL MARKET UPDATE

Q. Have there been significant capital market issues in the past two-months?

A. No. However, on December 13, 2017, the U.S. Federal Reserve Open Market Committee ("Open Market Committee") raised the Federal Funds Rate from 1.0% - 1.25% to 1.25% - 1.50% as had been anticipated. The increase in the Federal Funds Rate, among other factors, has led to increases in short-term treasury notes, including the 10-year Treasury, but has been muted in longer-term Treasuries. These are similar to the effects witnessed in the fall of 2016 after the Open Market Committee raised rates. Shortly thereafter, 10-year Treasury rates returned to lower levels. This is noteworthy because interest rates on the shorter-end of the yield curve affect broader market equities more than interest rates at the long-end of the yield curve. Investors incented by higher interest rates may rotate funds from low dividend paying equities to higher yielding Treasuries, depending on the stage of the business cycle at which they believe to find themselves. However, this is muted with utility stocks, because as longer-term investments they are more sensitive to longer-term rates.

Q. How have regulated utility stocks performed during the past two-months?

A. The water utility proxy group and the S&P 500 have performed well, but the electric utility proxy group has underperformed. The total return for the water utility proxy group ("water proxy"), the electric utility proxy group ("electric proxy"), and the S&P 500, from the beginning of November to the end of December are 7.64%, -1.12%, and 4.05%, respectively. This compares to average total returns, for the three month-period ending October 31, 2017 (the cutoff of the market data used in Staff's COS report), for the water proxy, the electric proxy, and the S&P 500 of 6.42%, 5.86%, and 4.51%, respectively. Average dividend yields for the water proxy, and the S&P 500, from the beginning of November to the end of December have come down to 1.90%, and 1.89%, respectively from averages of 2.06%, and 1.99%, respectively, from the three-month period ending October 31, 2017, a decrease of 16 basis points, and 10 basis points, respectively. Meanwhile average dividend yields for the electric proxy group have remained unchanged at 3.04%. Performance in the water utility group and the S&P 500 is attributable to capital gains resultant of increased equity prices. This combined with lower dividend yields may be attributed to declining risk premiums, but also investor optimism for growth, at least in the near term. Average Price to Last Twelve Month Earnings ("P/E") ratios for the water proxy, and the S&P 500 corroborate this view. From the beginning of November to the end of December P/E ratios for the water proxy and S&P 500 were 29.76x, and 27.39x, respectively. This compares to average PE ratios for the three-months ended October 31, 2017, for the water proxy, and the S&P 500 of 28.81x, and 26.36x, respectively. If the water utility proxy group and the S&P 500 issued shares during the November – December 2017 time period, on average, they would have received a higher price for their shares than during

the August – October 2017 time period, they would have raised the same amount of capital by issuing fewer shares, meaning a lower COE.

Q. How have utility bonds performed in the past two-months?

A. Prices on utility bonds have remained stable, offering similar yields to when Staff presented its Cost of Service Report. The cost of capital for utilities is similar to two-months ago when Staff recommended an allowed ROE of 9.25% for MAWC, indicating that the cost of debt for utilities has remained relatively constant. As such, there is no more incentive now, compared to several month ago, for investors to shift from utility equities to utility bonds. If the amount of wealth in markets were finite, this would suggest that the ratio of capital in utility equities and utility bonds has remained relatively constant since Staff's COS report.

Q. What conclusions do you draw from the recent performance of regulated utility stocks and utility bonds?

A. Given the performance of utility stocks and utility bonds over the past several months, it appears that the COE has remained relatively constant, perhaps declining negligibly.

CAPITAL STRUCTURE

Q. Do the parties agree on how to determine an appropriate capital structure for purposes of determining a fair and reasonable allowed ROR to apply to MAWC's rate base?

A. No. Although Ms. Bulkley does not sponsor the specific calculations for MAWC's recommended capital structure, she indicates that her ROE recommendation is based on MAWC's proposed common equity ratio of 51.03%, as detailed in MAWC witness Scott W. Rungren's testimony. Mr. Rungren's recommended capital structure is based on a

pro forma estimate of MAWC's per books subsidiary capital structure as of May 31, 2019. In Staff's opinion, the proposed capital structure should not be used because MAWC's rates should not be set based on MAWC's per books balance sheet; moreover, in Staff's opinion, it is not appropriate to use pro forma assumptions based on an MAWC future test year. Mr. Gorman does not comment on capital structure, but adopts MAWC's proposed capital structure.

Staff recommends the Commission adopt American Water's consolidated capital structure for purposes of setting MAWC's allowed ROR. Staff explains why this is appropriate in the Staff Cost of Service Report. As shown on Schedule 6 of Appendix 2 attached to the Staff Cost of Service Report, Staff's common equity ratio recommendation is 43.66%. Staff also includes 4.87% of short-term debt in its recommended capital structure because, on average, AWK has been carrying a higher balance of short-term debt than its balances of construction work in progress ("CWIP"), implying that some short-term debt is supporting AWK's long-term assets.

Q. Has the Commission ever ruled on the dispute as to whether MAWC's ratemaking capital structure should be based on MAWC's per books subsidiary capital structure or AWK's consolidated capital structure?

A. No, each case subsequent to the formation of American Water Capital Corporation ("AWCC") has been settled, beginning with Case No. WR-2003-0500.

Q. What is Ms. Bulkley's argument for using MAWC's per books subsidiary capital structure to set MAWC's allowed ROR?

A. Ms. Bulkley argues that if the Commission relies on the proxy group of companies to establish a ROE for MAWC, the equity ratio for MAWC should also fall within the range of equity ratios established by the proxy group.[2]

Ms. Bulkley also refers to a stand-alone principle in her contention to use MAWC's capital structure, noting that "various equity and debt cost rates and capital structure components should be set as if the operating utility company were going to the financial markets to raise capital on its own merits." [3]

Ms. Bulkley believes it is reasonable to compensate investors for any increased financial risks, if the Commission rules that AWK's capital structure is appropriate for setting MAWC's rates. As fair compensation she suggests the Commission should allow a 71 basis point increase be added to her recommended ROE of 10.8% in order to allow MAWC the opportunity to achieve an authorized ROR of 8.07%.[4] Given her desired ROR of 8.07%, the Commission would have to authorize an ROE of 12% if Staff's advice of the proper capital structure, AWK's with the inclusion of short term debt, were adopted.

Q. Does Ms. Bulkley's proposal and analysis apply to MAWC?

A. No. MAWC is not viewed, nor financially managed, as an independent operating company with capital costs based on its stand-alone business risk and financial risk. In fact, MAWC is not even rated by any of the rating agencies because it receives almost all of its debt financing from AWK's financing subsidiary, AWCC. The cost of debt issued by AWCC is based on AWK's consolidated risk profile, which includes both AWK's business, and financial risk. When debt investors are determining the required return on the debt, they are evaluating the amount of leverage in AWK's capital structure, not MAWC's

[2] Bulkley direct, p.54, ll. 5-9
[3] Id, p. 55, ll. 10-13.
[4] Id, p. 56. ll. 13-19.

capital structure. AWK's financial risks and business risks are the basis for the 'A' rating currently assigned to the debt issued by AWK and loaned internally to MAWC.

Q. For the debt shown on MAWC's balance sheet, what is the most recent debt issuance that was issued independently by MAWC?

A. The most recent debt issuance outstanding on MAWC's books that was issued independently by MAWC was issued on June 12, 1997. This debt issuance was in the amount of $8 million.

Q. How much of the debt shown on MAWC's books was issued independently by MAWC?

A. Less than 5%. Based on the information MAWC provided to Staff in response to Staff Data Request No. 182, Staff could identify approximately $23.5 million of the $568.5 million of debt as MAWC independent debt issuances. Q. If MAWC is not issuing its own debt, then does it need to manage its financial risk, i.e. capital structure, to appease potential debt investors?

A. No. Because MAWC is not issuing its own debt, no debt investors are evaluating MAWC's stand-alone financial risk for purposes of determining a required return on debt investments.

Q. Please describe MAWC's financing arrangement with AWCC.

A. As stated in Paragraph 13 of Missouri-American's application filed in Case No. WF-2002-1096:

> Applicant [MAWC] proposes to implement some or all of the long-term debt portion of its financing program primarily through an affiliate, American Water Capital Corp. ("AWCC"). AWCC is a wholly-owned subsidiary of American Water Works Company, Inc., ("AWW") established for the purpose of providing

financial services to AWW and its water and wastewater utility subsidiaries (including Applicant) by pooling the financing requirements of such companies (the "Participants"), thereby creating larger and more cost efficient debt issues at more attractive interest rates and lower transaction costs than would otherwise be available.

Q. How does Standard & Poor's ("S&P") evaluate the creditworthiness of AWK and MAWC?

A. S&P does not issue a credit rating for MAWC; it issues a credit rating on AWK. The credit analysis performed by S&P is based on AWK's consolidated credit risk profile, which consists primarily of regulated water and sewer subsidiaries, but also includes some non-regulated operations. As long as the risk associated with the consolidated operations is consistent with MAWC's risk, then it is appropriate to not only use the consolidated capital structure, but also the cost of capital associated with this capital structure for ratemaking purposes.

Q. Does the consolidation of financing needs through AWCC make MAWC's capital structure inappropriate for purposes of determining a fair and reasonable allowed ROR for MAWC?

A. Yes, because AWCC is acting like the treasury for AWK, AWK receives debt from AWCC as do its subsidiaries. AWK uses this debt to make equity contributions into its subsidiaries. As such, these transactions result in the appearance of less leveraged capital structures for the subsidiaries.

Alternatively, AWK's subsidiaries could have received this capital by executing internal loan documents with AWCC. If AWK had allocated capital to the subsidiaries in this manner, then the subsidiary capital structures would be more consistent with the amount

of financial risk that AWK's subsidiaries could optimally incur. AWK's capital structure directly affects the cost of capital that is available to its subsidiaries, it is a market-driven capital structure; consequently, the use of the consolidated capital structure for ratemaking purposes is most likely to produce a ROR that is consistent with the cost of capital associated with MAWC's cost of capital absent management for ratemaking.

Q. How does AWCC determine how much it will charge on the loans it makes to MAWC?

A. According to MAWC's response to Staff DR 0233, AWCC "issues public senior unsecured debt and loans a portion of the proceeds, via intercompany loan, to MAWC at an interest rate equal to the fixed coupon interest rate that AWCC issued the debt at into the public markets. Also, the relevant allocation of issuance fees, without markup, is allocated to MAWC based on its portion of the total AWCC debt issuance."

Q. How many state jurisdictions regulate American Water's utility operations?

A. According to American Water's December 31, 2016, SEC Form 10-K Filing, it has regulated water utility subsidiaries in 16 states.

Q. Has Staff researched the capital structures authorized to AWK's subsidiaries in other states?

A. Yes. Staff asked the company to identify the states and provide the case numbers for which AWK's subsidiaries most recently completed rate cases occurred. The company provided case numbers for the most recently completed rate cases in 14 states. Of the 14 most recently completed rate cases, 10 settled cost of capital issues, and 4 were litigated. Commission decisions on cost of capital issues were rendered in the States of Illinois (Case No. 16-0093), Iowa (Case No. RPU-2016-0002), New York (Case No. 16-

W-0259), and West Virginia (Case No. 15-0676-W-42T). Illinois, Iowa, and West Virginia adopted operating utility's capital structures. New York adopted AWK's capital structure. Illinois Commission Staff and Illinois-American Water both proposed using the operating utility company's capital structure, but disagreed on the proportions of each element in their proposed future test year capital structures. After removing goodwill from, and imputing an amount of short-term debt into the operating utility's capital structure, the Commission in Illinois ruled on a capital structure consisting of 48.3% long-term debt, 49.8% equity, and 1.9% short-term debt.

Differences in proposed capital structures among the parties in Iowa-American Water's most recent rate case revolved around the time period used to determine the capital structure, both parties proposed using the utility operating company's capital structure. The Iowa Commission adopted an updated capital structure, with no short-term debt or preferred stock, which consisted of 48% long-term debt, and 52% equity. Similar to Iowa, contentions in the most recent West Virginia-American Water rate case revolved around the time period used in determining the capital structure. The Commission in West Virginia adopted the utility company's test year capital structure after making adjustments to short-term debt and equity, resulting in a capital structure consisting of 47.50% long-term debt, 45.84% equity, 6.47% short-term debt, and .19% preferred stock. New York was the only state where a Commission decision was necessary to reconcile between the utility operating company's capital structure proposed by New York-American Water, and AWK's holding company capital structure proposed by New York Public Service Commission Staff. The New York Commission adopted AWK's capital structure citing the lack of ring-fencing provisions, but made a .09% upward adjustment to equity to compensate the company for the risk incurred in

a 4-year plan. This resulted in capital structure consisting of 54% long-term debt, and 46% equity.

Q. Will the use of MAWC's capital structure as of the future test year May 31, 2019, result in a higher revenue requirement than necessary?

A. Yes. The most significant issue of this case from a financial analysis standpoint revolves around the proper capital structure, that of AWK or MAWC. ROE will have to increase by more than 100 basis points from the 9.5% allowed in the KCPL rate case to have the significance that the decision on capital structure will have. The cost of the debt issued by AWCC is based on the financial risk associated with American Water's more leveraged capital structure. If American Water maintained a capital structure more consistent with MAWC's capital structure, then American Water would have less financial risk and therefore, AWCC could issue debt at a lower cost. Not only would the debt cost be lower, but the cost of equity would be lower as well because cash flows available to equity investors after interest expense would be more certain as a result of less leveraged operations. MAWC does not issue common stock. In fact, all of MAWC's common stock ($95,994,075) is held by AWK.[5] Using MAWC's future test year capital structure perpetuates this relationship because MAWC has stated that it will receive a $64 million equity contribution from AWK,[6] but nothing indicates that AWK will issue equity to finance said contribution. In fact, AWK management has already stated to shareholders that they do not foresee equity issuances in 2018. After tracing the amount of AWK shares outstanding and reviewing filing with the U.S. Securities and Exchange Commission, Staff notes that AWK has not issued equity through a follow-on public offer, or secondary offering since 2008. AWK's equity

[5] Missouri-American Water Company response to Staff Data Request 0248.
[6] Rungren Direct, pg. 17, ll. 24

contribution to MAWC is likely to be made through debt assigned to AWK by AWCC. MAWC could support receiving the $64 million as an intercompany loan from AWCC, leading to a lower revenue requirement. If the Commission were to adopt MAWC's more equity rich capital structure, then Staff recommends the Commission adopt a lower allowed ROE than the 9.25% recommended by Staff.

Q. What is the difference between MAWC's common equity ratio and that of American Water?

A. Using Staff's calculations of the capital structure for the test-year ended June 30, 2017, AWK's capital structure reflects approximately 43.66%, and MAWC's capital structure reflects approximately 49.41% common equity, a difference of approximately 5.75%. The disparity grows when considering Mr. Rungren's recommendation to use MAWC's future test year common equity ratio of 51.03%., leading to a difference of approximately 7.37%.

Q. Did you indicate that if AWK had maintained a higher equity ratio, this would also allow for a lower cost of debt?

A. Yes. Because AWK would likely have a better credit rating due to a less leveraged capital structure, it would also have lower debt costs. Staff recommends the Commission lower the debt costs if a more equity rich capital structure is adopted.

Q. Why are all of these adjustments needed if the Commission adopts a capital structure other than American Water's?

A. Because MAWC's per books capital structure is not market-tested. The only market capital costs that are known are those that are the result of investors evaluating the

business and financial risk of AWK, the owner of MAWC. Therefore, this is an appropriate proxy for the capital costs that MAWC incurs.

COST OF EQUITY ESTIMATES OF EACH WITNESS SINCE THE FALL OF 2016

Q. What is the main issue the Commission needs to consider when determining a fair and reasonable allowed ROE for MAWC?

A. The range of differences between the ROEs of regulated utilities is narrow; meanwhile, the range of recommended ROEs among the witnesses' recommendations is wide and open to interpretation. The KCPL allowed ROE is a discrete artifact specific to this Commission. The fact that it is an absolute reduces the variability of possible returns, makes it an outstanding proxy for this case, and presents a solid instrument to navigate between the witnesses recommendations. Therefore, the main issue the Commission needs to consider is whether the allowed ROE for MAWC should be significantly different from the ROE recently allowed KCPL. Unfortunately, neither witness addresses this issue in their rate of return testimonies.

Q. What information from each witness have you reviewed to assist the Commission with this determination?

A. Staff issued a data request to each witness for copies of all testimonies, schedules and work papers filed since October of 2016. Ms. Bulkley provided copies of seven direct testimonies she filed since fall 2016. These testimonies had date ranges from November of 2016 to December of 2017, encompassed ROE recommendations for electric, gas, and water utilities, and had ROE recommendations ranging from a high of 10.80% on April 28, 2017 for Pennsylvania-American Water, to a low of 9.50% on July 28, 2017, for Central Hudson Gas and Electric Corporation. Mr. Gorman provided a case list of

46 testimonies he filed since the fall of 2017.[7] Due to the large number of cases, Staff focused on the samples of cases in which Mr. Gorman provided ROR testimony to State Commissions for the final two-month of 2016 and the final two-months of 2017, comparing his ROE recommendations. Staff also compared Mr. Gorman's testimony for major water utilities (Aqua Illinois and Missouri-American Water Company) to his testimony for electric utilities (Interstate Power and Light Company and Montana Dakota Utilities) to assess any differences in the COE between the water utility industry and an electric utility industry.

Q. Do Ms. Bulkley's testimonies imply there has been a significant change in the utility industries' COE since fall of 2016?

A. Focusing only on Ms. Bulkley's ROE recommendation of 10.80% for a water utility on April 28, 2017, compared to an ROE recommendation of 9.50 for a gas/electric utility three-months later, on July 28, 2017, would imply a precipitous decline in the COE. Ms. Bulkley's recommendations rely on the dubious proposition that, despite stable markets, the COE declined by 130 basis points over the course of three-months. Ms. Bulkley's 10.10% ROE recommendation for Southwestern Public Services Company in November 2016 compared to her ROE recommendation of 10.25% for Southwestern Public Services Company in October 2017 imply a contradictory position, an increase in the COE of 15 basis points. The ranges of reasonableness described in Ms. Bulkley's testimonies range from a high of 10.0 – 10.8 for a water utility, on April 28, 2017, to a low of 8.43 – 10.50 for a gas utility, on June 30, 2017. Noting the lower bounds of the low and high ranges of Ms. Bulkley's zones of reasonableness (10.0 – 8.43) shows a 157 basis point change in her zones of reasonableness over a two-month time period. Unfortunately, the highly variable

[7] Office of the Public Counsel response to Staff Data Request 0235.

nature of Ms. Bulkley's recommendations since fall 2016 obscures any reasonable interpretation of how the COE has evolved over the last year.

Q. Has Ms. Bulkley filed any testimony since fall 2016 for the water utility industry?

A. Yes. Ms. Bulkley filed testimony for Pennsylvania-American Water on April 28, 2017. Her recommended ROE and range of reasonableness were identical to her recommendations in her June 30, 2017 testimony provided to this Commission for MAWC.

Q. Do Ms. Bulkley's recommendations imply there is a significant difference in the cost of capital between electric and water utilities?

A. Ms. Bulkley's testimonies included ROE recommendations for three electric companies. Two of those recommendations are for the same electric company (Southwestern Public Service Company) one-year apart. Focusing on the most recent (April and October, 2017) ROE recommendations Ms. Bulkley has presented for electric companies, compared to her two most recent recommendations for water utilities (April and June, 2017) suggests that Ms. Bulkley thinks that the cost of capital for water utilities is higher than that for electric utilities. Ms. Bulkley's point estimates described in her testimony for the electric utilities (9.79 and 10.25, respectively) are lower than her point estimate described in both her testimonies for water utilities (10.8), implying a cost differential between 55 – 101 basis points. Staff cautions against considering such an antagonistic view because since 2006 there has not been a single year in which average authorized ROE's for water utilities were higher than those for electric utilities.[8]

[8] RRA Water Advisory, *Major Rate Case Decisions January – September 2017,* November 27, 2017, spglobal.com/marketinelligence

Q. Do Mr. Gorman's testimonies imply there has been a significant change in the utility industries' cost of equity since the fall of 2016?

A. No. Mr. Gorman provided Direct Testimony on ROE to State Commissions on seven occasions during the last two-months of 2016, and on three occasions during the last two-months of 2017. The average of his ROE recommendations was 9.09% and 9.06% for 2016 and 2017, respectively. The low and high ranges of his 2016 recommendations were 8.8% - 9.2%, provided on November 23, 2016 for Delmarva Power and Light, and 9.2% - 9.4%, provided on December 16, 2016 for Intermountain Gas Company. The low and high ranges of his 2017 recommendations of 8.6% - 9.4% were encompassed in his testimony for Missouri-American Water Company provided on November 30, 2017.

Q. Do Mr. Gorman's recommendations imply there is a significant difference in the cost of capital between electric and water utilities?

A. No. Mr. Gorman provided Direct Testimony on ROE for water utilities to State Commissions on two occasions: August 30, 2017, for Aqua Illinois and November 30, 2017, for Missouri-American Water Company. Staff compared recommendations provided by Mr. Gorman for electric utilities, aligning within a similar time frame, to those of his water utility recommendations described above: August 1, 2017, for Interstate Power and Light Company and November 7, 2017, for Indiana Michigan Power Company, respectively. Mr. Gorman's recommendation for Aqua Illinois of 9.1%, with a range of 8.6% - 9.5%, was slightly higher than his recommendation for Interstate Power and Light Company of 9.0%, with a range of 8.8% - 9.2%, indicating a slightly higher ROE for the water utility. However, his recommendation for Missouri-American Water Company of 9.0%, with a range of

8.6% - 9.4%, is slightly lower than his recommendation for Indiana Michigan Power Company of 9.1%, with a range of 8.9% – 9.3%.

Q. What conclusions do you draw from your review of the prior testimonies of Ms. Bulkley and Mr. Gorman?

A. The highly variable nature inherent in Ms. Bulkley's recommendations precludes reasonable consideration. With respect to the overall COE from 2016 to 2017, the average of point estimate recommendations, in major rate cases, by Mr. Gorman imply that COE has remained relatively constant, perhaps declining negligibly. With respect to any differences in the COE between water utilities and electric utilities, Mr. Gorman's recommendations note no significant differences.

PROBLEMS WITH ABSOLUTE VALUE OF MS. BULKLEY'S CURRENT COST OF EQUITY ESTIMATES

Q. What allowed ROE does Ms. Bulkley recommend?

A. Ms. Bulkley recommends an allowed ROE of 10.80%.

Q. What issues illustrate why Ms. Bulkley's COE estimates are overstated?

A. Ms. Bulkley's constant growth DCF COE estimates are overstated due to her unrealistic assumption that water utility stock prices can grow into perpetuity at a rate equal to analysts' projected growth rates. Ms. Bulkley's use of a projected DCF compounds this error with the added uncertainty inherent in her use of projected stock prices and projected dividends from 2020 – 2022, as such her projected DCF results should be afforded no weight in these proceedings.

Q. Why is using analysts' projected growth rates an unrealistic assumption?

A. Using analysts' projected growth rates in a constant growth DCF is an

unrealistic assumption because analysts' growth rates are frequently higher than GDP growth rates. For example, the average growth rate reported in Ms. Bulkley's constant growth DCF is 6.66%. Staff has consistently held the view that no company can grow in perpetuity at a rate greater than long-run GDP growth, currently estimated to grow at a nominal rate of 4.24%. The longer a company or industry grows at a rate higher than GDP, the larger the share of GDP that, that company or industry will account for. While it is true that a company or an industry may grow at a rate faster than GDP in the short to medium term, to make such an assumption into perpetuity is a mathematical impossibility, because eventually that one company would comprise the whole economy.

Q. Is there a means by which to capture such growth rate differentials in estimating the COE?

A. Yes, through the use of a multi-stage DCF. Staff and Mr. Gorman used this version of the DCF. The COE estimates from using such methods with rational inputs are much more in line with a reasonable required return in today's capital and economic environment.

Q. Why are Ms. Bulkley's COE estimates using her CAPM and risk premium methodologies so overstated?

A. There are several reasons for this, but I will list and explain the primary reasons these results are unreasonably high.

Ms. Bulkley uses a forecasted risk-free rate that bears no relationship to the current cost of capital. Staff has consistently refuted the notion that investors use a forecasted interest rate to estimate the COE because current interest rates already consider expectations of future interest rates. An investor would not buy a 30-year Treasury bond at yields of

approximately 2.91% [9] if the investor thought 30-year Treasury bonds would trade at yields-to-maturity of 3.48% and 4.30% in the near future, the risk-free rate Ms. Bulkley uses in her CAPM analyses.

Q. How did Ms. Bulkley develop the 3.48% and 4.30% rates?

A. Ms. Bulkley derived her projected 30-year Treasury rates of 3.48% for the time period from Q3 2017 – Q3 2018 and 4.30% for the Time Period from 2019 – 2023 from Blue Chip Financial Forecasts.

Q. Why is it illogical to use projected interest rates to estimate the COE as Ms. Bulkley does?

A. Ms. Bulkley's fallacy of using projected interest rates in her CAPM analysis is similar to her error of using projected stock prices and projected dividend yields in her projected DCF analysis. The contention that analysts believe that current dividend yields will be higher or lower in the future does not correspond to the cost of equity. Both current bond prices and current stock prices already reflect investors' expectations of future interest rates (whether they are expected to increase or decrease), as well as other economic and political considerations. Using the projections Ms. Bulkley suggests is akin to projecting what investors in 2023 will expect interest rates to be, in the then future, given the economic and political considerations at that future point in time. This nebulous line of reasoning convolutes an already theoretical topic at the expense of rate payers, in an attempt to game the company into receiving a higher authorized ROE, as such Ms. Bulkley's CAPM analysis should be afforded no weight in these proceedings.

[9] Approximately 2.91% average for 2017 through November.

Q. Is the use of projected interest rates fair to ratepayers?

A. When assessing the fairness of weather projected inputs should be used consider commentary from Moody's analytics noting that

> the 10-year treasury yield 2.32% average of 2017-to-date fell considerably short of the Blue Chip consensus' predictions of a 2.7% average for yearlong 2017's 10-year Treasury yield. Moreover, the 10-year Treasury yield's fourth-quarter-to-date average of 2.36 is far under year-end 2016's prediction of a 2.9% average for 2017's final quarter.[10]

The commentary above highlights the errors in recent predictions. A look at Table 2 of Mr. Gorman's direct testimony highlights errors in Blue Chip Financial Forecasts for 30-year Treasury bond yields going back to 2014. Evidence shows that allowing the use of forecasted figures would have proven detrimental to rate payers because COE estimates would be erroneously biased upward.

Q. Can you provide an example of why using projected interest rates violates the basic tenets of finance and risk arbitrage?

A. Yes. The current yield on U.S. Treasury bonds reflects investors' expectations of the interest rate environment for the foreseeable future. If investors believed that they could achieve higher yields in the future, they would not buy long-term bonds today because they would experience a capital loss when interest rates increase. If an investor purchased a newly issued $1,000, 30-year U.S. Treasury bond today at a coupon rate of 2.91%, the investor would receive semiannual coupon payments of $14.55 for the next 30 years and a return of the $1,000 investment at maturity. If these payments are discounted at the current required rate of 2.91%, the present value of this stream of payments is exactly equal to the

[10] Lonski, J., Dangers Lurk Amid 2018's Positive Outlook, Moody's Analytics, December 14, 2017.

$1,000 initial investment. However, if investors expected the 30-year T-bond rate to increase to 3.48% as Ms. Bulkley suggests in her CAPM analysis, the investor that purchased the 2.91% bond today would see the value of their $1,000 bond investment decline to $894.39 next year. While it is possible that some investors may have the conviction to short long-term treasury bonds because they expect interest rates to increase by this much, it is obvious that the consensus of investors, i.e., the market, do not, otherwise the prices of bonds would have already dropped to levels that would push interest rates up to this higher projected level.

Q. If utility stock investors expected long-term interest rates to increase to these levels in the near future, would they be rational in their decision to purchase utility stocks at their current valuation levels?

A. No. Investors purchasing utility stocks at current higher P/E ratios would have to knowingly be buying utility stocks with the expectation that they will experience a loss in the value of their investments. That is, unless investors think they can time the market and sell their investment in utility stocks before interest rates increase. However, such an investment style contradicts the historical application of utility stocks in portfolios; utilities have traditionally been defensive, buy-and-hold investments because their regular, predictable dividend payments generate a regular, predictable income stream. It is more plausible that investors have accepted and are willing to incur the risk of change in utility stock prices, given a persistently low risk environment, due largely in part to continued low long-term interest rates, in return for the rewards afforded by utility stocks' regular, predictable income streams.

Q. What else does Ms. Bulkley do to her CAPM and risk premium analysis that inflates her cost of equity estimates beyond that of a reasonable estimate?

A. Similar to her use of projected interest rates, Ms. Bulkley also uses a projected market risk premium. Her projected risk premium is not consistent with investors' capital market expectations. Ms. Bulkley calculates that investors' require a risk premium in the range of 9.09 - 10.44% over risk-free rates to invest in the market, e.g. the S&P 500.

Q. What is a typical market risk premium used by investors?

A. Historical risk premiums are between 4.5% for geometric and 6.0% for arithmetic.[11]

Q. What information do you have to support your position?

A. Duff & Phelps, recommends the use of a historical equity risk premium of 5.5% applied to a normalized risk-free rate of 3.5%, to derive and expected market return of 9% in its 2017 edition of the "Valuation Handbook: *Guide to Cost of Capital.*"[12] Duff & Phelps' market risk premium and expected market return of 5.5% and 9%, respectively, are significantly lower than Ms. Bulkley's assumptions of a market risk premium between 9.09% - 10.44% and an expected market return of 13.39%. In fact, Ms. Bulkley's low market risk premium of 9.09% is higher than Duff & Phelps calculated total market return of 9%, an assumption clearly out of the mainstream of rational investment guidance.

Ms. Bulkley's incorrect assumption, when compared to Duff & Phelps, is further magnified if compared to estimates at JP Morgan. JP Morgan Asset Management publishes expected capital market returns on an annual basis to assist portfolio managers. As of December 26, 2017, JP Morgan Asset Management projects long-term expected market returns to be approximately 5.5%.[13] This compares to Ms. Bulkley's assumed long-term

[11] Duff &Phelps, Valuation Handbook: *Guide to Cost of Capital*, 2017, p. 2-4.
[12] *Id.* p. 3-25
[13] https://am.jpmorgan.com/gi/getdoc/1383498280832.

capital market returns of 13.39%. JP Morgan Asset Management more specifically projects an expected market risk premium of approximately 2.5%.[14]

Q. As it relates to the CAPM, what methodology does the curriculum for the Chartered Financial Analyst (CFA) Program emphasize for purposes of estimating the cost of common equity?

A. The curriculum for the CFA Program states that

> the selection of the appropriate risk-free rate should be guided by the duration of projected cash flows. If we are evaluating a project with an estimated useful life of 10 Years, we may want to use the rate on the 10-year Treasury bond… When using the CAPM to estimate the cost of equity, in practice we typically estimate beta relative to an equity market index. In that case, the market premium estimate we are using is actually an estimate of the equity risk premium (ERP)… The historical equity risk premium approach is a well-established approach based on the assumptions that the realized equity risk premium observed over a long period of time is a good indicator of the expected equity risk premium.[15]

The curriculum continues by discussing limitations of the CAPM. A major limitation which should be considered when assessing the inputs and objectives underlying the interpretation of CAPM results is that the CAPM is a single-period model. The curriculum notes that the

> CAPM is a single period model that does not consider multi-period implications or investment objectives of future periods… A single-period model like the CAPM is unable to capture factors that vary over time and span several periods.[16]

These are important considerations to take into account when assessing the credibility and relevance of Ms. Bulkley's CAPM results. Considering the methodology and limitations

[14] *Id.*
[15] Courtois, Y., Drake, P., & Lai, G., *Cost of Capital, Corporate Finance and Portfolio Management*, CFA Program Curriculum, 2017, Level I, Volume 4, Reading 36.
[16] Singal, V., Portfolio *Risk and Return: Part II,* CFA Program Curriculum, Level I, Volume 4, Reading 43.

discussed in the curriculum for the CFA program, Ms. Bulkley's CAPM analysis is replete with errors. Although her selection of the 30-Year Treasury bond as the risk free rate is appropriate because of the long lived nature of water utility assets, her implementation of projected risk free rates and projected long term growth estimates in determining her equity risk premium violate the single-period limitation of the CAPM and drift from the well-established tenets of the historical equity risk premium approach. Moreover, if Ms. Bulkley's projected risk free rate and projected market risk premium were considered sound, her use of a beta calculated outside of the parameters of those used in calculating her projected marker risk premium lead to an infirm model.

Q. Does the curriculum for the CFA Program opine as to whether geometric or arithmetic risk premiums should be used for the purpose of estimating the cost of capital?

A. Yes. The curriculum specifically states,

> [u]nder the assumptions of an unchanged distribution of returns through time, the arithmetic mean is the unbiased estimate of the expected singe-period equity risk premium, but the geometric mean better reflects growth rates over multiple periods.[17]

Given the nature of utility stocks and their use in portfolios as buy and hold investments, over multiple periods, and that historical returns have varied, the geometric mean is the proper input for the CAPM.

Q. Does Ms. Bulkley attempt to estimate an implied equity risk premium by analyzing the S&P 500 index?

A. Yes. She provides her estimate of the implied equity risk premium on page 41 of her direct testimony. Ms. Bulkley performs a projected constant growth DCF analysis on

[17] Courtois, Y., Drake, P., & Lai, G., *Cost of Capital, Corporate Finance and Portfolio Management*, CFA Program Curriculum, 2017, Level I, Volume 4, Reading 36.

the stock market by using the projected growth rates of constituent S&P 500 companies, adding their projected dividend yields, and multiplying them by their weight in the index. Ms. Bulkley concludes that investors' expected return on the broader market is 13.39%. By subtracting her risk free rate inputs, ranging from 2.95% - 4.30%, she estimates a risk premium in the range of 9.90% - 10.44%.

Q. Is it rational to assume that broader US capital markets will achieve nominal returns of 13.39% per year into perpetuity?

A. No. Historical data show that from 1963 – 2016 the average nominal returns for large and mid-cap U.S. stocks have been approximately 12.6%.[18] During that same time period average nominal U.S. GDP growth was 6.59%.[19] Going forward, consensus estimates U.S. economic growth to slow.[20] Staff calculates nominal U.S. GDP growth to slow to 4.24%.[21] It is irrational to expect future returns greater than the historical returns highlighted because of the slower economic growth. All else constant, a rudimentary calculation assessing GDP growth and its relationship to nominal stock returns translates the reduced GDP growth rate of 4.24% to nominal returns for stocks of 8.1%, a rate nearer to Duff & Phelps and JP Morgan Asset Management calculations.[22]

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your rebuttal testimony.

A. Ms. Bulkley's recommended ROE of 10.8% is not fair and reasonable considering the Commission's recent decision in the KCPL rate case. If anything, investors

[18] Duff &Phelps, Valuation Handbook, 2017 pp. 2-5.
[19] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2016&locations=US&start=1963
[20] Case No. WR-2017-0285, Staff Report, Cost of Service, p. 41.
[21] *Id.*
[22] GDP growth reducing an estimated 35.66% = ((6.59% - 4.24%) / 6.59%). All else constant, nominal returns reduce to 8.1% = ((1- .3566) * 12.1%).

are taking comfort in the safety of utilities. Utility bond yields and stock valuation levels justify the Commission authorizing an allowed ROE of 9.25% or lower for MAWC.

The Commission should reject the Company's proposed capital structure because it is based on MAWC's future test year capital structure. As Staff has explained in detail, MAWC does not need to manage its capital structure for purposes of issuing debt or equity to third-party investors. American Water's capital structure is the most appropriate because it is managed with the purpose of maintaining a balanced capital structure that allows the company to maintain and attract capital at the most efficient cost.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

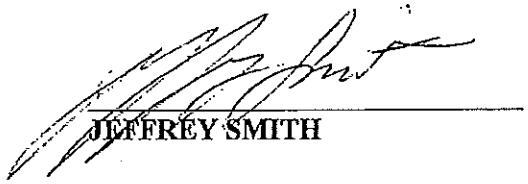
In the Matter of Missouri-American Water Company's Request for Authority to Implement General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas	)))))	Case No. WR-2017-0285

AFFIDAVIT OF JEFFREY SMITH

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JEFFREY SMITH and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing Rebuttal Testimony; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

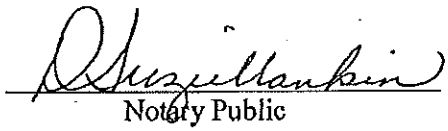


JEFFREY SMITH

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 17th day of January, 2018.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070



Notary Public