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Issue(s):	*Return on Equity* *Capital Structure*
Witness:	*Seoung Joun Won, Phd*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Corrected Rebuttal Testimony*
Case No.:	*WR-2020-0344*
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MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL AND BUSINESS ANALYSIS DIVISION

FINANCIAL ANALYSIS DEPARTMENT

Corrected REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, PhD

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

Jefferson City, Missouri

January 2021

** Denotes Confidential Information **

Corrected REBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, PhD

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

Q. Please state your name and business address.

A. My name is Seoung Joun Won and my business address is P. O. Box 360, Jefferson City, Missouri 65102.

Q. Who is your employer and what is your present position?

A. I am employed by the Missouri Public Service Commission ("Commission") and my title is Regulatory Compliance Manager for the Financial Analysis Department, in the Financial and Business Analysis Division.

Q. Are you the same Seoung Joun Won who prepared the Rate of Return section of Staff's Cost of Service Report ("COS Report"), filed November 24, 2020?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Ann E. Bulkley, Brian W. LaGrand, and David Murray. Ms. Bulkley sponsored rate of return ("ROR"), return on equity ("ROE") and capital structure testimony on behalf of Missouri-American Water Company ("MAWC"). Mr. LaGrand sponsored cost of debt and capital structure testimony on behalf of MAWC. Mr. Murray sponsored ROR, ROE, cost of debt and capital structure testimony on behalf of the Office of the Public Counsel ("OPC"). Within this testimony, Staff will address issues related to a just and reasonable ROR to be

applied to MAWC's water and sewer utility rate base for ratemaking purposes in this proceeding. Staff's analyses and conclusions are supported by the data presented in Staff's rebuttal workpapers.

EXECUTIVE SUMMARY

Q. What is the overview of your response to the testimonies of Ms. Bulkley and Mr. LaGrand?

A. Staff's rebuttal will focus on Ms. Bulkley's recommended ROR, ROE, and capital structure, and Mr. LaGrand's recommended cost of debt and capital structure. Ms. Bulkley recommended an ROR of 7.29% based on her recommended ROE of 10.50%, and Mr. LaGrand estimated a cost of debt of 4.70% and proposed a pro forma capital structure of 46.99% long-term debt and 53.01% common equity, as of May 31, 2022.

During the review process, Staff discerned that Ms. Bulkley introduced a series of biased estimates for her cost of equity ("COE") and utilized Mr. LaGrand's inappropriate capital structure. First, Ms. Bulkley used an improper proxy group, consisting of water and natural gas utility companies, for estimation of her COE. Staff's analysis concluded that including gas utility companies in the proxy group resulted in a significant upward bias in Ms. Bulkley's COE estimation. Second, Ms. Bulkley improperly applied COE estimation methods to her water and gas company proxy group. Ms. Bulkley applied the constant growth form of the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Empirical Capital Asset Pricing Model ("ECAPM"), and the Expected Earnings Analysis to her proxy group. Staff's analysis found that Ms. Bulkley disregarded the results of her own DCF COE estimation results, which range from 8.13% to 9.88%, and instead relied on her other estimation methods which produced unreasonably high COE estimates of between

10.17% - 11.29%.[1] Using proper cost of capital models with reasonable inputs shows that the current COE for water utility companies is not higher than 10%. Third, Ms. Bulkley recommended the use of an inappropriate capital structure; Ms. Bulkley used a pro-forma capital structure proposed by Mr. LaGrand. Ms. Bulkley argued that a capital structure for MAWC should not be based on the consolidated capital structure of the parent company, but rather on the expected variability future cash flow of MAWC. Ms. Bulkley's assertion is unreasonable considering that about 97% of MAWC's capital structure depends on American Water Works Company, Inc. ("AWC").

Q. What is the overview of your response to the testimony of Mr. Murray?

A. Mr. Murray recommended a ROE of 9.25%, and two sets of RORs, conditional on the Commission's decision whether or not to use short-term debt in MAWC's allowance for funds used during construction ("AFUDC") rate calculations. Mr. Murray recommended a ROR of 6.33%, using AWC's consolidated capital structure of 58.90% long-term debt and 41.10% common equity, in the event that the Commission orders MAWC to use short-term debt to calculate the AFUDC rate. In the event that the Commission does not order MAWC to use short-term debt to calculate the AFUDC rate, Mr. Murray recommended a ROR of 6.04%, with corresponding AWC's consolidated capital structure of 56.16% long-term debt, 4.66% short-term debt, and 39.18% common equity.

Staff expresses concern with how Mr. Murray derived his recommended authorized ROE from his estimated COE calculations. In his ROE estimation methodology, Mr. Murray appears to suggest that his ROE recommendation is a function of change in COE between rate case periods but offers no discernible and plausible evidence that this is the case. His current

[1] Figure 1 at page 6, Ann E. Bulkley Direct Testimony, Case Nos. WR-2020-0344 and SR-2020-0345.

COE estimate shows that COE decreased by about 18 basis points since MAWC's 2017 rate case but his recommended authorized ROE did not correspondingly decrease in accordance to the change in the COE. Staff will explain its position on short-term debt in its discussion of the capital structure.

RESPONSE TO TESTIMONY OF MS. BULKLEY AND MR. LAGRAND

Q. What are the specific areas in which Staff disagrees with Ms. Bulkley's analysis and conclusions?

A. The areas in which Staff disagrees with Ms. Bulkley include:

- Recommended ROE,
- Interpretation of Market Conditions,
- Proxy Group Selection,
- Market Return for CAPM,
- ECAPM Method,
- Expected Earnings Analysis, and
- Capital Structure for ROR.

I will discuss each in turn, below.

1. Recommended ROE

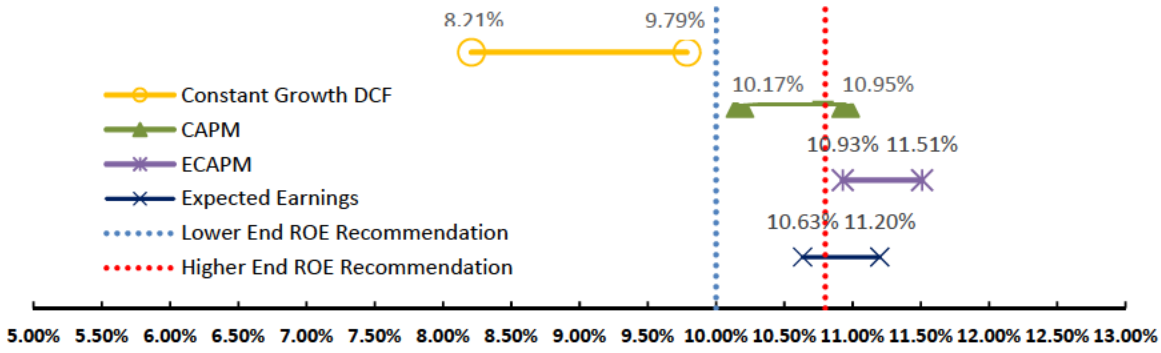
Q. What is Ms. Bulkley's recommended ROE for MAWC in this proceeding?

A. Ms. Bulkley recommended an ROE of 10.50%, within a range of 10.00% to 10.80%, for use in this proceeding.

Q. How did Ms. Bulkley determine her recommended ROE?

A. Ms. Bulkley determined her recommended ROE from a range of the results of her COE estimates. Ms. Bulkley did not precisely state the basis for the low or high end of her range of COE estimates of 10.00% to 10.80%. Ms. Bulkley's COE estimates for each analysis method are summarized in Figure 1:

Figure 1. Ms. Bulkley's COE Estimates



Q. How did Ms. Bulkley estimate her COE?

A. Ms. Bulkley applied the constant-growth DCF, CAPM, ECAPM, and Expected Earnings Analysis COE estimation methodologies to a proxy group composed of water and gas utility companies.

Q. What is Ms. Bulkley's proxy group for estimating MAWC's COE?

A. Ms. Bulkley selected six water utilities and seven natural gas distribution companies classified by Value Line as water and natural gas utilities, respectively, for her proxy group for estimating MAWC's COE.

Q. What is Staff's concern with Ms. Bulkley's proxy group?

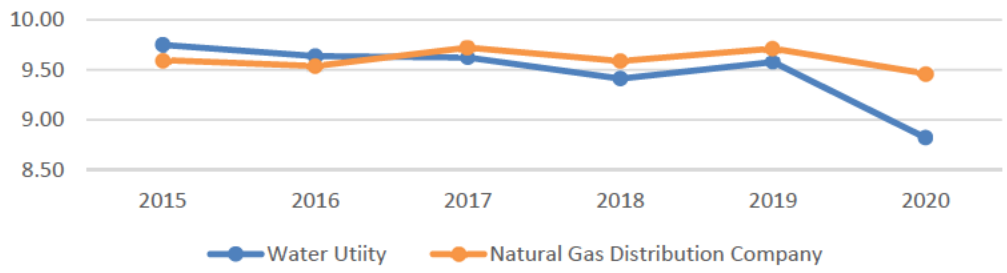
A. Staff's concern is that Ms. Bulkley's proxy group includes natural gas distribution companies. Staff found that natural gas distribution companies are not sufficiently comparable to water utilities to be reasonably included in a proxy group used to estimate the

COE for a water utility. Because natural gas distribution companies are included in Ms. Bulkley's COE estimates, her estimations are significantly overstated.

Q. Why are natural gas distribution companies not reasonably comparable to water utilities?

A. Natural gas distribution utilities appear to have more business risk than water utilities, which leads to higher COE estimates for gas distribution utilities than water utilities. A recent report on the discrepancy between water utilities' and gas distribution utilities' average authorized ROE reveal the difference in business risks.[2] The comparison of historical authorized ROEs from 2015 to 2020 between water utilities and natural gas distribution companies are presented in Figure 2.

Figure 2. Authorized ROE Comparison: Water vs. Natural Gas



As seen in Figure 2, gas distribution companies have had authorized ROEs above those of water utilities for most of the period between 2015 and 2020. Another thing to note in this figure is the trend of decline in authorized ROEs for water utilities. Average authorized ROEs for natural gas distribution companies show a stable trend above 9.50% as compared to the average authorized ROEs for water utilities, which have trended downward below 9.50%. The diverging trend between natural gas distribution companies and water utilities is more noticeable between

[2] Regulated Research Associates, S&P Global Market Intelligence, Retrieved September 22, 2020.

2019 and 2020, where water utilities averaged 8.82% compared to 9.63% for natural gas distribution utilities.[3] Including natural gas distribution companies in the proxy group introduced an upward bias in authorized ROE estimation.

Q. What is the evidence of upward bias in Ms. Bulkley's COE estimates because of proxy group selection?

A. To show the upward bias introduced by including gas distribution utilities in the proxy group, Staff conducted a comparison analysis between the results for Ms. Bulkley's water and gas utility COE estimates based upon the response to Staff Data Request No. 0092.1. Table 1 below presents Ms. Bulkley's COE estimates for water and gas utilities:

Table 1. Average COE Comparison between Water and Natural Gas

	Water	Natural Gas
Constant Growth DCF		
30-Day Average	9.71%	11.36%
90-Day Average	9.59%	11.24%
180-Day Average	9.55%	11.06%
Constant Growth Average	9.62%	11.22%
CAPM - Value Line Beta		
30-day Average Treasury Bond Yield	8.68%	11.41%
Near-Term Blue Chip Forecast Yield	8.81%	11.46%
Long-Term Blue Chip Forecast Yield	9.31%	11.66%
CAPM - Bloomberg Beta		
30-day Average Treasury Bond Yield	10.05%	10.87%
Near-Term Blue Chip Forecast Yield	10.14%	10.94%
Long-Term Blue Chip Forecast Yield	10.49%	11.20%
ECAPM - Value Line Beta		
30-day Average Treasury Bond Yield	9.81%	11.85%
Near-Term Blue Chip Forecast Yield	9.91%	11.89%
Long-Term Blue Chip Forecast Yield	10.28%	12.04%
ECAPM - Bloomberg Beta		
30-day Average Treasury Bond Yield	10.83%	11.45%
Near-Term Blue Chip Forecast Yield	10.90%	11.50%
Long-Term Blue Chip Forecast Yield	11.16%	11.69%
Expected Earnings Analysis		
Value Line ROE 2023-2025	12.37%	10.07%

[3] RRA Regulatory Focus, S&P Global Market Intelligence, July 20, 2020.

As seen in the Table 1, average COE estimates for natural gas utilities are consistently higher than average COE estimates for water utilities using all COE estimation methodologies except the Expected Earnings Analysis. The unreliability of the Expected Earnings Analysis will be addressed later in this testimony. According to Staff's comparison analysis, gas utilities' COE estimates were over 100 basis points greater than water utilities (see a more detailed analysis in Staff's workpapers), indicating a more than 100-basis point overestimation in COE.

Q. What is Staff's concern with Ms. Bulkley's constant-growth DCF model?

A. Ms. Bulkley used unreasonably high growth rates in her constant-growth DCF, which overstated her COE estimates. Ms. Bulkley used short-term analysts' projected earnings growth rates from Value Line, Zacks Finance and Yahoo! Finance in her constant-growth DCF model.

Q. What is wrong with using analysts' short-term earnings growth rates?

A. Analysts' short-term earnings growth rates are not suitable for use in the constant-growth DCF model. In using these analysts' growth rates in the constant-growth DCF, Ms. Bulkley makes an unreasonable assumption that water utilities will grow at these often high and precarious short-term growth rates in perpetuity. Analysts are of the consensus that long-term growth rates for utilities will eventually converge to the level of long-term gross domestic product ("GDP").[4] Staff has consistently held the view that while it is possible that a company or industry may grow at a rate faster than GDP in the short to medium term, no company or industry may do so in perpetuity. Currently, the GDP is projected to grow at a

[4] Morin, R. A. (2006). New Regulatory Finance. Public Utilities Reports. page 302.

long-term rate of 4.56%, making Ms. Bulkley's constant-growth rate of 7.23% too high and unrealistic.[5]

Q. What else concerns Staff about Ms. Bulkley's DCF COE estimates?

A. Even though Ms. Bulkley's authorized ROE estimation methodology assumes ROE is equal to COE, her recommended authorized ROE does not reflect the results of her DCF COE estimation (see Figure 1 above). Ms. Bulkley's DCF COE results range from 8.21% to 9.79% and yet her recommended authorized ROE range from 10.00% to 10.80%. This is unreasonable.

Q. What is Staff's concern with Ms. Bulkley's CAPM estimates?

A. Ms. Bulkley used unreasonably high market risk premiums ("MRPs") to calculate her CAPM estimates. Ms. Bulkley's MRPs of between 10.18% and 11.86% are 2.74% to 5.68% higher than the industry's estimates, which range from 4.50% to 9.12%.[6] Ms. Bulkley's MRPs assume that U.S capital markets will achieve nominal returns of 13.18% per year, forever.[7] This is unrealistic given that historical data shows that from 1963 – 2018, the geometric mean total returns for large U.S. stocks have been approximately 10.1%.[8] It is even more unrealistic to expect nominal returns of 13.18% given that ongoing economic growth is not expected to be higher than the historical rate of 6.48%.[9] According to the Bureau of Economic Analysis, GDP declined by 5.0% and 31.7% in the first, and second quarters of 2020,

[5] GDP growth reducing an estimated 29.53% = ((6.48% - (4.25%+5.47%+3.98%) / 3) / 6.48%). All else constant, nominal returns reduced to 7.12% = ((1-.2953)*10.1%).

[6] For instances, the American Appraisal Risk Premium Quarterly, Value Line, Duff & Phelps, and Geometric Mean of Duff & Phelps calculated forward-looking risk premiums of 6.0 %, 5.5%, 5.0% and 4.5%, respectively. According to 2014 survey research, the average and median of MRP estimates for the U.S. are 5.4% and 5.0, respectively. The FERC used MRP in the First and Second Complaint proceedings for Docket No. EL 14-12-003 of 9.12% and 8.85%, respectively.

[7] MRP = U.S capital market returns 30-year government bond yields.

[8] Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

[9] Federal Reserve Bank St. Louis, retrieved 10/21/2020 (https://fred.stlouisfed.org/series/GDP).

respectively. Nominal GDP growth in 2017, 2018, and 2019 was 4.25%, 5.47%, and 3.98%, respectively.[10] It is irrational to expect future returns to be greater than the historical returns under conditions of slower current economic growth. All else being constant, a rudimentary calculation assessing GDP growth and its relationship to nominal stock returns translates to the reduced GDP growth rate of 4.56% to nominal returns for stocks of 7.12% assuming a linear relationship between GDP growth rate and total return.[11]

Q. How did Ms. Bulkley calculate the market return of 13.18% within her CAPM estimates?

A. Ms. Bulkley calculated the total return estimate for the market of 13.18% using a dividend yield for the S&P 500 of 1.88% adjusted by multiplying by 0.5 plus a growth rate for the S&P 500 of 11.20%. This is the same formula, but not the same inputs, used by the Federal Energy Regulatory Commission ("FERC") to determine market returns.[12] The assumed growth rate for the S&P 500 of 11.20% is not consistent with the FERC's assumptions. The FERC accepted a procedure that screened out growth rates for individual companies smaller than negative 20% or in excess of 20% from consideration in CAPM analysis.[13] Such growth rates are considered unsustainable and not representative of U.S market growth rates.[14] Ms. Bulkley's CAPM analysis included certain companies with extreme growth rate values that would be screened out under current FERC policy.

Q. What are other financial institutions' current MRP estimates?

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[10] *Ibid*.

[11] GDP growth reducing an estimated 29.53% = ((6.48% – (4.25%+5.47%+3.98%)/3) / 6.48%). All else being constant, nominal returns reduce to 7.12% = ((1 – .2953) × 10.1%).

[12] Opinion No. 531-B, 150 FERC ¶ 61,165 at page 113.

[13] Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc., Opinion No. 569, 169 FERC ¶ 61,129 (2019).

[14] Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, 68 (7th ed. 2003).

A. Typical historical MRPs are between 4.5% for geometric mean and 6.0% for arithmetic mean.[15] As explained in Staff COS report, there is a wide variety of MRP estimates. For instances, the American Appraisal Risk Premium Quarterly, Value Line, Duff & Phelps, and Geometric Mean of Duff & Phelps calculated MRPs of 6.0%, 5.5%, 5.0% and 4.5%, respectively.[16] According to 2014 survey research, the average and median MRP estimates for the U.S. are 5.4% and 5.0%, respectively.[17] The FERC used MRPs in the First and Second Complaint proceedings for Docket No. EL 14-12-003 of 9.12% and 8.85%, respectively.[18]

Figure 3. MRP and corresponding COE

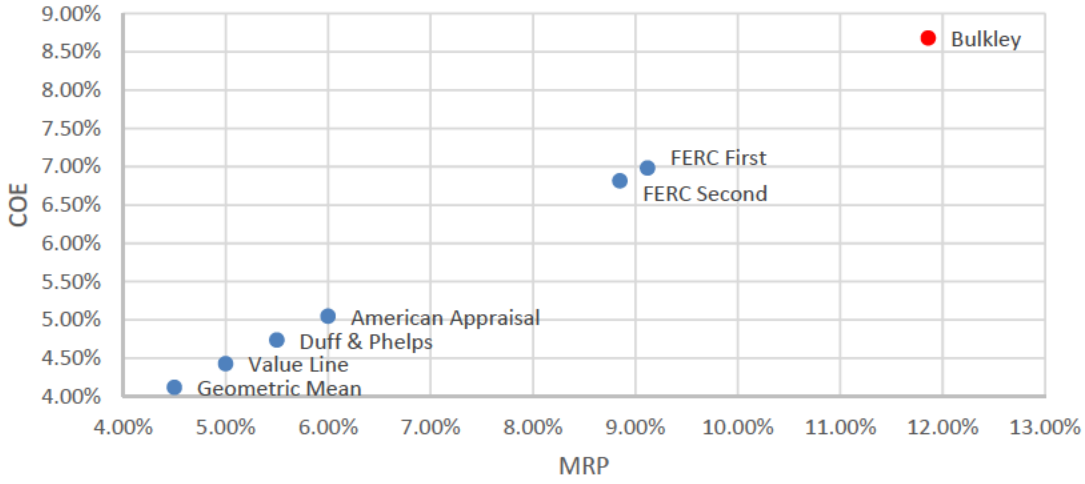

Figure 3 is the comparison of MRP estimates with corresponding COE estimates for an average water proxy group under a scenario assuming a current 30-day average of 30-year U.S. Treasury bond yield of 1.33% as Ms. Bulkley did in her direct testimony. In Figure 3, Ms. Bulkley's MRP and COE results are far removed from, and lie close to the

[15] Duff & Phelps 2019 Valuation Handbook: A Guide to the Cost of Capital.

[16] FERC Opinion No. 569, 169 FERC ¶ 61,129.

[17] Fernandez, P., Linares, P., & Fernández Acín, I. (2014). Market Risk Premium used in 88 countries in 2014: a survey with 8,228 answers. Available at SSRN 2450452.

[18] Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc., Opinion No. 569, 169 FERC ¶ 61,129 (2019).

high extreme of, other estimates. This clearly indicates that Ms. Bulkley's MRPs are too high and, consequently, her COE estimates are too high as well.

Q. What is the other reason Ms. Bulkley's CAPM COE estimates are overstated?

A. Ms. Bulkley used inflated projected risk-free rates that bear no relationship to the current cost of capital. Ms. Bulkley used not only the current 30-day average of 30-year U.S. Treasury bond yield of 1.33% but she also used two inflated projected risk-free rates, the near-term projected 30-year U.S. Treasury bond yield (Q3 2020 - Q3 2021) of 1.68% and the projected 30-year U.S. Treasury bond yield (2022 - 2026) of 3.00%. Staff has consistently refuted the notion that investors use a projected interest rate to estimate the COE because current interest rates already consider expectations of future interest rates. It is therefore illogical to use projected bond yields in the estimation of COE.

Q. Why is it illogical to use projected interest rates to estimate the COE?

A. An investor would not buy a 30-year Treasury bond at yields of approximately 1.38% if the investor thought 30-year Treasury bonds would trade at yields-to-maturity of 1.68% and 3.00% in the near future, the risk-free rates Ms. Bulkley uses in her CAPM analyses.[19] Ms. Bulkley's fallacy of using projected interest rates in her CAPM analysis is similar to her error of using projected input variables in her expected earnings analysis. Both current bond prices and stock prices already reflect investors' expectations of future interest rates. Use of projected rates in the CAPM COE estimation leads to double counting and overestimation of COE. 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

[19] Approximately 1.38% average yields of 30-year Treasury bond for the last 6-month period ended August 31, 2020.

interest rates increase. For example, if an investor purchased a newly issued $1,000, 30-year U.S. Treasury bond today at a coupon rate of 1.38%, the investor would receive semiannual coupon payments of $6.90 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 1.38%, the present value of this stream of payments is exactly equal to the $1,000 initial investment. However, if investors expected the 30-year T-bond rate to increase to 3.00% as Ms. Bulkley suggests in her CAPM analysis, the investor that purchased the 1.38% bond today would see the value of their $1,000 bond investment decline to $684.15 next year. While it is possible that some investors may have a preference for short long term treasury bonds even if they expect interest rates to increase by this much, it is obvious that the consensus of investors would be to not invest. Ms. Bulkley's projected rates violate the basic tenets of financial investment principles.

Q. What would Ms. Bulkley's CAPM COE estimates be if she had used proper input data?

A. With reasonable assumptions such as an MRP of 7.12% and a risk-free rate of 1.33%, Ms. Bulkley's range of CAPM COE estimates would be between 5.74% and 8.24%. This overlaps with Staff's COE estimates which are much lower than Ms. Bulkley's CAPM COE estimates of 10.17% - 10.95%.

Q. What is your concern with Ms. Bulkley's ECAPM model?

A. Ms. Bulkley's ECAPM COE estimates of 10.93% - 11.91% have all of the same issues as her CAPM COE estimation, plus an additional concern regarding her adjustment to account for the supposed tendency of the CAPM method to underestimate COE for companies with low beta coefficients.

Q. How did Ms. Bulkley adjust her CAPM COE?

A. Ms. Bulkley multiplied 75% of her MRPs by the beta coefficient and added the remaining 25% MRPs.[20] This adjustment is consistent with Dr. Roger Morin's formula.[21] Dr. Morin's formula was based on his finding, with data between 1926 and 1984, that regular CAPM underestimated returns by about 2.00%. However, there is no evidence Dr. Morin's finding would hold with data after 1984. Furthermore, Dr. Morin also cited other studies that found that CAPM produced returns between - 9.61% and 13.56%, meaning that CAPM actually overestimated COE in some instances.[22] Such variations in findings do not lend credibility to Ms. Bulkley's use of the ECAPM.

Q. What would Ms. Bulkley's ECAPM COE estimates be with proper input data?

A. With a MRP of 7.12% and a risk-free rate of 1.33%, the range of CAPM COE estimates for Ms. Bulkley's water utility proxy group would be 6.42% - 8.71%. This result overlaps with Staff's COE estimations, which are much lower than Ms. Bulkley's CAPM COE estimates of 10.93% to 11.91%. Ms. Bulkley's ECAPM, just like her CAPM, overstates the authorized ROE.

Q. What are your concerns with Ms. Bulkley's Expected Earnings Analysis?

A. Ms. Bulkley used an adjusted Value Line's Return on Shareholder's Equity estimates with the projection period 2023-2025.[23] Value Line defined Return on Shareholder's Equity as annual net profit divided by year-end shareholders' equity, expressed as a percentage; it measures how much has been earned in percentage terms every year on

[20] Original CAPM COE estimate equals Risk-Free Rate + beta × MRP but ECAMP COE estimate equals Risk-Free Rate + 0.25 × MRP + 0.75 × beta × MRP.

[21] Morin, R. A. (2006). New Regulatory Finance. Public Utilities Reports, page 190.

[22] *Ibid.*

[23] Staff's Data Request No. 0092.1.

the book value of the common and preferred stock.[24] Higher values for Return on Shareholder's Equity are usually considered to be more desirable, often indicating greater productivity and efficiency.[25] In other words, the purpose of Value Line's Return on Shareholder's Equity analysis is not to estimate a just and reasonable ROE for utility rate cases, but instead is to provide a projected COE for investment decisions. The most fundamental problem with Ms. Bulkley's Expected Earnings Analysis is that it is based on book-value concept in contrast to the DCF and CAPM, which are based on market value. In other words, the results of the Expected Earnings Analysis is not directly comparable to other models used in the financial market, which means that they do not satisfy the principles of a just and reasonable ROR as prescribed by the *Bluefield* and *Hope* decisions.[26]

Q. Have other regulators decided not to allow the use of the Expected Earnings Analysis?

A. Yes. On May 21, 2020 (in Opinion No. 569-A), the FERC confirmed its determination in Opinion No. 569 of November 19, 2019, that the Expected Earnings Analysis is not appropriate to use for determination of ROEs.[27] The following is Staff's summary of the FERC's statement, in Opinions No. 569 and 569-A, which I prepared, concerning the unsuitability of the Expected Earnings Analysis for ROE estimation:

> (1) The Expected Earnings Analysis provides an accounting-based approach that uses investment analyst estimates of return on book value of the equity portion.[28] The issue is the Expected Earnings Analysis does not accurately reflect a utility's COE because it is an

[24] Value Line, The In-Depth Guide to Reading a Value Line Research Report, Retrieved in October 22, 2020 (https://www.valueline.com/Glossary/GlossaryDisplay.aspx?taxonomyid=4294967315).

[25] *Ibid*.

[26] Staff COS Report.

[27] Opinion No. 569-A, 171 FERC ¶ 61,154.

[28] Return on book value is calculated by the net earnings on book value of the equity portion of a company's overall capital, excluding long-term debt.

accounting-based measure that does not reflect the ROR that investors require to invest in the market-priced common equity capital of a utility. Therefore, COE estimates from the Expected Earnings Analysis are not directly comparable to the results of the DCF and the CAPM, which are market-based concepts.

(2) The public utility companies for which the Commission sets rates are not publicly traded and thus do not have any market determined stock values. Hence, there is no observable market-to-book ratio specifically applicable to the water business for establishing an ROE. The publicly-traded companies in the proxy group are generally holding companies, which not only have regulated water and sewer business but also other businesses that are not subject to cost-based regulation. Therefore, the proxy company market-to-book ratios may not accurately reflect those of a pure play regulated utility.

(3) In the real world, an investor cannot purchase a utility's common stock at book value and must instead pay the prevailing market price for common equity, which means that the expected earned return on book value is not indicative of what an investor can expect to earn on an investment in the utility's common stock nor what return an investor requires to invest in the utility's common stock. Accounting rates of return are not reliable measures of the current market cost of capital, since they do not reflect the current market prices that are determined in competitive capital markets. If investors consider returns on book value at all, they do not consider it as a direct indication of returns on their investments because they cannot purchase stock at book value unless market price and book value happen to be exactly equal. The Expected Earnings Analysis produces an erroneously inflated measure of investors' required level of return for stocks whose market value exceeds their book value. The expected return on a utility's book value does not reflect "returns on investments in other enterprises" because book value does not reflect the value of any investment that is available to an investor in the market, outside of the unlikely situation in which market value and book value are exactly equal. Therefore, the Expected Earnings Analysis does not measure opportunity cost because the only opportunity cost available to investors is the market price at which they can actually purchase stock.

(4) The Expected Earnings model would not satisfy the constitutional requirements described in *Hope*. The return on book value is also not indicative of what return an investor requires to invest in the utility's equity or what return an investor receives on the equity investment, because those returns are determined with respect to the current market price that an investor must pay in order to invest in the equity. Because

> an investor cannot purchase a utility's common stock at book value and must instead pay the prevailing market price for common equity, the utility's expected earned return on book value is indicative of neither what an investor can expect to earn on an investment in the utility's common stock nor what return an investor requires to invest in the utility's common stock. Accordingly, return on book value does not reflect the return to the equity owner commensurate with returns on investments in other enterprises. Therefore, the Expected Earnings Analysis is not useful in ensuring that the standards of *Hope* are satisfied.

Q. What is Staff's conclusion regarding Ms. Bulkley's Expected Earnings Analysis results?

A. Staff, just like the FERC, deems Expected Earnings Analysis COE estimates as not appropriate for estimating COE. Staff recommends the Missouri Commission disregard the results of Ms. Bulkley's Expected Earnings Analysis.

Q. What is the other area of Ms. Bulkley's testimony that Staff disagrees with?

A. Ms. Bulkley's analysis incorporated Mr. LaGrand's proposal to use a future test year. In her analysis, Ms. Bulkley included forward-looking estimates that introduced excessive uncertainty to the models used to estimate the ROE. The more projections that are used in a model, the less reliable the model becomes. Staff's general objections to use of a future test year is discussed in the rebuttal testimony of Staff witness Kimberly K. Bolin of the Auditing Department.

2. The Capital Structure of MAWC for ROR

Q. What is Staff's concerns with the capital structure recommended by MAWC's witnesses?

A. Staff's concern with the capital structure proposed and recommended by Mr. LaGrand and Ms. Bulkley is that the capital structure does not reflect MAWC's actual financial risk profile.

Q. What capital structure did Mr. LaGrand propose in this proceeding?

A. Mr. LaGrand developed and proposed an MAWC pro forma capital structure based on a future test year, as of May 31, 2022, composed of 53% common equity and 47% long-term debt. MAWC is not recommending use of AWC's consolidated capital structure to set MAWC's rates in this proceeding.

Q. What are Ms. Bulkley's arguments for using MAWC's pro forma capital structure?

A. Ms. Bulkley argues that the pro-forma capital structure resolves MAWC's problem with expected low revenue and cash flows, as well as MAWC's regulatory risk profile. Ms. Bulkley also argues that the pro-forma capital structure is similar to the capital structure of the proxy group selected for use to estimate COE. Ms. Bulkley reasoned that if the Commission relies on the proxy group of companies to establish a ROE for MAWC, the equity ratio for MAWC should also be equivalent to that which is typical of the proxy group. Ms. Bulkley also argues that using MAWC's pro forma capital structure is consistent with the stand-alone principle, noting, "[V]arious 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." Ms. Bulkley asserts that, should the Commission decide to use AWC's highly leveraged capital structure, it must authorize a ROE of 13.14% in order to achieve her desired ROR of 7.78%. This, Mr. LaGrand argues in support of Ms. Bulkley, would compensate

MAWC's investors for the increased financial risk associated with AWC's higher leverage capital structure.[29]

Q. Why are MAWC's capital structure arguments unreasonable?

A. 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 AWC's financing subsidiary, American Water Capital Corporation ("AWCC"). The cost of debt issued by AWCC is based on AWC's consolidated risk profile, which includes both AWC's business and financial risk. When debt investors are determining the required return on the debt, they evaluate the amount of leverage in AWC's capital structure, not MAWC's capital structure. AWC's financial risks and business risks are the basis for the 'A' rating currently assigned to the debt issued by AWC and loaned internally to MAWC.

Q. What is the most recent debt issuance that was issued by MAWC independent of AWC?

A. The most recently independently issued debt, outstanding on MAWC's books, is about $8 million issued on June 12, 1997.[30] This works out to be less than 3% independently issued debt for MAWC, with over 97% of the debt obtained from AWC or its affiliates. Furthermore, as of June 30, 2020, 100.00% of MAWC's short-term debt was obtained through AWCC.[31]

[29] Brian W. LaGrand Direct Testimony, Case Nos. WR-2020-0344 and SR-2020-0345.
[30] Staff's Data Request No. 0054.3.
[31] Staff's Data Request No. 0054.2.

Q. What is the implication of MAWC not issuing its own debt?

A. The implication is that MAWC does not need to manage its financial risk to appease potential debt investors. MAWC's book capital structure is irrelevant for the purpose of assessing its financial risk. Therefore, the notion of stand-alone financial risk is irrelevant in MAWC's case.

Q. What is MAWC's financing arrangement with AWCC?

A. As stated in Paragraph 13 of MAWC'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, AWCC. AWCC is a wholly-owned subsidiary of AWC established for the purpose of providing financial services to AWC 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." Staff understands that the policy outlined above is still in effect for MAWC and AWCC.

Q. How does S&P evaluate the creditworthiness of AWC and MAWC?

A. S&P does not issue a credit rating for MAWC; it issues a credit rating on AWC. The credit analysis performed by S&P is based on AWC'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. What is the past Commission decision on the capital structure issue?

A. Each case subsequent to the formation of AWCC has been settled, beginning with Case No. WR-2003-0500, so the Commission has not ruled on the issue of whether MAWC's ratemaking capital structure should be based on MAWC's per books subsidiary capital structure or AWC's consolidated capital structure.

Q. Have other jurisdictions in which AWC subsidiaries operate ordered use of the consolidated AWC capital structure in setting rates for the subsidiaries?

A. Yes. Tennessee Public Utility Commission (Case No. 12-00049) ruled for a capital structure consisting of 62.29% long-term debt, 3.30% short-term debt, and 34.8% equity of double leveraged AWC capital structure for Tennessee American Water Company.[32]

Q. What capital structure did Staff recommend for use in this proceeding?

A. Staff recommended the Commission adopt AWC's consolidated capital structure of ** ____ ** percent common equity, ** ____ ** percent long-term debt, and ** ____ ** percent preferred stock, as of June 30, 2020, for purposes of setting MAWC's allowed ROR. Staff explained why this capital structure is appropriate in the Staff COS Report.[33]

Q. What is your conclusion about Mr. LaGrand's proposed pro forma capital structure?

A. Mr. LaGrand's proposal to use a pro forma capital structure of MAWC with a future test year date of May 31, 2022, raises serious questions. As Staff has already stated, the most significant issue of this case from a financial analysis standpoint, is whether MAWC's

[32] Staff's Data Request No. 0050.1.

[33] On pages 29-31 of the Staff COS Report, Case Nos. WR-2020-0344 and SR-2020-0345.

capital structure reflects how it is actually capitalized. One of the principles set forth in the *Bluefield* and *Hope* cases set an appropriate return for a utility to be that 'return that allows the utility to attract capital in the capital market'. MAWC does not raise its capital directly from the competitive capital market, but from its parent company, AWC, using the parent company's consolidated financial strength. All of MAWC's equity and most of its long-term debt are actually from AWC. Therefore, the relevant capital structure for setting MAWC's ROR should be that capital structure (AWC's capital structure) which is assessed by investors before they invest in MAWC. 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 9.55% currently recommended by Staff.

RESPONSE TO TESTIMONY OF MR. MURRAY

Q. What is Mr. Murray's recommended ROE for use in this proceeding?

A. Mr. Murray recommended that the Commission set MAWC's authorized ROE at 9.25%, in the range of 8.25% to 9.25%, based on his COE estimates calculated using the multi-stage DCF and the CAPM models.

Q. What is your concern with Mr. Murray's recommended ROE?

A. Mr. Murray's recommended ROE of 9.25% does not correspond to his 2020 water utility proxy group's multi-stage DCF approach COE estimate of 6.23%, which indicates a decrease in COE by 18 basis points since 2017.[34] According to his direct workpaper, Mr. Murray's 2017 water proxy group's multi-stage COE estimate was 6.41%.[35] Comparing the two COE estimates, 6.23% (2020) and 6.41% (2017), shows that COE decreased by 18 basis

[34] Schedule DM-D-2, David Murray Direct Testimony, Case Nos. WR-2020-0344 and SR-2020-0345.

[35] Worksheet "WP-MS DCF - 2017 Case" in the Excel file "Final Schedules for Formatting - WR-2020-0344" of David Murray's direct workpaper.

points.[36] However, it is not clear how Mr. Murray factored the COE decline into his recommendation for an ROE of 9.25% for MAWC in this case.

Q. What authorized ROE did Staff recommend for use in this proceeding?

A. Staff recommended an authorized ROE of 9.55% be used to set MAWC's ROR in this proceeding. Staff's recommendation is based on its finding that DCF COE estimates decreased by about 20 basis points since the 2017 MAWC rate case, compared to the midpoint of the ROE range (9.75%) found to be reasonable by the Commission in Case No. WR-2017-0285.[37]

Q. How does Mr. Murray justify his recommended authorized ROE of 9.25%?

A. For his recommended authorized ROE, Mr. Murray stated that he used a multi-stage DCF approach and a CAPM analysis. Mr. Murray stated that his multi-stage DCF and CAPM COE estimated ranges were 7.0% to 7.5%,[38] and 5.5% to 6.0%,[39] respectively. However, Mr. Murray nowhere presents in his direct testimony a clear explanation of how these COE ranges ultimately translated into recommended ROE in this case of 9.25%. Mr. Murray did point out that in the MAWC's prior two rate cases, Staff recommended for MAWC an ROE 25 basis points lower than the ROE authorized for Missouri electric utilities. Mr. Murray does not clearly state whether he is taking the same position on behalf of OPC in this case. If it is OPC's position that MAWC should be authorized a lower ROE than recently granted to Missouri electric utilities, it is not clear why it would now be reasonable to recommend for MAWC a 9.25% ROE, the same exact ROE recently authorized for a Missouri electric utility.

[36] 8 basis points = 6.41% - 6.23%.

[37] 20 basis points = 8.53% - 8.33%. Please see Staff's direct workpaper.

[38] On page 31, line 3, of David Murray Direct Testimony, Case Nos. WR-2020-0344 and SR-2020-0345.

[39] On page 8, line 23, of David Murray Direct Testimony, Case Nos. WR-2020-0344 and SR-2020-0345.

Q. What is Mr. Murray's recommended capital structure for use in this proceeding?

A. Mr. Murray recommended AWC's average capital structure from the last five calendar year quarters, ending June 30, 2020, for use in this proceeding. Mr. Murray recommended a capital structure that consists of approximately 41.10% common equity and 58.90% long-term debt in case the Commission orders MAWC to use short-term debt to calculate the allowance for funds used during construction ("AFUDC") rate. However, if the Commission does not order MAWC to use short-term debt to calculate AFUDC, then Mr. Murray would recommend a capital structure that consists of 39.18% common equity, 56.16% long-term debt and 4.66% short-term debt.

Q. What is Staff's position on AFUDC?

A. Staff's position is that the AFUDC rate should be calculated assuming that short-term debt is used as a first source to finance construction activities, with any excess of Construction Work in Progress ("CWIP") over the short-term debt balance assumed to be financed by MAWC's proportionate shares of common equity, preferred equity and long-term debt. If for any reason the Commission rejects Staff's position on this matter, then Staff would recommend that AWC's capital structure be modified to include the applicable short-term debt balance and rate in order to determine MAWC's revenue requirement. For a detailed explanation of Staff's position on the issue concerning AFUDC and short-term debt, please see Staff witness Kimberly K. Bolin's rebuttal testimony.

Q. What is the primary differences between Staff's and Mr. Murray's capital structure and ROR recommendations?

A. Mr. Murray's capital structure and cost of debt are the average of five quarters ending June 30, 2020, of AWC's capital structures, whereas Staff's is AWC's consolidated

capital structure and cost of debt as of June 30, 2020. Even though Mr. Murray and Staff recommended slightly different ROEs, cost of debts, and capital structures to calculate allowed ROR, both Staff and OPC recommended the same ROR of 6.33%, contingent on appropriate consideration of short-term debt in the calculation of AFUDC.

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your rebuttal testimony.

A. Ms. Bulkley's recommended ROE of 10.5% for MAWC is not just and reasonable considering her inappropriate reliance on certain ROE calculation methodologies and use of certain inappropriate inputs into those methods. Staff recommends that the reasonable authorized ROE to use in this proceeding is 9.55%, in a reasonable range of 9.30% to 9.80%. Staff expresses concern that OPC witness Murray's recommended authorized ROE of 9.25% falls short of the reasonable ROE level of around 9.55%, given that capital market evidence does not support reducing authorized ROE from the last rate case by about 50 basis points, as implied in Mr. Murray's recommendation.

Given that MAWC's capital structure is financed and managed almost entirely by AWC, Staff recommends that the appropriate capital structure to use to set MAWC's allowed ROR of 6.33% in this proceeding is AWC's consolidated capital structure, as of June 30, 2020. Should the Commission decide that short-term debt must be included in the capital structure, Staff will recommend AWC's consolidated capital structure include the applicable short-term debt. Staff will keep monitoring AWC's updated consolidated capital structure and cost of debt until the true-up period and will make its final recommendation at that time.

Q. Does this conclude your corrected 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-2020-0344

AFFIDAVIT OF SEOUNG JOUN WON, PhD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COME NOW SEOUNG JOUN WON, PhD on his oath declare that he is of sound mind and lawful age; that he contributed to the foregoing *Corrected Rebuttal Testimony of Seoung Joun Won, PhD*; and that the same is true and correct according to his best knowledge and belief, under penalty of perjury.

Further the Affiants sayeth not.

/s/ Seoung Joun Won, PhD
SEOUNG JOUN WON, PhD