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MISSOURI PUBLIC SERVICE COMMISSION

FINANCIAL & BUSINESS ANALYSIS DIVISION

FINANCIAL ANALYSIS DEPARTMENT

SURREBUTTAL TESTIMONY

OF

SEOUNG JOUN WON, PhD

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

Jefferson City, Missouri
February 2021

****** Denotes Confidential Information ******

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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. 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, and the rebuttal testimony, filed January 15, 2021, in this proceeding?

A. Yes, I am.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimonies of Missouri-American Water Company ("MAWC")'s witnesses, Ann E. Bulkley, James S. Merante, and Brian W. LaGrand. I will also respond to the rebuttal testimony of Office of the Public Counsel ("OPC")'s witness David Murray.

I. EXECUTIVE SUMMARY

Q. Please provide a summary overview of your surrebuttal testimony.

A. In my direct testimony, Staff found an authorized return on equity ("ROE") of 9.55%, within a range of 9.30% to 9.8%, to be reasonable.[1] Staff also found the consolidated capital structure of American Water Works Company ("AWC") to be reasonable and

[1] On page 28, Staff's COS Report.

appropriate for calculating MAWC's rate of return ("ROR") in this proceeding.[2] Based on AWC's financials of June 30, 2020, Staff recommends AWC's consolidated capital structure composed of ** ____ ** percent common equity, ** ____ ** percent long-term debt, and ** ____ ** percent preferred stock.[3] Staff cannot use AWC's true-up capital structure at this time because the AWC financials as of December 31, 2020, are not yet finalized or public, and Price Waterhouse, AWC's external auditor, is not expected to complete and finalize their audit until the filing of the Company's 10-K with the SEC later in February.[4]

For the reasons discussed throughout my surrebuttal testimony, none of the arguments raised by MAWC or OPC witnesses in their rebuttal testimonies have caused me to revise my recommendations. Compared to the first two quarters of 2020, volatility in the capital market was much lower in the last two quarters of 2020 and, continues to be so.[5] The major input variables of the cost of equity ("COE") estimation models do not show significant material changes during the last three months.[6]

MAWC's witness, Ms. Bulkley, updated her market-based data for the proxy group companies as of November 30, 2020, and now supports an ROE range of 9.75% to 10.60% for MAWC.[7] Ms. Bulkley and Mr. Merante supported Mr. LaGrand's pro-forma capital structure, as of May 31, 2022, composed of 47.0% long-term debt and 53.0% common equity. Ms. Bulkley and Mr. Merante opposed Staff's recommendation to use the consolidated capital structure of the AWC affiliated companies on MAWC for ratemaking purposes.

[2] On page 29, Staff's COS Report.
[3] Staff's Data Request Nos. 0039.5, 0041.4, and 0041.5.
[4] Staff's Data Request No. 0039.5.
[5] VIX Index Historical Data, Retrieved 1/20/2021 (https://ww2.cboe.com/products/vix-index-volatility/vix-options-and-futures/vix-index/vix-historical-data).
[6] *See* Staff's rebuttal workpaper.
[7] On page 4, Ann E. Bulkley's rebuttal testimony.

OPC witness Mr. Murray agreed with Staff that the cost of capital has decreased since 2017 and did not have concerns with Staff's recommendation to use AWC's capital structure or cost of debt for MAWC's rate making. However, Mr. Murray recommended a ROE of 9.25% even when applied to his highly leveraged capital structure recommendation.

Q. What issues does Ms. Bulkley address in her rebuttal testimony?

A. Ms. Bulkley opposed Staff's recommended authorized ROE and capital structure, and criticized the COE estimation methodology Staff used. Ms. Bulkley devoted much of her testimony to defending MAWC's ROE recommendation, and the reasonableness and appropriateness of Mr. LaGrand's capital structure recommendation.

Q. What issues does Mr. Merante address in his rebuttal testimony?

A. Mr. Merante responded to Staff's recommended capital structure and sponsored Mr. LaGrand's capital structure recommendation.

Q. What issues does Mr. LaGrand address in his rebuttal testimony?

A. Mr. LaGrand defended the recommended cost of debt and capital structure positions for MAWC but did not directly respond to Staff's recommendations.

Q. What is the overview of your response to the testimonies of MAWC's witnesses?

A. Overall, Ms. Bulkley's response to Staff's authorized ROE recommendation is irrelevant because she mischaracterizes Staff's ROE analysis as presented in Staff's COS report. For most of her argument, Ms. Bulkley erroneously interpreted Staff's method and as a result, her opposition to Staff's analysis was based on her misunderstanding of Staff's methodology. Staff will give examples of Ms. Bulkley's incorrect description of Staff's analysis on authorized ROE and explain why Staff's recommended ROE is fair and reasonable to use in this proceeding.

Regarding Staff's recommended capital structure, interestingly, MAWC's witness did not respond to Staff's most fundamental reason for recommending use of AWC's capital structure in this proceeding. Because MAWC's capital structure extraordinarily depends on its parent company, AWC, Staff maintains that AWC's consolidated capital structure is the appropriate capital structure to use in this proceeding. AWC has currently provided 100% of MAWC's equity and more than 97% of the long-term debt on MAWC's books. Most of MAWC's cost of capital paid by Missouri ratepayers just passes through MAWC to AWC, the provider of the capital.

Ms. Bulkley argues that MAWC's pro-forma capital structure is the appropriate capital structure to use because it is comparable to the peer group used in the estimation of MAWC's COE. Ms. Bulkley also uses the Commission's decision in Spire Missouri's rate case, Case Nos. GR-2017-0215 and GR-2017-0216, to argue for her recommendation of MAWC's capital structure. In the Spire Missouri rate cases, the Commission rejected the use of Spire, Inc.'s consolidated capital structure for calculating Spire Missouri's ROR. However, because of the unique financial relationship between MAWC and its parent company, AWC, Ms. Bulkley's arguments about the peer group and the Commission's decision in Spire Missouri's rate case do not hold water.

Q. What issues does Mr. Murray address in his rebuttal testimony?

A. Mr. Murray responded to Staff's recommended authorized ROE.

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

A. Staff disagrees with Mr. Murray's position that the ROE range of 9.5% to 10.0% specified by the parties in the Stipulation and Agreement in Case No. WR-2017-0285 is not meaningful because the settlement did not specify a capital structure. In addition, Staff is of

the opinion that Mr. Murray misunderstood some of Staff's COE estimation methods and thus erroneously considered Staff's recommended ROE too high.

II. MAWC TESTIMONY

1. CAPITAL STRUCTURE

Q. What is MAWC's reasoning in opposing Staff's recommendation to use the consolidated capital structure of AWC for calculating MAWC's ROR for this proceeding?

A. Ms. Bulkley argues that because the Commission rejected the use of the parent company's consolidated capital structure in the last Spire Missouri rate case in 2017, the Commission should reject Staff's recommendation to use the parent company's consolidated capital structure in this case as well.[8] According to Ms. Bulkley's understanding, the Commission's reasoning in the Spire Missouri rate case was that the consolidated company capital structure should not be relied upon because, under the Spire corporate structure, Spire Missouri was one of five operating companies and therefore did not represent the majority of the parent's capitalization. Likewise, Ms. Bulkley argues, because MAWC is one of sixteen utility operating companies in AWC's Regulated Businesses segment and AWC's operations also include unregulated market-based services that make up approximately 15 percent of AWC's operating income, it would not be reasonable to apply AWC's consolidated capitalization to MAWC.

Q. Do you agree with Ms. Berkley that the Commission should apply the same decision on capital structure in this proceeding as it did in the 2017 Spire Missouri rate case?

A. No. Ms. Bulkley disregarded the main reason for the Commission's decision to not use Spire's consolidated capital structure for calculating Spire Missouri's ROR. According

[8] On page 3, Ann E. Bulkley's rebuttal testimony.

to the Amended Report and Order, the fundamental reason for the Commission's decision is that Spire Missouri has an independently determined capital structure, with its own long-term debt issuances secured by its own assets.[9] The following are the Commission's actual findings of fact regarding the capital structure issue in Case Nos. GR-2017-0215 and GR-2017-0216: "(1) Spire Missouri has an independently determined capital structure in that its debt is secured by its own assets and not the assets of Spire Inc. or any of Spire Inc.'s other subsidiaries; (2) Spire Missouri's stand-alone capital structure supports its own bond rating."[10] MAWC's current situation does not meet these two conditions. First, MAWC is unlike Spire Missouri regarding the first finding, in that MAWC's debts are not secured by only its own assets as is the case with Spire Missouri. Ms. Bulkley does not dispute the fact that American Water Capital Corporation ("AWCC") is the primary source of MAWC's debt financing and AWC is the guarantor of the debt issued by AWCC.[11] MAWC does not operate as an independent entity, at least when considering the fact that more than 97 percent of the long-term debt shown on MAWC's balance sheet was received by means of debt issuances from AWCC, which is AWC's financing subsidiary.[12] Second, MAWC is unlike Spire Missouri regarding the second finding of fact, in that MAWC's capital structure does not support its bond rating. In fact, as MAWC is not rated by any credit rating agency; it has no bond rating.[13] Since Spire Missouri issues debt independently from Spire, and Spire Missouri has an independent credit rating, it meant that the Commission found Spire Missouri's financial risk to be not comparable to the financial risk of the Spire consolidated companies. Therefore, the financial risk relationship

[9] On page 43, Amended Report and Order, Case No. GR-2017-0215 (March 7, 2018).
[10] On page 37, Ibid.
[11] On page 5, Ann E. Bulkley's rebuttal testimony.
[12] Staff's Data Request Nos. 0047, 0054.2, and 0054.3.
[13] Staff's Data Request Nos. 0058.

between MAWC and AWC is very different from the relationship between Spire Missouri and Spire.

Q. What is Ms. Bulkley's reasoning for using MAWC's pro-forma capital structure for calculating MAWC's ROR in this proceeding?

A. According to Ms. Bulkley, her examination of the capital structures of the operating companies in the proxy group, as well as the capital structures that have recently been authorized for natural gas and water utilities, has revealed that MAWC's proposed capital structure of 53 percent equity ratio is within an established range of 50-55 percent.[14]

Q. Do you agree with Ms. Bulkley that because MAWC's proposed equity ratio is within the range of the equity ratio of her proxy group, it is therefore reasonable and appropriate to apply to MAWC?

A. No, because of several reasons. First, because MAWC's proposed equity ratio being within the range of the equity ratio of her subsidiary proxy group is neither a necessary nor a sufficient condition for using MAWC's pro-forma capital structure for calculating ROR in this proceeding. Since MAWC is not a financially independent operating subsidiary, it is not meaningful to compare its capital structure to other financially independent operating subsidiaries. Second, the range of authorized capital structures of Ms. Bulkley's subsidiary proxy group is not comparable to the capital structure of MAWC for ratemaking purposes because it is unconfirmed that any of the operating utility companies in Ms. Bulkley's subsidiary proxy group has a similar financial relationship with its parent company than MAWC has with AWC.[15] Therefore, Ms. Bulkley's comparison to her proxy group for this

[14] On page 8, Ann E. Bulkley's rebuttal testimony.
[15] Staff's Data Request No. 0350.

purpose is inappropriate. For the same reason, Staff disagrees with Ms. Bulkley's contention that Staff's capital structure proposals create a mismatch of risk with the proxy group used to determine the ROE.[16]

Q. Do you agree with Ms. Bulkley that Staff failed to consider the relationship between ROE and capital structure in determining the overall cost of capital to set the ROE?[17]

A. No. Staff's recommended allowed ROR of 6.33% was determined by considering the relationship between Staff's recommended ROE and capital structure. The reason Staff did not consider proxy group capital structure is because of the unique relationship between MAWC and AWC. Staff is not aware of any subsidiary operating water utility in Ms. Bulkley's proxy group with anything like the 100 percent equity and more than 97 percent long-term debt that is owned by the respective parent company. Because Staff's recommended ROE and capital structure did not rely on an incomparable proxy group, Staff does not violate the standard established by the United States Supreme Court in the *Hope* and *Bluefield* cases that says authorized return must be consistent with the returns for other companies with similar or comparable risk.[18]

Q. Do you have any evidence that the special financial relationship between MAWC and AWCC has a real impact on the cost of debt of MAWC?

A. Yes. Ms. Bulkley conducted an analysis to demonstrate that MAWC's financing through AWCC has consistently been the lowest cost resource available to AWC subsidiaries, including MAWC.[19] This is only possible because this financing is an internal finance

[16] On page 17, Ann E. Bulkley's rebuttal testimony.
[17] On page 3, Ibid.
[18] *Bluefield Water Works Co. v. Publ. Serv. Comm'n.,* 262 U.S. 679 (1923); *Federal Power Comm'n. v. Hope Natural Gas Co.,* 320 U.S. 591 (1944).
[19] On page 16, Ann E. Bulkley's rebuttal testimony.

transaction. This fact disclosed another issue that when Missouri ratepayers paid the cost of debt of MAWC, it passes through MAWC to AWCC and eventually provides earnings to AWC. This means AWC receives a mark-up debt costs from MAWC customer. This is the reason Staff recommended the use of AWC's cost of debt for calculating MAWC's ROR in this proceeding.

Q. Do you agree with Mr. Merante that AWCC has generally been the lowest cost source of capital?[20]

A. No. There are much lower sources of capital. For instance, in his direct testimony, Mr. LaGrand stated that the loan through the Missouri Department of Natural Resources ("DNR"), funded by Drinking Water Refunding Revenue Bonds (State Revolving Funds Program), and secured by a general mortgage indenture, will have an expected interest rate of 1.28% versus the interest rates of the long–term debts through AWCC of 3.117% - 3.45%.[21] Other much smaller water service companies such as Raytown Water Company reported that a ten year tax-exempt financing of Missouri Environmental Improvement and Energy Resource Authority ("EIERA") bonds would have a range from 1.5% to 2.0%.[22]

Q. Do you agree with Ms. Bulkley and Mr. Merante that MAWC's financial risk is not comparable to the financial risk of the AWC consolidated companies?

A. No. Over 97 percent of MAWC's debt comes from AWC's financial subsidiary, AWCC, and 100% of its equity is owned by AWC, meaning that MAWC's real financial risk is the same level as AWC's financial risk. Financial risk is the risk associated with how a company finances its operations, i.e., whether through equity or debt financing.[23] For the same

[20] On page 8. Ibid.
[21] On pages 13-14, Brian W. LaGrand's direct testimony.
[22] Staff's Data Request No. 0013.1, WF-2021- 0131.
[23] CFA Program Curriculum 2020 Level 1 Volume 3.

reason, I disagree with Ms. Bulkley's argument that Staff's comparisons of MAWC's to AWC's overall risk profile are not the appropriate comparisons for the determination of the appropriate capital structure to use for ratemaking purposes for MAWC.[24]

Q. Do you agree with Mr. Merante that the use of the AWC's consolidated capital structure for ratemaking will create a disincentive to invest discretionary capital in the state of Missouri?

A. No. Mr. Merante's argument is based on the assumption that the use of AWC's consolidated capital structure for ratemaking will weaken MAWC's credit metrics and, therefore, limit the ability of MAWC to attract capital from outside sources.[25] This argument is erroneous because, as Staff already pointed out, MAWC does not raise capital on its own. MAWC's most recent independently issued debt, outstanding on MAWC's books, is about $8 million, issued on June 12, 1997.[26] More than 97 percent of the long-term debt of MAWC was received by means of debt issuances from AWCC.[27] Therefore, there is no reason to be concerned about MAWC being unable to raise capital because investors fully consider AWC's credit worthiness to give capital to AWC and eventually to MAWC. The real cost of capital of MAWC is not decided by the financial market but is decided by AWC. In addition, Staff explained earlier that a lower cost of debt financing in the market compared to AWC is possible, such as DNR funds obtained from EIERA bonds.[28] For the same reason, Staff disagrees with Mr. Merante that the use of AWC's consolidated capital structure for ratemaking will not result in the lowest cost option for ratepayers in the long run.[29]

[24] On page 12, Ann E. Bulkley's rebuttal testimony.
[25] On page 5, James S. Merante's rebuttal testimony.
[26] Staff's Data Request No. 0054.3.
[27] Staff's Data Request Nos. 0047, 0054.2, and 0054.3.
[28] Footnotes 20 and 21 of Staff's surrebuttal testimony.
[29] On page 6, James S. Merante's rebuttal testimony.

Q. Do you agree with Ms. Bulkley that the use of the consolidated capital structure recommended by Staff is: (1) contrary to United States Supreme Court, (2) contrary to this Commission's precedent and, (3) incompatible with financial theory?[30]

A. No. Ms. Bulkley does not offer any meaningful explanation for the three arguments she makes. The information Ms. Bulkley presented with two tables, Figure 5 and Figure 6 of her rebuttal testimony, looks complex but is actually quite simple. Ms. Bulkley's tables simply compare the resultant weighted average return on equity ("WROE") due to different capital structures.[31] Staff's WROE is lower than the typical WROE of a water utility because the real cost of capital of Missouri ratepayers is derived from by AWC's unusually low equity ratio. Ms. Bulkley showed that when MAWC's pro-forma capital structure is used, its WROE is higher than when AWC's consolidated capital structure is used for calculating MAWC's allowed ROR. It is true that Staff recommended a lower equity ratio and a lower authorized ROE than MAWC's witness recommended. Without explaining the real reason, Ms. Bulkley insists that this simple mathematical calculation supports the above three arguments. Staff does not think this provides any meaningful justification for her position on capital structure.

Q. What is your recommended capital structure for use in this proceeding?

A. Staff recommends AWC's consolidated capital structure to calculate MAWC's ROR in this proceeding. In his direct testimony, Mr. LaGrand stated that, through DNR, funded by Drinking Water Refunding Revenue Bonds with an expected interest rate of 1.28%, and issuance costs assumed to be 0.5% of the face amount, MAWC will enter into a loan with a

[30] On pages 20-21, Ann E. Bulkley's rebuttal testimony.
[31] WROE = Equity Ratio × ROE.

projected closing date of June 30, 2020.[32] However, this transaction has not happened yet.[33] Therefore, AWC still provides over 97% of the long-term debt on MAWC's books. AWC's consolidated capital structure as of December 31, 2020, will not be available until February 2021.[34] Staff continues to recommend the updated capital structure composed of 40.00 percent common equity, 59.97 percent long-term debt, and 0.03 percent preferred stock with considering AWC's consolidate capital structures as of June 30, 2020, and as of September 31, 2020.

2. ROE

Q. Do you agree with Ms. Bulkley that Staff's authorized ROE recommendation is not supported by Staff's ROE estimation models?[35]

A. No. Staff's authorized ROE recommendation of 9.55% is calculated using classic ROE estimation models as Staff clearly indicated and explained in Staff's COS Report.[36] Staff used the classic discounted cash flow ("DCF") model in conjunction with Staff's comparative analysis method to estimate the COE of MAWC in the 2020 rate case period and compare it to the estimated COE of MAWC in the 2017 rate case period. Staff used the difference (-20 basis points) in COE between the rate case periods (2017 and 2020) to adjust the base year authorized ROE range of 9.5% to 10.0%, to determine the current year recommended authorized ROE range of 9.3% to 9.8% and a point estimate of 9.55%. The point

[32] On page 13, Brian W. LaGrand's direct testimony.
[33] Staff's Data Request Nos. 0041.3 and 0359.
[34] Staff's Data Request No. 0039.5. The AWC financials as of December 31, 2020 are not yet finalized or public, and Price Waterhouse is not expected to complete and finalize their audit until the filing of the Company's 10-K with the SEC later in February.
[35] On page 4, lines 10-14, Ann E. Bulkley's rebuttal testimony.
[36] On pages 27-28, Staff's COS Report.

estimate is simply the midpoint of the range. In her rebuttal testimony, Ms. Bulkley misrepresented Staff's COE comparative analysis methodology.[37]

Q. Why did Staff not directly quote COE estimates of 2020 as Staff's recommended ROE in this proceeding?

A. There are two reasons. First, COE and authorized ROE are two different financial concepts. COE is a stock market value-based concept.[38] In contrast, authorized ROE is an accounting book value-based concept.[39] Second, a simple calculation of COE does not produce a just and reasonable authorized ROE.

Q. Why is the market-based concept of COE not the same as the book-based concept of authorized ROE?

A. As was already explained in Staff's COS Report:

> COE is the return required by investors and ROE is the return set by a regulatory utility commission. Although some experts contend that COE and ROE are synonymous, Staff's position is that they need not be. Observed utility COEs have been, generally, significantly lower than ROEs in recent years.[40]

The easiest way to understand the difference between COE and authorized ROE is thinking about how two return measures are used in practice. When investors invest their money to buy the common equity stock of a company, they want to know the expected rate of return and compare it to their required rate of return from their investment. The COE can be thought of as the minimum expected rate of return that a company must offer its investors to purchase its shares in the primary market and to maintain its share price in the secondary

[37] On page 44, Ann E. Bulkley's rebuttal testimony.
[38] On page 378, CFA Program Curriculum, 2020, Level I, Volume 4.
[39] On page 389, Ibid.
[40] On page 14, Footnote 10, Staff's COS Report.

market.[41] The important point here is that investors pay their money based on market value of the common equity stock and not based on book value of the equity of a company. To calculate the expected minimum rate of return of common equity, investors estimate COE using the stock valuation of stock models such as the DCF or the capital asset pricing model ("CAPM").[42] Investors' expected return from their common stock can be easily calculated by multiplying COE by the market value of common stock. In contrast, an authorized ROE has a totally different financial context. The purpose of an authorized ROE is to calculate just and reasonable rates for utility companies. In utility rate cases, rates are decided by the revenue requirement determined by the Commission. The revenue requirement is calculated by multiplying rate base by allowed ROR. The allowed ROR is the weighted average cost of capital, which includes authorized ROE and cost of debt. Rate base is calculated based on the book value of utility's regulatory assets. Book value of equity is calculated by subtracting a company's total liabilities from its total assets. Clearly, the two concepts are different; therefore, there is no reason COE and authorized ROE should be the same.

The book value of common equity is not as volatile as stock prices. Since COE is associated with the market value of common stock which can be a volatile value, that means that if COE is directly used to set authorized ROE values and to calculate revenue requirement, authorized ROE would be as volatile as the stock market. With authorized ROE as volatile as the stock market, it means revenue would be as volatile. Investors of utility common stock expect and require a reliable revenue stream based on just and reasonable utility rates because investors know that higher or lower than just and reasonable utility rates are unsustainable and

[41] On page 378, CFA Program Curriculum, 2020, Level I, Volume 4.
[42] On page 379, Ibid.

harmful to both ratepayers and investors, eventually. Therefore, for rate making purpose, a reliable and stable earning multiplier associated with the rate base, based on utility book value needs to be produced. To properly meet the expectations and requirements of investors when they choose to invest their money in MAWC rather than in some other investment opportunity requires just and reasonable rates.

However, it does not mean that COE estimates are useless in the authorized ROE estimation procedure. COE estimates provide valuable equity financial market information including investors' expected minimum rate of return based on the market value of stock. In many rate cases, Staff found that the changes in the COE over time, say between rate case periods, provide essential information on whether to increase or decrease authorized ROE recommendations, considering financial market changes. Directly quoting COE estimates as authorized ROE is not appropriate.

Q. Why does a simple calculation of COE estimates not produce a just and reasonable authorized ROE?

A. In the Amended Report and Order of Spire Missouri rate case, Case Nos. GR-2017-0215 and GR-2017-0216, the Commission stated:

> To determine a return on equity, the Commission must consider the expectations and requirements of investors when they choose to invest their money in Spire Missouri rather than in some other investment opportunity. As a result, the Commission cannot simply find a rate of return on equity that is unassailably scientifically, mathematically, or legally correct. Such a "correct" rate does not exist. Instead, the Commission must use its judgment to establish a rate of return on equity attractive enough to investors to allow the utility to fairly compete for the investors' dollar in the capital market without permitting an excessive rate of return on equity that would drive up rates for Spire's ratepayers.[43]

[43] On page 28, Amended Report and Order, Case No. GR-2017-0215.

As the Commission explained above, setting authorized ROEs is not a purely mathematical exercise where the results of COE estimation models are simply accepted from the outputs of mathematical formula. Setting fair and reasonable ROEs involves judgement, which means that in some cases the results of mere COE estimates are adjusted to account for what is considered just and fair. As explained above, the COE and the authorized ROE are developed on different financial contexts. If COE estimates determined by market value-based methods such as DCF and CAPM are simply quoted an authorized ROE, the result would be neither just nor reasonable to investors or ratepayers. More importantly, finding a just and reasonable authorized ROE in utility rate regulation is a long-term iteration procedure. After a utility rate case, based on an authorized ROE determined by the Commission, a set of new utility rates go into effect. Under the new rates, the utility company will soon have its performance result. If given rates are overpriced, ratepayers will overpay so the company and its stock price will outperform, generally. If given rates are underpriced, the company will have a lower net income than what the market expected. Because of the disappointing earnings report, investors are not attracted to the company's stock and its stock price will underperform the total stock market. Therefore, the company may file its next rate case sooner or later than originally expected based upon the performance results for the current set of rates. In MAWC's case, it filed its last rate case in 2017 and came back for the current rate case in 2020. A three-year term between rate cases is not considered unusual, considering rate base changes due to new investment of utility assets. Furthermore, there are no signs of MAWC's operational underperformance or AWC's stock is in the market since 2017 rate case. Actually, both performances are quite good.

Table 1 shows that both net income and earnings before interest, taxes, depreciation, and amortization ("EBITDA") of MAWC have been positive and increasing over time. Based upon this information, MAWC's current rates do not appear to have been unfair to MAWC:

Table 1. MAWC Net Income and EBITDA

	Net Income	EBITDA
2015	$40,199.00	$57,457.00
2016	$47,716.00	$67,492.00
2017	$45,681.00	$66,010.00
2018	$56,852.00	$63,787.00
2019	$62,649.00	$70,319.00

Figure 1 shows that AWC's stock price outperformed the average utility result in the U.S. since the 2017 rate case. This shows that AWC's stock has been attractive to investors in the financial market after the 2017 rate case decision by the Commission to authorize an ROE in the range of 9.5% to 10.0%. In other words, there is no evidence that the authorized ROE allowed by the Commission in the last rate case were unfair to MAWC:

Figure 1. AWC and S&P US BMI Utilities Index USD

Q. How did Ms. Bulkley erroneously explain Staff's comparative analysis and ROE recommendation model in her rebuttal testimony?

A. In many ways, Ms. Bulkley misidentified Staff's DCF method and distorted Staff's ROE estimation procedure. In her rebuttal testimony, Ms. Bulkley stated:

> Dr. Won essentially disregards the results of the majority of his ROE estimation methodologies and establishes his ROE recommendation based entirely on the results of his "comparative analysis", calculating ROEs using the Two-Stage DCF model and current data as compared with the ROE resulting from a Two-Stage DCF model using certain data from 2017 and looking at recently authorized ROEs for water, electric and gas utilities. In the case of the 2017 data, Dr. Won attempted to measure a difference in the ROE from 2017 to the current time-period using his Two-Stage DCF model results. He develops his range of results in this case by relying on the authorized ROE range from the 2017 case, adjusted for his perceived difference in returns from his comparative analysis. His point estimate is set at the midpoint of the adjusted range of results.[44]

First, Staff never used the "two-stage" DCF model but actually used the "two-step" DCF in this case.[45] It seems that Ms. Bulkley confused Staff's two-step DCF with the two-stage DCF. The two models are different. A two-step DCF model is a variation of the constant growth DCF that uses one growth rate. It is a 'two-step' DCF model because there are two steps to estimate investors' required return from the stock price using the DCF model as described in the Staff's COS report.[46] In the first step, the expected future growth rate, g, is calculated by combining short-term (given two-thirds (2/3) weight), and long-term (given one-third (1/3) weight). In the second step, the expected future growth rate in the first

[44] On page 44, Ann E. Bulkley's rebuttal testimony.
[45] On pages 23-25, Staff's COS Report.
[46] On page 24, Ibid.

step is adjusted further by a factor of $(1+.5g)$, to account for the fact that dividends are paid on a quarterly basis. The formula can be expressed as follows:

$$k = (1 + .5g)D/P + g,$$

where:

P is the common stock price,

D is the current dividend,

k is investors' required return from the stock, and

g is the expected growth rate in dividends.

A two-stage growth DCF model is a different kind of DCF because it has two stages and each stage has a different growth rate.[47] In the first stage, a near term forecasted growth rate is used. The second stage is the entire period after the first stage and employs a perpetual growth rate. Staff is attaching to this testimony a presentation that explains the Federal Energy Regulatory Commission ("FERC")'s two-step DCF model which is consistent with Staff's two-step DCF in terms of model specification (*see* Schedule SJW-s1).[48]

Second, Ms. Bulkley confused COE and authorized ROE when she described Staff's ROE estimation procedure. Staff clearly stated that COE and authorized ROE have different definitions in Staff's COS Report.[49] Staff also explained that COE and authorized ROE need not be equal. Because authorized ROE cannot be directly decided by simple COE estimates, Staff utilized a comparative analysis method, accepting as just and reasonable the range of authorized ROE approved by the Commission in the last MAWC rate case in 2017 and adjusting

[47] On page 149, Parcell, D. C. (2010). The cost of capital – A practitioner's guide. Society of Utility and Regulatory Financial Analysts.
[48] The FERC's Return on Common Equity Methodology, Robert Keyton, Energy Industry Analyst, FERC.
[49] On page 14, Staff's COS Report.

it based on the changes in COE estimates in 2017 and 2020. Therefore, Staff did not disregard its ROE estimation methodologies.

Q. Do you agree with Ms. Bulkley that Staff relies on unrealistically low growth projections and ignores the uncertainty and volatility that has characterized financial markets in formulating its ROE recommendations?[50]

A. No. Ms. Bulkley's assertion is erroneous because Staff's growth rate is within the range of the growth rate she used in her DCF models. Staff's average growth rate for the two-step DCF model is 6.42% for both 2017 and 2020.[51] Staff calculated the input for the expected future growth rate of dividends, g, by combining short-term (given two-thirds (2/3) weight), and long-term (given one-third (1/3) weight) growth rate projections. For the short-term growth rates, Staff used Value Line 5-year earnings-per-share growth rate estimates, and for the long-term, Staff used the average of long-term projected GDP growth rate estimates.[52] According to Schedules 1 and 2 included in her rebuttal workpapers, the average of Ms. Bulkley's DCF models growth rates are 6.85% and 6.32%. One is greater than Staff's growth rate of 6.42% and the other is smaller. Staff does not understand why Ms. Bulkley insists that Staff relies on unrealistically low growth projections.

Q. Do you agree with Ms. Bulkley's classification of Staff's two-step DCF model as a multi-stage growth DCF in Figure 7 in her rebuttal testimony?[53]

A. No. Staff's two-step DCF model is not a multi-stage growth DCF but a variation of the constant growth DCF approach. As already explained above and in Staff's COS report, the reason Staff's model has the name "two-step" is because there are two steps to estimating

[50] On page 4, lines 15-17, Ann E. Bulkley's rebuttal testimony.
[51] Appendix 2, Schedule SJW-11, Staff's COS Report.
[52] On page 24, Ibid.
[53] On page 22, Ann E. Bulkley's rebuttal testimony.

investors' required return from the stock price as described in Staff's COS report.[54] A multi-stage growth DCF is different from a two-step DCF in that it has at least two stages with each stage having different growth rates.[55] The Constant Growth DCF is not the same as the 'two-step DCF'.

Q. Do you agree with Ms. Bulkley that the recommended ROE range of Staff's CAPM analysis is 4.86% to 10.49% as shown in Figure 7 in her rebuttal testimony?[56]

A. No. Ms. Bulkley erroneously described Staff's analysis results because Staff never recommended the range of 4.86% to 10.49% as being a reasonable range of authorized ROE. First, Staff's recommended authorized ROE range is not directly derived from any COE estimated results because, as Staff explained above, COE and authorized ROE are not the same. Second, Staff never considered the result of CAPM COE estimates 4.86% to 10.49% as a reasonable range of Staff's recommended ROE. Staff stressed in the COS Report in this case that the upper and lower bounds of the COE estimates of the CAPM are not meant to be equated to the zone of reasonableness because the market risk premium ("MRP") used are two extreme scenarios used for testing purposes only; there is no evidence that these values are rational estimates.[57] In other words, the lower bound could be too low and the upper bound could be too high to be considered reasonable MRPs.

Q. Do you agree with Ms. Bulkley that the foundation of Staff's comparison is simply incorrect because the 2017 COE estimate that Staff relies on as its comparison point is not an estimate that was developed by any witness in the 2017 case?[58]

[54] On page 24, Staff's COS Report.
[55] On page 149, Parcell, D. C. (2010). The cost of capital – A practitioner's guide. Society of Utility and Regulatory Financial Analysts.
[56] On page 22, Ann E. Bulkley's rebuttal testimony.
[57] On page 26, Staff's COS Report.
[58] On page 44, Ann E. Bulkley's rebuttal testimony.

A. No. Staff's comparison analysis method relies on the range of authorized ROE (9.5% to 10.0%) agreed to by all the parties in the Stipulation and Agreement of the 2017 rate case. The important point in Staff's comparison analysis is that all parties agreed to the foundation (the authorized ROE range) of Staff's comparison and the Commission approved it as fair and reasonable. The importance of the comparison analysis method is that it captures the changes in investors' expectations of authorized ROEs between two time periods. Staff's comparative analysis method captures, for example, using the DCF model, the changes in stock prices and dividends levels between periods. Changes in stock price and dividends levels reflect changes in COE and ultimately, authorized ROE.

Q. What is Staff's overall concerns with Ms. Bulkley's Appendix A to her rebuttal testimony, her detailed response to Staff's ROE analysis?

A. Ms. Bulkley repeats again her mischaracterization of Staff's methodology. To summarize, Ms. Bulkley's Appendix A repeats the following errors:

(1) Failure to acknowledge the difference between COE and authorized ROE,

(2) Confusing the two-step DCF with two-stage DCF,[59]

(3) Misunderstanding of Staff's comparison analysis,[60] and

(4) Misunderstanding of Staff's authorized ROE estimation procedure.[61]

From page 53 to page 56, Ms. Bulkley's argument reveals her lack of understanding of Staff's methodology. From page 57 to page 62, Ms. Bulkley does nothing but repeat her incorrect assertion that COE and authorized ROE are the same. Staff has already explained that Ms. Bulkley's simple approaches cannot properly reflect investors' expectation of authorized

[59] On page 53, Ibid.
[60] On pages 53–56, Ibid.
[61] On pages 57–62, Ibid.

ROE. In Staff's comparative method, the real impact on authorized ROE is discerned from the difference between COE estimates of two time periods. Ms. Bulkley's accusation that Staff's COE estimates are lower than her COE estimates does not change Staff's authorized ROE recommendation.

Q. Do you agree with Ms. Bulkley that if Staff had followed FERC's methodology in its two-step DCF analysis, the range of reasonableness for his proxy group would be from 6.55 percent to 14.66 percent, with a midpoint of 9.58 percent and a median of 8.87 percent?[62]

A. No. Ms. Bulkley's FERC results are based on her misunderstanding of FERC's two-step DCF analysis. Staff cannot find any evidence Ms. Bulkley's calculation actually follows FERC's methodology in its two-step DCF analysis.[63]

Q. Do you agree with Ms. Bulkley that Staff has indicated that it followed FERC's ROE methodology from Opinion No. 569?

A. No. Staff never indicated that it followed FERC's ROE methodology from Opinion No. 569. Even though Staff's two-step DCF and FERC's two-step DCF has the same model specification, Staff never made such arguments. This is what Staff previously stated regarding this point:

> The two-step DCF model is utilized by the Federal Energy Regulatory Commission ("FERC") and is meant to give a more nuanced consideration of growth than the constant-growth DCF model.[64]

Based on her erroneous assumption, Ms. Bulkley then focuses on some minor procedural differences between Staff and FERC.

[62] On pages 60, Ibid.
[63] Staff's Data Request No. 0378.
[64] On page 24, Staff's COS Report.

Q. Do you agree with Ms. Bulkley that, in its CAPM analysis, Staff's exclusive reliance on current government bond yields does not reflect the market's expectations regarding interest rates over the rate period?[65]

A. A common proxy for the risk-free rate is the yield on a default-free government debt instrument.[66] Ms. Bulkley also questions why Staff used the average risk-free rate for the three months ending in August when more recent market data was available. However, since Staff's authorized ROE does not depend on a quoted CAPM COE estimate, Staff's recommendation of authorized ROE will not change.

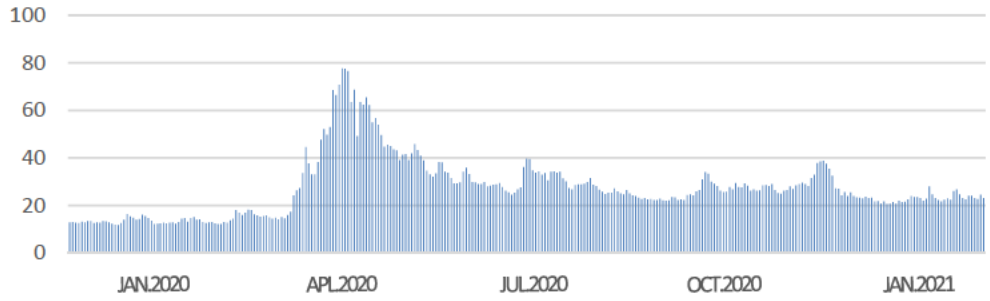
Q. Do you agree with Ms. Bulkley that historically low interest rates do not necessarily result in a correspondingly lower COE for regulated utility companies such as MAWC?[67]

A. No. Interest rates are an important driver of cost of capital. The lower the interest rates, typically the overall cost of capital will be decreased as well. CAPM and other risk premium models clearly pronounce the effect of interest rates in equity cost. In CAPM, the lower the risk-free rate, the lower the cost of equity. In the risk premium model, an equity premium is added to a bond yield. Bond yield is determined by the level of interest rates. Therefore, all else being the same, the lower the interest rate, the lower the cost of equity predicted by the risk premium model. In the DCF model, the impact of interest rates is observed in the level of stock prices. Lower interest rates in the market lead to a scenario where investors shift their money into utility stocks in search of higher yield. As Staff explained in the COS Report, utility stocks are considered substitutes for bonds by investors. Lower interest

[65] On page 64, Ann E. Bulkley's rebuttal testimony.
[66] On page 88, CFA Program Curriculum, 2020, Level I, Volume 4.
[67] On page 33, Ann E. Bulkley's rebuttal testimony.

rates over the years have undoubtedly led to a corresponding lower cost of equity for utilities. Ms. Bulkley argued that because capital market conditions have been more volatile in 2020 as indicated by the CBOE Market Volatility Index ("VIX"), than at the time of the Commission's decision in MAWC's last rate case, MAWC's authorized ROE should be higher in 2020 than the Commission-approved range of authorized ROE in 2017 MAWC rate case. However, Ms. Bulkley's argument has many flaws. First, as Staff explained above, compared to the first two quarters of 2020, volatility in the capital market was much lower in the last two quarters of 2020 and continues to be so.

Figure 2. CBOE Market Volatility Index 2020



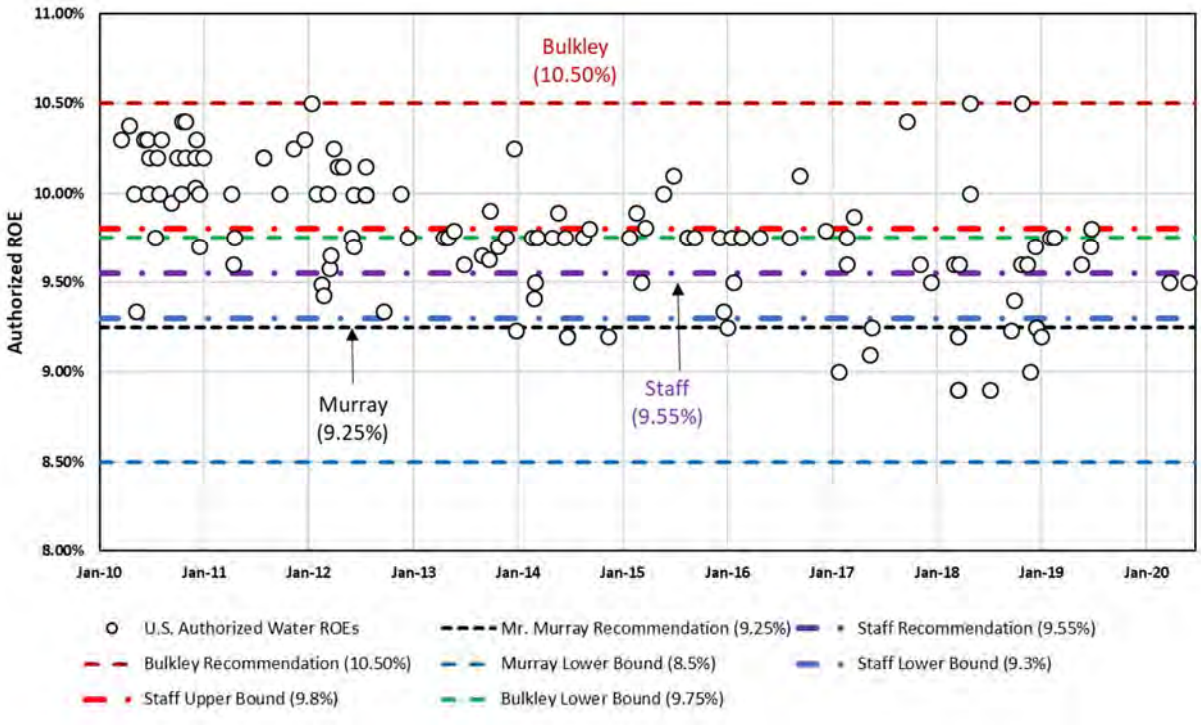
Second, there is no empirical or theoretical research that support that higher volatility in the stock market leads to increased COE and ultimately, increased authorized ROE.[68] Third, Staff, already considered a higher volatility market condition in its authorized ROE recommendation. The three-month average utility bond yield was 3.97% in the last MAWC rate case compared to 2.88% in the current rate case, a drop of 109 basis points.[69] Staff only decreased 20 basis points from the allowed range of authorized ROE in 2017 to account for the volatility. Therefore, Ms. Bulkley's reasoning is groundless.

[68] Staff's Data Request No. 0355, Stock return does not directly decide authorized ROE.
[69] Appendix 2, Schedule SJW-4-1, Staff's COS Report.

Q. What is Staff's opinion about Figure 8, Recently Authorized Water Utility ROEs 2010-2020, found in Ms. Bulkley's rebuttal testimony?

A. Ms. Bulkley's Figure 8 shows Staff's recommended ROE of 9.55% is actually quite reasonable considering the distribution of recent authorized water utility ROEs. For better identification, Figure 3 below changes some reference lines of Ms. Bulkley's Figure 8 in her rebuttal testimony. As shown in Figure 3, the size of Staff's recommended ROE range of 9.3% to 9.8% is smaller than sizes of other witnesses' recommended ranges that Ms. Bulkley's 9.75%-10.60% and Mr. Murray's 8.5%-9.25%. However, in the Staff's recommended ROE range, there are more authorized ROEs of water utilities in other jurisdictions in the last three years compare to the recommended ranges of other witnesses.

Figure 3. Recently Authorized Water Utility ROEs 2010-2020



III. OPC TESTIMONY

Q. Do you agree with Mr. Murray that the ROE range set in MAWC's last general rate proceeding is not meaningful unless the settlement specified a capital structure?[70]

A. No. Staff is unaware of any requirement that, for an authorized ROE range to be meaningful, a capital structure needs to be specified. Mr. Murray has not provided any support for his assertion. The authorized ROE range of 9.5% to 10.0% in the Stipulation and Agreement in the rate Case No. WR-2017-0285 was agreed to by all parties of signatories including OPC, with approval of the Commission. If the Commission or any signatories think the range is not meaningful, the authorized ROE range would not need to be specified. Actually, it is not unusual that some rate cases are settled without any specific indication of the range of authorized ROE.[71] Staff continues to hold the position that the authorized ROE range in the stipulation and agreement is meaningful as a zone of reasonableness.

Q. Did Staff change its ROE estimation method from the 2017 MAWC rate case?

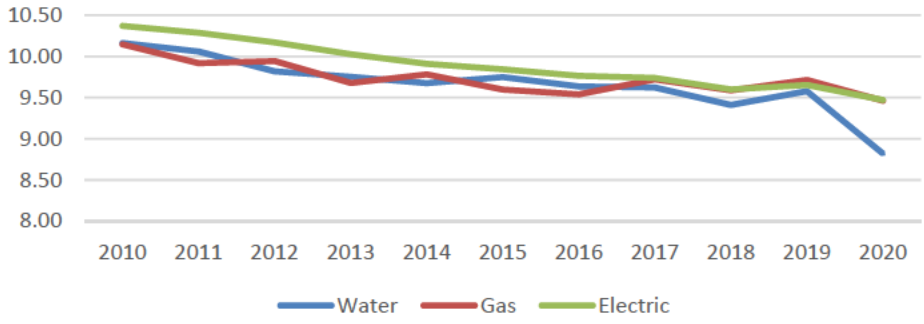
A. No, Staff did not. Staff used the same comparative analysis method used in the 2017 rate case. With Staff's comparative analysis method, Staff estimates the authorized ROE by adjusting, up or down, a benchmark authorized ROE, with net change in COE, between rate case periods (base and current periods). The benchmark authorized ROE is from a past Commission-decided rate case. The period from the Commission-decided rate case is the base period. For example, in the MAWC 2017 rate case, the base reference ROE was the 2017 Empire rate case. In this rate case, Staff employed the authorized ROE range of the 2017 MAWC rate case as the benchmark.

[70] On page 44, David Murray's rebuttal testimony.
[71] PSC Metrics, 3rd Quarter 2020.

Q. Why did Staff not use the 2019 Empire rate case as a base reference ROE?

A. The reason Staff did not use the 2019 Empire rate case as a base reference ROE is because the recent trend of authorized ROE has shown a bigger spread between water utilities and other utility sectors such as electric and natural gas. Water utility authorized ROEs have been much lower than other utilities' authorized ROEs. The widening spread of authorized ROEs among different utilities reflect greater differences in business risk, making it harder to compare utilities. As Mr. Murray stated, in the past two MAWC rate cases, Staff's recommended ROE was 25 basis points lower than the authorized ROE in the reference electric rate case. Figure 4 confirms the widening spread in authorized ROEs among utilities. It is easier to compare the same utilities, water utility to water utility, than it is to compare different utilities, say water utility to electric utility. Staff is of the opinion that comparing MAWC's 2020 rate case to MAWC's 2017 rate is more appropriate under current conditions than to compare MAWC's 2020 case to Empire Electric's 2019 rate case:

Figure 4. Authorized ROE Comparison[72]



Q. Do you agree with Mr. Murray's characterization of Staff's DCF methodology as a two-step approach?

[72] Staff's surrebuttal workpaper.

A. No. Mr. Murray confuses a two-step DCF method with a two-stage DCF method. The two are different. According to Mr. Murray's understanding, Staff's two-step DCF is not a variant of the DCF characterized in the FERC proceedings. Mr. Murray argues that a two-step approach allows for two specific stages of growth. The first stage may be based on applying a growth rate to expected cash flows in the near term (e.g. the next 5-10 years), and then the second stage is usually based on some estimate of the sustainable/perpetual growth rate.[73] What Mr. Murray described as a two-step DCF method is actually a two-stage DCF, a variation of multi-stage DCF rather than two-step DCF. Staff's two-step DCF, the same as the one used in the FERC rate proceedings, is so called because there are two steps to arriving at the growth rate used in the constant DCF model. In the first step, calculate growth rate, g, based on a weighted average of short term and long term growth rates as follows:

$$g = (2/3)\ \text{Short-term Growth Rate} + (1/3)\ \text{Long-term Growth Rate}$$

In the second step, adjust the growth rate by a factor of (1+.5g) to account for the fact that the dividends are paid on quarterly basis. The ultimate formula is expressed as follows:

$$k = (1 + .5g)D/P + g,$$

where:

P is the common stock price,

D is the current dividend,

k is investors' required return from the stock, and

g is the expected growth rate in dividends.

As explained in Staff's COS report, Staff's two-step DCF is consistent with FERC's two-step DCF in terms of the equation of the model. The variables used in the formula depends

[73] On page 45, David Murray's rebuttal testimony.

on the condition of the rate case in question. Staff attached a presentation of FERC's two-step DCF model (*see* Schedule SJW-s1).[74]

Q. Do you agree with Mr. Murray that an authorized ROE range of 8.5% to 9.0% would be reasonable, based on Staff's use of the ROE range of 9.5% to 10.0% specified in the 2017 Stipulation and Agreement given that utility bond yields have declined by 107 basis points since MAWC's last rate case?[75]

A. No. Mr. Murray's reasoning disregards other economic factors such as the Covid-19 pandemic. Although the last two quarters have been relatively stable, it is undeniable that economic conditions remain somewhat unstable because of the pandemic. The current economic instability is evidenced by the continued lower interest rates put in place by the Federal Reserve Bank. Staff agrees with Mr. Murray that many economic indicators show that the current rate case authorized ROE should be lower than the last MAWC rate case in 2017. Staff has adjusted the authorized ROE lower in acknowledgement of such indicators that show that COE is lower in the current rate case than the 2017 MAWC rate case. However, Staff does not think it is reasonable to consider only interest rates, which fell by about 100 basis points, to adjust the authorized ROE range. Interest rates are part of an indicator of changes in COE, not the absolute measure of change in COE. Reducing authorized ROE by 100 basis points, the same amount as interest rates, would not make sense. As Staff has said, the pandemic necessitates that the drop in authorized ROE be lower than indicated by the interest rate drop. Staff's DCF model properly captured the appropriate change in the COE since the last rate case.

[74] The FERC's Return on Common Equity Methodology, Robert Keyton, FERC.
[75] On page 47, David Murray's rebuttal testimony.

Q. Do you agree with Mr. Murray that a typical risk premium added to a company's long-term bond yield is 3-4% rather than Staff's 4-6% risk premium?[76]

A. No. What can be a proper utility risk premium falls in a very wide range, according to opinions of many experts. Mr. Murray's source for his contention is the CFA Program curriculum that stated that in US markets, the typical risk premium added is 3%–4%, based on experience.[77] However, there are many different opinions on what the right equity premium is. Staff has the following to share:

> 3.3.3 Bond Yield plus Risk Premium Approach
>
> The bond yield plus risk premium approach is based on the fundamental tenet in financial theory that the cost of capital of riskier cash flows is higher than that of less risky cash flows. In this approach, we sum the before-tax cost of debt, r_d, and a risk premium that captures the additional yield on a company's stock relative to its bonds. The estimate is, therefore,
>
> $$r_e = r_d + \text{Risk premium}$$
>
> The risk premium compensates for the additional risk of equity compared with debt. Ideally, this risk premium is forward looking, representing the additional risk associated with the stock of the company as compared with the bonds of the same company. However, we often estimate this premium using historical spreads between bond yields and stock yields. In developed country markets, a typical risk premium added is in the range of **3 to 5 percent**.[78] [Emphasis added.]

Notwithstanding the above quote from the CFA, Staff has three sources supporting a 4%-6% risk premium:

> 1. Siegel, J. J. (1992). The equity premium: Stock and bond returns since 1802. Financial Analysts Journal, 48(1), 28-38.
>
> 2. Scheig, G. E. (2019). A Review of the Risk Premium Method for Regulated Electric Utility ROEs. Natural Gas & Electricity, 36(2), 16-21.

[76] On page 47, Ibid.
[77] On page 35, Equity Valuation, Level II Refresher Reading, 2021 CFA Program.
[78] CFA Institute, retrieved on January 25, 2021, (https://www.cfainstitute.org/en/programs/cfa/policies).

3. Parcell, D. C. (2010). The cost of capital – A practitioner's guide. Society of Utility and Regulatory Financial Analysts.

According to the Cost of Capital - practitioner's guide published by Society of Utility and Regulatory Financial Analysts, the range of risk premiums is as wide as 2.9%-14%. The list of risk premium survey research results are presented below:[79]

TABLE 9.2
HISTORIC RISK PREMIUM STUDIES

Study	Period	Indices Compared	Findings 1/ Average	Findings 1/ Geometric
Siegel (1992)	1802-1990	Stocks vs.		
		long-term T-bonds	4.2	2.9
		short-term T-bills	5.9	4.7
Ibbotson Associates (Morningstar) (1982-2009)	1926-2009	S&P 500 vs.		
		long-term T-bonds	6.0	3.9
		short-term T-bills	8.1	6.1
		long-term Corporates	5.6	3.9
Fisher & Weil (1971)	1926-1965	Stocks vs. AAA bonds	14.0	9.1

1/ Average findings for entire period studies. See studies for more details.

This is the reason why Staff did not employ the risk premium method to estimate COE. In Staff's COS report, Staff only used the risk premium approach for testing the reasonableness of Staff's COE estimates. Staff called the test of reasonableness the "rule of thumb".

Q. What is Staff's overall opinion about Mr. Murray's rebuttal testimony concerning Staff's ROE recommendation?

A. Although Mr. Murray's recommended ROE of 9.25% is lower than Staff's recommended ROE of 9.55%, Staff agrees with Mr. Murray that if the Commission does not adopt Staff's or OPC's more leveraged capital structure recommendations, then a lower authorized ROE for MAWC should be considered than Staff's current recommended ROE of 9.55%.

[79] On page 169, the Cost of Capital, 2010 Edition.

IV. SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your rebuttal testimony.

A. Ms. Bulkley's recommended authorized ROE of 10.5% remains unfair and unreasonable despite her changing her recommended range of authorized ROE from 10.0% - 10.8% to 9.75% - 10.60%.[80] This is because of her use of inappropriate and unreasonable inputs to her COE estimation models. Staff rejects Ms. Bulkley's erroneous characterizations of Staff's ROE methodology as such positions. Staff continues to take the position that OPC witness Murray's recommended authorized ROE of 9.25% is too low when considering the overall the economy remains volatile due to the Covid-19 pandemic. As both the rebuttal testimonies filed by MAWC and OPC witnesses fail to provide sufficient reason to change Staff's original authorized ROE recommendation, Staff continues to recommend an authorized ROE of 9.55% within a reasonable range of 9.30% to 9.80%.

Staff continues to recommend AWC's consolidated capital structure to calculate MAWC's ROR in this proceeding, and Mr. Murray agrees with Staff. Staff continues to reject MAWC's witnesses' recommended capital structure, a pro-forma capital structure of MAWC, because, as Staff explained, the capital structure does not represent how MAWC capitalizes its operations. Since AWC's true-up data is not available at this time, Staff recommend a ROR of 6.36%, calculated using the consolidated capital structure of AWC composed of ** ____ ** percent common equity, ** ____ ** percent long-term debt, and ** ____ ** percent preferred stock combined with embedded costs of debt and preferred stock of ** ____ ** and ** ____ **, respectively.[81] Staff will keep monitoring AWC's updated

[80] On page 49, Ann E. Bulkley's rebuttal testimony.
[81] The cost of debt is revised by MAWC in Staff's Data Request No. 0041.1.

consolidated capital structure and cost of debt until the true-up data available and will make its final recommendation at that time.[82]

Q. Does this conclude your surrebuttal testimony?

A. Yes.

[82] Staff's Data Request No. 0039.5.

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 and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Surrebuttal 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
SEOUNG JOUN WON, PhD

The FERC's Return on Common Equity Methodology

BY
ROBERT KEYTON
FINANCIAL ANALYST
FEDERAL ENERGY REGULATORY COMMISSION
4/29/16

Disclaimer: The views expressed in this presentation do not necessarily represent the views of the Commission.

Return on Common Equity Method

- A two-step (two-stage) Discounted Cash Flow (DCF) method was adopted by the FERC in Opinion No. 531 (2014)
- Formula
  - $K=(1 + .5(g))(D/P) + g$
  - $g=(2/3)(ST) + (1/3)(LT)$

Reason for Methodological Change

3

- Reason for Change
  - Mature Industry
  - Narrows the zone of reasonableness
  - Consistency may have been a factor: in general, the same two-step DCF method used in FERC natural gas proceedings

Formation of Proxy Group Companies

4

- Screening Criteria
  - Tracked by Value Line
  - Allow companies with plus or minus one credit rating (S&P or Moody's) from subject company's credit rating
  - Pays dividends, no dividend cuts
  - No significant merger or acquisition activity
  - Has a short-term growth estimate

Performing a two-step DCF Analysis

5

- Inputs to two-step DCF method
  - Stock prices
  - Dividends
  - Short-term earnings growth estimates
  - Long-term Gross Domestic Product (GDP) growth estimates

Data Period and Effective Period

6

- Data Period
  - Six months, in general, is sufficient time to diminish any aberrations in stock prices
- Prospective effective period
  - In general, use the most recent six-month data period available
- Locked-in effective period
  - In general, use the most recent six-month data period that includes the locked-in period

DCF Analysis Example

7

- Ameren Corporation (AEE) for the six-month data period from July 1, 2015 to December 31, 2015.
- Taken from my filed update testimony in the MISO ROE Complaint case filed at the FERC under Docket No. EL15-45.

Stock prices

8

- Stock Prices (P)
  - Source
    - Yahoo Finance
  - Calculation
    - Monthly stock price average is the average of the daily high and low closing stock price for the month

Month	High	Low	Average
Dec-15	44.44	41.33	42.89
Nov-15	44.51	41.88	43.20
Oct-15	44.71	41.46	43.09
Sep-15	42.29	38.15	40.22
Aug-15	43.85	39.66	41.76
Jul-15	41.34	37.55	39.45

Dividends

9

- Dividends (D)
  - Source
    - Standard & Poor's Monthly Stock Guide or equivalent source
  - Calculation
    - Current dividend (declared) for each month annualized

Month	Declared Dividend	Indicated Dividend
Dec-15	0.4250	1.70
Nov-15	0.4250	1.70
Oct-15	0.4250	1.70
Sep-15	0.4100	1.64
Aug-15	0.4100	1.64
Jul-15	0.4100	1.64

Unadjusted Dividend Yield

10

- Unadjusted Dividend Yield (D/P)
  - Calculation
    - Average monthly dividend yield divided by average monthly stock price

				P		D	D/P
Common Stock Prices - Yahoo Finance							
	Month	High	Low	Average	Declared Dividend	Indicated Dividend	Average Dividend Yield
	Dec-15	44.44	41.33	42.89	0.4250	1.70	3.96%
	Nov-15	44.51	41.88	43.20	0.4250	1.70	3.94%
	Oct-15	44.71	41.46	43.09	0.4250	1.70	3.95%
	Sep-15	42.29	38.15	40.22	0.4100	1.64	4.08%
	Aug-15	43.85	39.66	41.76	0.4100	1.64	3.93%
	Jul-15	41.34	37.55	39.45	0.4100	1.64	4.16%
	Averages						4.00%

Dividend Adjustment Factor

11

- Purpose
  - Compensate investors for potential quarterly dividend increases during the year
- Calculation
  - (1+.5(g))(D/P), (g) being the composite growth
  - For AEE, (1+.5(g))(4%)

Composite Growth Rate

12

- Composite Growth Rate (g)
  - Purpose
    - Combines short-term earnings growth (ST) with long-term GDP growth (LT).
    - Short-term estimates, in general, are more reliable than long-term estimates but may not be sustainable in the long-term
  - Formula
    - g=(2/3)(ST) + (1/3)(LT)

Short-term Earnings Growth Estimate

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- Purpose
  - Short-term earnings growth (ST), 3-5 years, used as a substitute for short-term dividend growth.
- Source
  - Institutional Brokers' Estimate System (IBES) retrieved at Yahoo Finance
  - AEE had an IBES estimate of 6% as of January 8, 2016
- Opinion No. 531
  - IBES or a comparable source.
  - Preference for analysis to consist of short-term earnings growth estimates all from one source.

Long-term GDP Growth Estimate

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- Purpose
  - Long-term GDP growth (LT), starting in 5 years and limited to 50 years of growth, is a substitute for long-term earnings and dividend growth. In the long-term, a company's earnings are assumed to grow at the rate of GDP.
- Source
  - IHS Global Insight (updated quarterly), U.S. Energy Information Administration (EIA) (updated annually), Social Security Administration (SSA) (updated annually).

Long-term GDP Growth Estimate

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- Calculation
  - Annual GDP Growth Rate for each source=
    [(Ending Year/Beginning Year)^(1/# of years)]-1
  - Average the annual GDP Growth Rate for the three sources

Source	Year Beginning	Nominal GDP ($Billion)	Year Ending	Nominal GDP ($Billion)	Annual GDP Growth (%)
IHS Global Insight [1]	2020	$ 22,616	2045	$ 66,132	4.39%
EIA [2]	2020	$ 22,760	2040	$ 51,732	4.19%
SSA [3]	2020	$ 23,687	2070	$ 211,683	4.48%
Average:					4.35%

AEE DCF Result

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- Formula
  - K=(1 + .5(g))(D/P) + g
    g=(2/3)(ST) + (1/3)(LT)
- Summary of DCF analysis for AEE
  - K=(1 + .5(g))(4%) + (g)
  - g=(2/3)(6%) + (1/3)(4.35%)=5.45%
  - K=(1 + .5(5.45%))(4%) + (5.45%)=9.56%

DCF Results

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- Screening criteria
  - Low-end DCF outlier result screen
    - Based on 100 basis point threshold above corresponding six-month average utility bond yield
  - High-end DCF outlier result screen
    - No prescribed method reflecting current market conditions
    - Check for unsustainable or skewed results (Trial Staff)
- This screening criteria defines the zone of reasonableness (range)

Measure of Central Tendency

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- Central Tendency
  - Median: single utility
  - Midpoint: establishing an RTO-wide ROE
    - Multiple utilities may reflect a spectrum of DCF results
  - Upper midpoint (Opinion No. 531) – Anomalous market conditions exist in establishing an RTO-wide ROE
  - In general, for a single utility, if the Commission were to determine that anomalous market conditions exist, Trial Staff believes that the true 75th percentile would be the appropriate measure of central tendency.

Adjustments within Zone of Reasonableness

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- Any adjustments deviating from the measure of central tendency must remain within the zone of reasonableness (range).
  - Risk adjustment
  - Inclusion of RTO and/or incentive adders
  - Anomalous market conditions
- Not all point estimates within the range are assumed to be just and reasonable for ratemaking purposes

Questions

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