Exhibit No. 205

OPC – Exhibit 205
David Murray
Direct Testimony
File No. WR-2022-0303

Exhibit No.:	
Issue(s):	Rate of Return (ROR)/ Capital Structure
Witness/Type of Exhibit:	Murray/Direct
Sponsoring Party:	Public Counsel
Case No.:	WR-2022-0303

DIRECT TESTIMONY

OF

DAVID MURRAY

Submitted on Behalf of the Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2022-0303

** **

Denotes Confidential Information that has been redacted

November 22, 2022

PUBLIC

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OF

DAVID MURRAY

MISSOURI AMERICAN WATER COMPANY

FILE NO. WR-2022-0303

Q. Please state your name and business address.

A. My name is David Murray and my business address is P.O. Box 2230, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility Regulatory Manager.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the OPC.

Q. What it the purpose of your testimony?

A. To recommend a fair and reasonable rate of return ("ROR") for purposes of setting Missouri American Water Company's ("MAWC") revenue requirement.

Q. What experience, knowledge and education qualify you to sponsor ROR testimony in this case?

A. Please see the attached Schedule DM-D-1 for my qualifications as well as a summary of the cases in which I have sponsored testimony on ROR and other financial issues.

Q. What aspects of ROR will you address?

A. I will address a fair and reasonable allowed return on common equity ("ROE") and capital structure.

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Q. Can you provide a brief summary of your recommendation?

A. Yes. MAWC's authorized ROE should be set below the ROEs the Public Service Commission of the State of Missouri (the "Commission") authorized for Spire Missouri in Case No. GR-2021-0108 and The Empire District Electric Company ("Empire") in Case No. ER-2019-0374, which were 9.37% and 9.25%, respectively.

I specifically recommend a 9% ROE, based on a range of 8.4% to 9.25%. Based on my analysis of MAWC's parent company, American Water Works Company Inc.'s ("American Water") financing strategies, my recommended ROE should be applied to a common equity ratio of 40.45%.

Q. Can you briefly explain why a 9% authorized ROE for MAWC is reasonable?

A. Yes. Despite recent increases in long-term corporate and United States' Treasury ("UST") bond yields (i.e. long-term interest rates) the water utility industry's cost of common equity ("COE") has remained fairly stable since MAWC's 2020 rate case, Case Number WR-2020-0344. While American Water's stock price declined by a little over 20% from the end of 2021 to February 2022, this was after American Water's price-to-next-twelve-months earnings per share ("EPS") ratio ("P/E") reached over 40x – an incredibly high P/E ratio for a regulated utility company. To put this in perspective, during the same period, regulated electric and natural gas utility companies typically traded at P/E ratios about half or slightly less than half of American Water's P/E ratios. Water utility stocks are currently trading at a 70% premium to electric utilities (~31x-32x P/E vs. electric at ~18x P/E) with American Water trading at over a 100% premium to electric utilities (~35x-38x P/E vs. electric at ~18x P/E). The more expensive it is for an investor to purchase a unit of earnings, the cheaper it is for the issuer to sell its stock. The significant relative premium at which water utility stocks trade to electric and gas utilities supports a lower authorized ROE.

However, another contributing factor to the water utility industry's higher valuation ratios is the widely recognized need for significant growth in net investment for the foreseeable future. Consequently, many water utilities are expected to experience significant EPS

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growth over at least the next five years, if not longer. Among its peers, American Water has one of the highest expected long-term compound annual growth rates ("CAGR") in EPS of 7% to 9%,[1] primarily driven by an expected CAGR in rate base of 8% to 9%.[2] American Water's projections are consistent with its historical record of high, steady and predictable growth in EPS and dividends per share ("DPS"), affording it a "best-in-class" label by the investment community.

Q. What part does capital structure play in setting a fair and reasonable authorized ROR in this case?

A. A very important one. As I will explain in more detail when comparing and contrasting MAWC's proposed capital structure as compared to American Water's actual capital structure, another significant contributing factor to American Water's high P/E ratio is its ability to earn a significant margin over its composite cost of capital through its use of affiliate debt to purchase equity in its operating subsidiaries. A high allowed margin over the cost of capital during periods of significant and steady capital expenditures, allows for the creation of unreasonable levels of shareholder wealth at the expense of ratepayers.

FAIR RETURN ON COMMON EQUITY

Q. What is the most often cited basis for determining a fair and reasonable ROE for purposes of setting utility rates?

A. The following principles of the *Hope*[3] and *Bluefield*[4] Supreme Court of the United States cases are often cited as criteria in setting a fair and reasonable ROE for purposes of utility ratemaking:

1. Comparable returns for similar risk;
2. Financial integrity/maintain credit; and

[1] Steve Fleishman, et. al., "American Water Works – AWK: Addressing Headwinds," Wolfe Research, July 28, 2022.
[2] *Id.*.
[3] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1943).
[4] *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923).

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3. Capital attraction.

The *Hope* (1943) and *Bluefield* (1923) principles were established well before the advent of modern cost of equity methods, such as the discounted cash flow ("DCF") method and the Capital Asset Pricing Model ("CAPM"). Therefore, while setting ROEs based on the COE has generally been considered consistent with the *Hope* and *Bluefield* principles, other factors, such as other jurisdictions' authorized ROEs have been cited by this Commission as a relevant factor it should consider. The authorized ROE is a regulatory ratemaking concept that quantifies the amount of net income allowed in the revenue requirement. The COE is a market-based concept that quantifies an investors' required return on his/her common equity investment. Because ROEs have generally been set in the 9% range, while an overwhelming amount of evidence demonstrates that investors' required returns (i.e. COE) on utility equity investments have typically been much lower, I correctly differentiate between allowed ROEs and the COE in my analysis and recommendation.

Q. How did you determine the approach you would take to estimate a fair and reasonable allowed ROE for purposes of this case?

A. I reconciled the principles established in *Hope* and *Bluefield* with the modern financial models used to estimate the COE.

Considering these principles, I first estimate MAWC's current COE using modern financial models/methods. Then I compare MAWC's current COE to historical COE estimates as well as to my recent COE estimates for the electric and natural gas utility industries in Evergy's rate cases for Evergy Metro and Evergy Missouri West, Case Nos. ER-2022-0129 and ER-2022-0130, respectively, and Spire Missouri's rate case, Case No. GR-2022-0179. Finally, I considered the Commission's "zone of reasonableness standard"[5] for purposes of setting an allowed ROE, with the starting point for this zone of reasonableness being a recent industry average allowed ROE.

[5] *State ex rel. Missouri Gas Energy v. Public Service Commission,* 186 S.W.3d 376, 383 (Mo App. W.D. 2005)

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Q. Based on your analysis, what is your estimate of MAWC's current COE?

A. MAWC's COE is in the range of 6.0% to 6.5% based on recent capital market conditions.

Q. How does your COE estimate for MAWC compare to your COE estimates for Spire Missouri and Evergy's Missouri electric utilities?

A. It is about 100 basis points lower. I estimated a COE of 7.25% to 7.5% for Spire Missouri. I estimated a COE of 7% to 7.5% for Evergy Metro and Evergy Missouri West.

Q. Based on your analysis and awareness of capital market conditions, investor expectations and recent average allowed ROEs for water and sewer utilities, what do you consider to be a fair and reasonable allowed ROE for MAWC?

A. 8.40% to 9.25%. The lowest ROE the Commission would consider under its "zone of reasonableness" standard depends on the average allowed ROE data the Commission relies on. The average allowed ROE for water utilities for the first nine months of 2022 was 9.59%, based on seven cases (range of 9.1% to 10.0% with a median of 9.6%). This compares to an average authorized ROE of 9.42% for natural gas utilities and 9.37% for electric utilities. If commissions believe authorized ROEs reflect the COE of various utility sub-sectors, then they are awarding higher ROEs to the wrong subsector of the utility industry. Market data and commentary clearly support this fact.

Because including electric utility and gas utility authorized ROEs with water utility authorized ROEs allows for more robust data, I suggest the Commission use an allowed ROE of 9.4% as the starting point for its reasonableness standard. Subtracting 100 basis points from this average authorized ROE forms the basis for the low-end of my recommended authorized ROE range, 8.40%. The basis for the high-end of my range is based on my analysis that indicates that the water utility industry's COE is lower than that of the electric and gas utilities, justifying a lower authorized ROE for MAWC as compared to Spire Missouri and Empire.

As I previously mentioned, I recommend an ROE of 9.0%. Of course, the common equity ratio to which my recommended ROE is applied is critical to setting a reasonable overall

authorized ROR. As I will explain, if not for American Water's use of more leverage, its COE would be even lower due to the extremely low business risk associated with its water utility assets. My recommended ROE of 9.0% is contingent on the Commission applying such to a common equity ratio consistent with American Water's target of 40%. If the Commission authorizes a less leveraged capital structure (i.e. more equity than debt), per MAWC's internally managed capital structure, then I recommend an authorized ROE of 8.4%.

Q. Was an ROE and capital structure specified in MAWC's last rate case, Case No. WR-2020-0344?

A. No.

Q. How did you inform yourself for purposes of determining the best methods and approaches to use to estimate MAWC's COE for this case?

A. I reviewed investment industry research covering American Water and the utility industry in general since September 30, 2020. I also reviewed information that I previously reviewed for MAWC's 2020 rate case, Case Number WR-2020-0344. This information provided me insight as to the types of methods/models typically used by investors to determine fair prices to pay for utility stocks. Consequently, I decided the best approach to estimate MAWC's COE was to perform a COE analysis on its parent company, American Water, in conjunction with a COE analysis on a proxy group of water utility companies.

Q. What equity research firms cover American Water's stock?

A. According to American Water's website, the following firms cover its stock: Bank of America ("BofA"), Barclays, Evercore ISI, Goldman Sachs ("GS"), Guggenheim Securities, HSBC Global Research, J.P. Morgan, Janney Montgomery Scott, Morningstar

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Equity Research, RBC Capital Markets, Seaport Global Securities, UBS Securities, Wells Fargo, and Wolfe Research ("Wolfe").[6]

Q. Did you attempt to discover how American Water makes its investment and financing decisions, which could have provided additional insight about the proper methods and reasonable assumptions to use for purposes of estimating MAWC's cost of capital?

A. Yes. I issued OPC data request No. 3010 requesting information as it relates to American Water's Financing Committee materials for the period since MAWC's last rate case (January 1, 2020). MAWC objected to this data request and did not provide a response.

Q. Is this information relevant to authorizing a fair and reasonable ROR?

A. Yes. This information typically provides direct insight as to a company's internal views regarding its cost of capital and sustainable growth of its earnings and dividends.

Q. Is American Water currently contemplating significant capital market transactions that would provide particularly relevant information as it relates to its own view on its COE and the most economical targeted capital structure?

A. Yes. American Water plans to issue at least $1 billion of additional common equity in 2023.[7] American Water's internal evaluation of the proper timing and amount of such a large common equity issuance would provide valuable insight as to its current view of capital markets. Investment banks typically provide key insight to their clients about current capital market conditions when the client is evaluating the best type and timing of capital raises. Frequently, this information is in direct contradiction to utility companies' ROR witnesses' opinions.

[6] https://ir.amwater.com/stock-information/analyst-coverage/default.aspx
[7] Steve Fleishman, et. al., "AWK: Equity waterfall in 2023," Wolfe Research, November 1, 2022.

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Q. How did you determine a fair and reasonable allowed ROE to recommend for MAWC?

A. I compared the trends in various valuation ratios to proxy groups for the electric utility industry, the natural gas distribution utility industry and the water utility industry, with specific emphasis on American Water. This information is helpful for purposes of comparing and contrasting the characteristics of water utility industry stocks to those of the electric and natural gas distribution utility industries. My analysis shows that water utility industry stocks in general, but especially so for American Water, have been valued consistent with defensive-growth industries. In contrast, electric utility stocks and natural gas utility stocks are still trading more similar to yield investments (i.e. not growth), but with less correlation to long-term interest rates than typical historical trading patterns.

Q. What specific COE models did you use?

A. I used a multi-stage discounted cash flow ("DCF") method, with specific emphasis on consensus analysts' estimated dividends and the modeled growth of dividends. When the DCF method is applied to dividends as the proxy for cash flow, it is more specifically and appropriately defined as the dividend discount model ("DDM"). I also applied the Capital Asset Pricing Model ("CAPM") to both American Water and the proxy group. Finally, I performed simple and logical reasonableness checks to test the reasonableness of my COE estimates. These reasonableness checks recognize the basic characteristics of utility stocks, mainly that because utility stocks are the safest industry sector in the S&P 500, their cost of equity should not be much higher than bond yields rated similar to the industry. This is around an 'A' rating for the water utility industry. One such reasonableness check is a straight-forward bond-yield-plus-risk-premium method included in the Chartered Financial Analyst ("CFA") Program curriculum.

Q. Was your approach substantially the same as you employed in MAWC's 2020 rate case, as well as other recent cases involving Missouri's electric and gas utility companies?

A. Yes.

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Q. Is it important to analyze capital market conditions over time as it relates to the utility industry in general, the water utility industry specifically, and American Water?

A. Yes. This information should help provide some context as to the current state of utility capital markets as it relates to historical periods. At times, I focus on shorter periods, because over more recent years, American Water and the water utility industry's valuation ratios have expanded much more significantly than those of the electric and natural gas utility industries.

Q. What was your recommended allowed ROE in MAWC's 2020 rate case, Case Number WR-2020-0344?

A. It was in the range of 8.50% to 9.25%, with a point recommendation of 9.25%.[8]

Q. Was your recommended allowed ROE consistent with your COE estimates at the time?

A. No. I estimated MAWC's COE to be in the range of 5.5% to 6.5% in the 2020 rate case.[9]

Q. Have long-term bond yields increased in 2022?

A. Yes, they have increased dramatically. Both investment-grade utility bond yields and long-term UST bonds have almost doubled since the end of 2021. This dramatic increase followed a period of historically low bond yields in 2020 and 2021.

The below graph shows long-term bond yields since January 1, 2010. While the early stages of lower long-term interest rates in the first half of this decade were considered by some as potentially anomalous because of the Federal Reserve Bank's ("Fed") quantitative easing ("QE") programs[10] through October 2014, for the next several years, long-term interest rates continued an overall declining trend, until they reached all-time lows in 2020

[8] Case No. WR-2020-0344, Murray Direct, p. 5, lns. 3-21.
[9] Case No. WR-2020-0344, Murray Direct, p. 5, lns. 1-2.
[10] QE involved three rounds of the Fed's direct intervention in bond markets beyond just lowering the Fed Funds rate. The Fed's QE programs had the express intent of reducing long-term interest rates.

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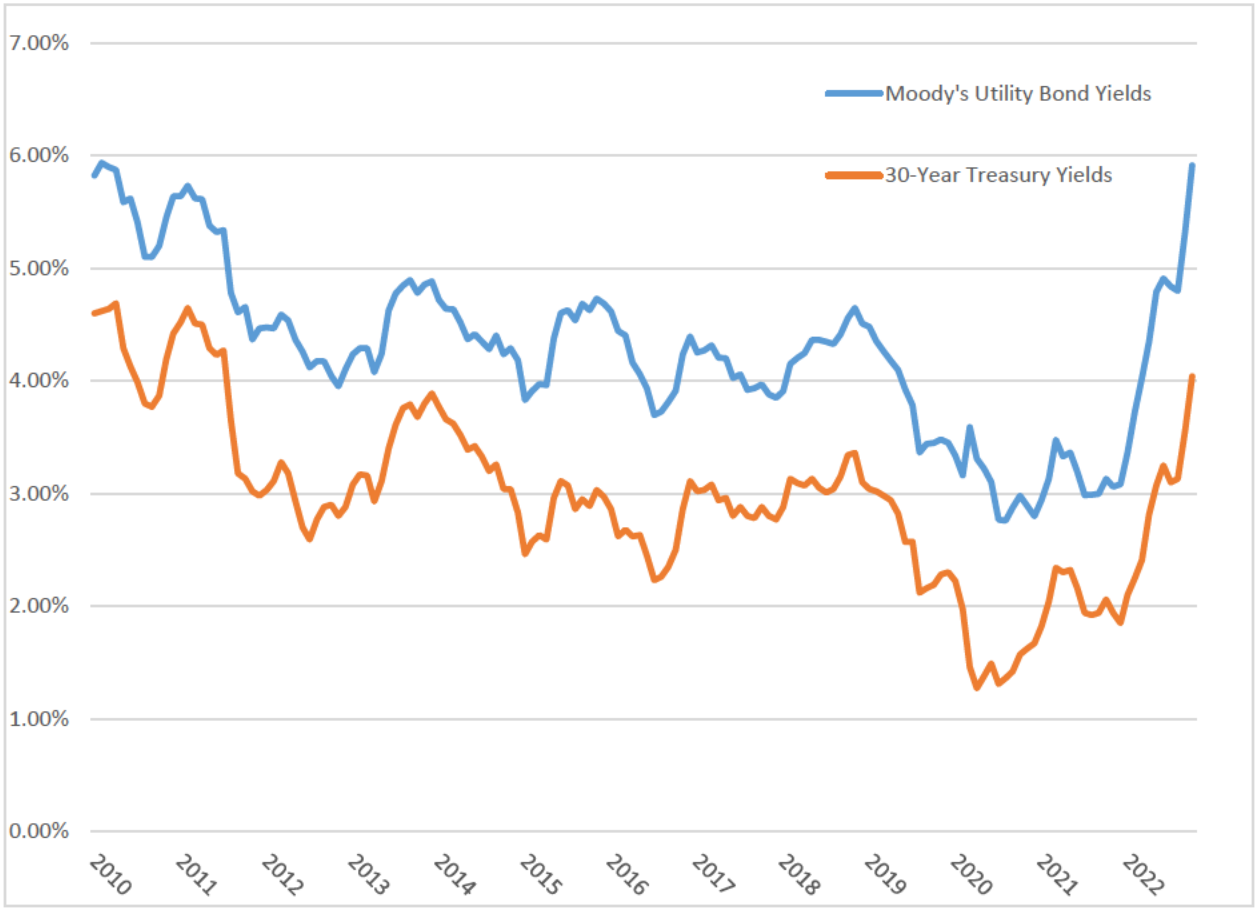
and 2021. However, as can be seen, long-term rates increased dramatically in 2022.



Average utility long-term bond yields had dropped to modern all-time lows in the latter half of 2020 - levels not experienced since the late 1940s and early 1950s. However, the average yield on the Moody's Public Utility Bond index and 30-year UST bonds have approximately doubled since the beginning of 2022. Analyzing bond yields over the last few months may cause one to conclude that the utility industry's COE has increased dramatically, just as analyzing bond yields during much of 2020 and 2021 may have caused one to conclude that the utility industry's COE had decreased dramatically. However, post onset of Covid-19, capital markets have not traded consistent with underlying fundamentals. Much of this appears to be driven by the Fed's and U.S. Congress's massive interventions through monetary and fiscal policies, respectively.

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Q. Why is it typically important to evaluate trends in long-term interest rates when evaluating the utility industry's COE?

A. The investment community typically regards utility stocks as bond proxies/pseudo bonds, meaning that if long-term bond yields decline, then this typically causes regulated utility stock prices to increase. Therefore, changes in utility stock valuation levels have historically had a strong inverse correlation to changes in bond yields, i.e. as bond yields decline, utility stock prices increase.

Q. Since April 2020, have utility stock valuations and bond yields traded consistent with historical patterns?

A. No. Following drastic and significant intervention by the Fed in monetary policy and the United States Congress in fiscal policy in reaction to Covid-19 mitigation measures, the yield-to-maturity ("YTM") on utility and corporate bonds traded at 70-to-80 year lows. However, at the same time, broader utility industry stocks (mainly local natural gas distribution companies ("LDC") and electric utility stocks) declined on both an absolute and relative basis (as compared to the S&P 500). Consistent with recent atypical trading patterns, despite recent increases in utility and corporate bond yields, broader utility industry stocks increased on both an absolute and relative basis.

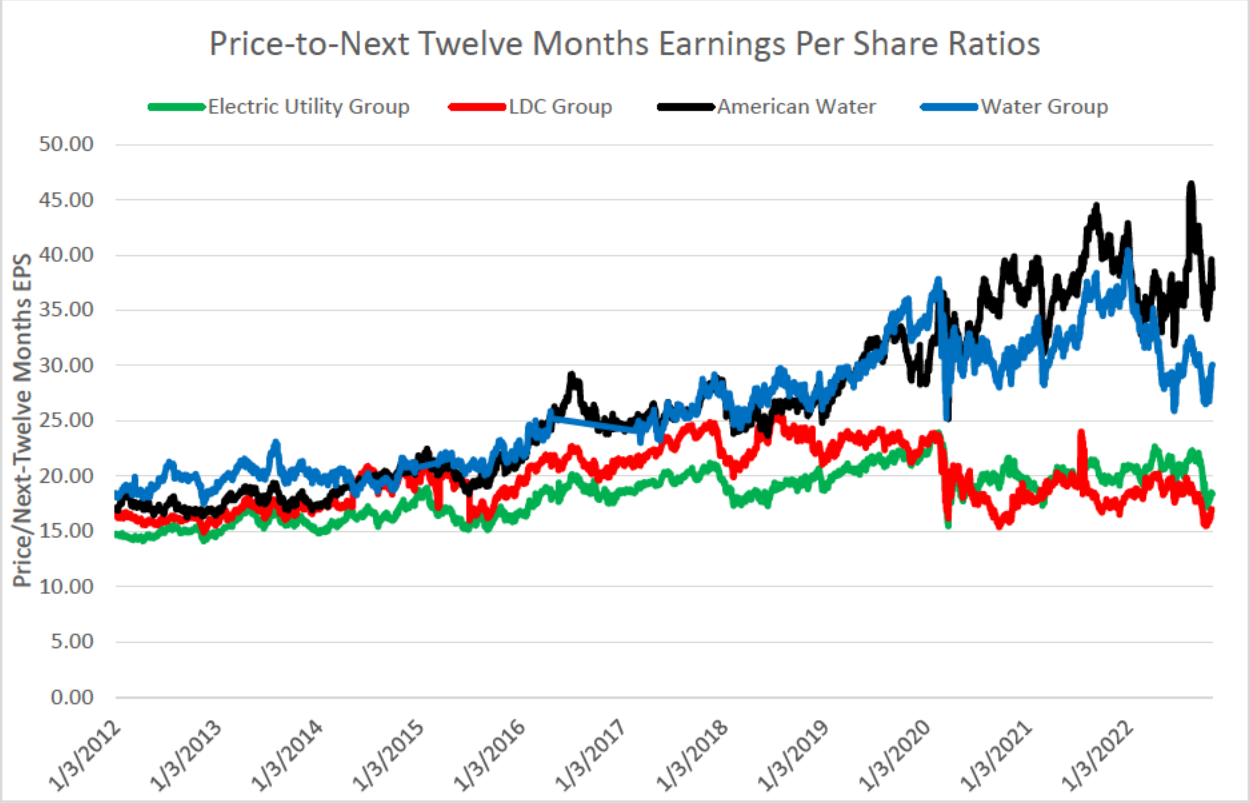
Consequently, while the utility industry's debt costs have fluctuated along with the macro changes in interest rates, the same is not true for the utility industry's cost of equity. For example, as I will discuss later in my analysis using the CAPM, the cost of equity indications using the CAPM implies that the utility industry's COE has also fluctuated significantly since 2020, but such indications are not consistent with current utility equity market conditions. Current utility equity market conditions imply that investors currently require a lower equity risk premium to invest in utility stocks as compared to bonds.

Further, comparing the specifics of water utility stock valuation levels to electric/gas utility stock valuation levels shows investors are assigning a significant premium to water utility stocks, especially recently. The water utility industry's valuation resiliency is at least partially attributed to the fact that the cash flows expected from the higher-growth, long-

lived water utility industry assets, are valued higher in present value terms due to lower discount rates.[11]

Q. Can you provide a graphic illustration that compares American Water's P/E ratios to the water, electric, and local natural gas distribution ("LDC") utility industries?

A. Yes. See the below graph:



As can be seen in the above graph, between 2012 to 2015, American Water's (black line) P/E ratio actually traded fairly close to the LDC group's[12] (red line) P/E ratio, with both

[11] Insoo Kim, et. al, "Analyzing water utility premiums - Upgrade AWK to Buy, Initiate WTRG at Neutral," Goldman Sachs, April 15, 2020.

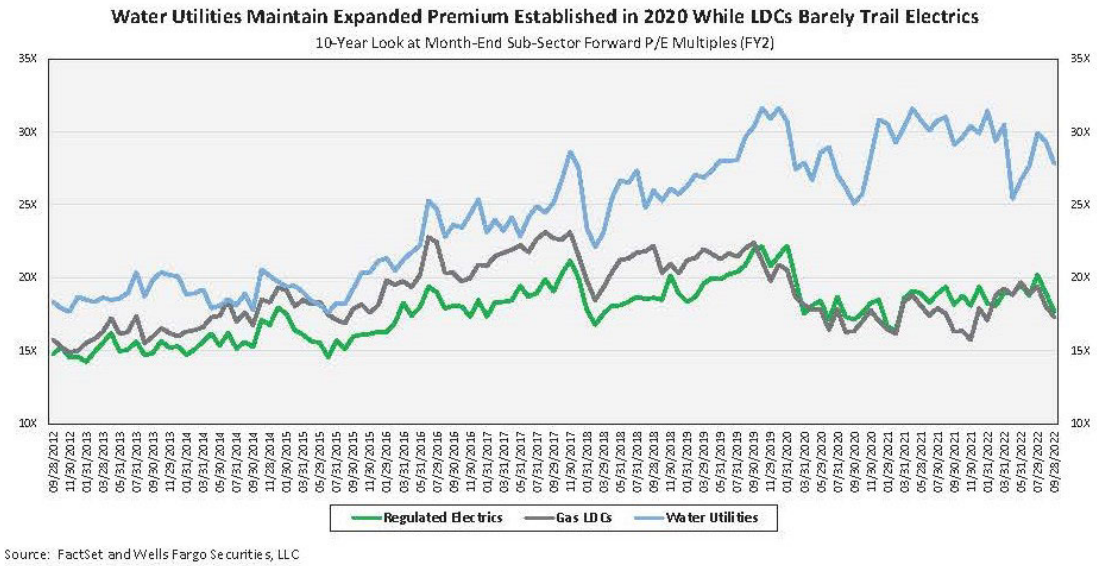
[12] LDC group consists of the following companies: Atmos Energy Corporation, NiSource Inc., New Jersey Resources, Northwest Natural Gas and Spire Inc. (excluded One Gas because no P/E data available before 2015; South Jersey Industries because it is the target of a pending acquisition; and Southwest Gas because its stock price has been impacted by a "strategic review" related to potential sale of all or parts of its business).

only trading slightly above the electric utility group's[13] (green line) P/E ratios. American Water also traded below its water utility peers[14] (blue line) for most of this period until mid-2014. Between late 2014 and early 2020, American Water and its water utility peers traded at fairly similar P/E ratios, with slight premiums to the natural gas and electric utility industry between mid-2015 to mid-2018. However, post mid-2018, American Water and its water utility peers traded at significant premiums to the electric and gas utility industries. American Water P/E ratios peaked at around 45x a couple of times during the last couple of years.

Q. Can you provide corroborating charts from the investment community that demonstrate the premiums at which water utilities trade to electric and gas utilities?

A. Yes. Wells Fargo recently published the following chart demonstrating the widening P/E premium for water utilities as compared to electric and gas utilities. Wells Fargo used forward earnings estimates two years from now as compared to my use of earnings expectation for the next twelve months. However, both charts are based on consensus earnings estimates provided by equity analysts.

[13] Includes the following companies: Alliant Energy, Ameren Corp, American Electric Power, CMS Energy, DTE Energy, Idacorp, OGE Energy, Pinnacle West Capital Corporation, Portland General Electric, Southern Company, WEC Energy and Excel Energy.
[14] Includes the following companies: American States Water, Essential Utilities and Middlesex Water Company. Excluded California Water Services Group, SJW Group and York Water Company because of lack of continuous P/E data.



Source: FactSet and Wells Fargo Securities, LLC

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Q. What appears to be the cause of American Water's significant premium as it relates to the electric and gas industries?

A. While American Water has a long horizon of expected long-term growth due to significant projected capital expenditures to replace water distribution infrastructure, it is not reasonable to attribute the recent expansion of American Water's P/E ratio to these long-term growth expectations. American Water has been guiding investors to a 7% to 10% long-term growth in EPS for over the past ten years. Investors frequently compare a company's P/E ratio to its expected long-term CAGR in EPS to analyze whether an expansion in P/E ratios can be attributed to higher expected long-term growth rates. The below graph shows American Water's P/E-to-expected long-term growth rate in EPS ("PEG") ratio for the period since January 1, 2015:

[15] Neil Kalton, et. al., "Figure of the Week: Utility Sub-Sector P/E Snapshot," Wells Fargo, September 30, 2022.

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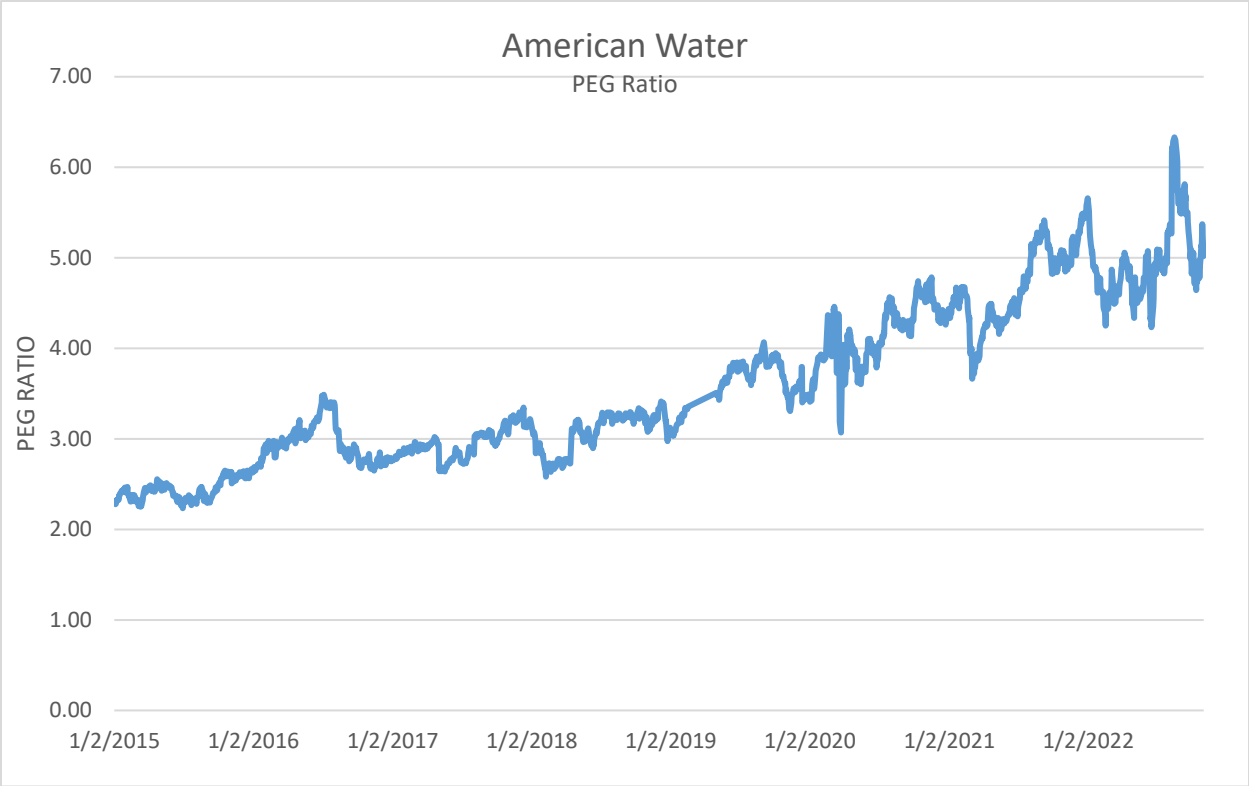

As illustrated, American Water's stock price has not been increasing due to higher long-term growth expectations. Otherwise, the PEG ratio would remain constant over time. This is not the case. Consequently, the expansion of American Water's P/E ratio over the last several years is primarily due to a declining COE, which translates into a lower required return from shareholders. The above graph supports the hypothesis that the risk premium to invest in water utility stocks has shrunk over the last several years. As I will demonstrate in my multi-stage DCF analysis, American Water's current COE is likely only slightly higher than its cost of debt.

Q. Can this also be illustrated by comparing American Water's dividend yields to that of the water utility peer group[16], the electric utility group[17] and the LDC group[18]?

A. Yes. See the graphical illustration below:

[16] Added California Water Services to the group because of availability of dividend yield data.
[17] *Id.*
[18] *Id.*

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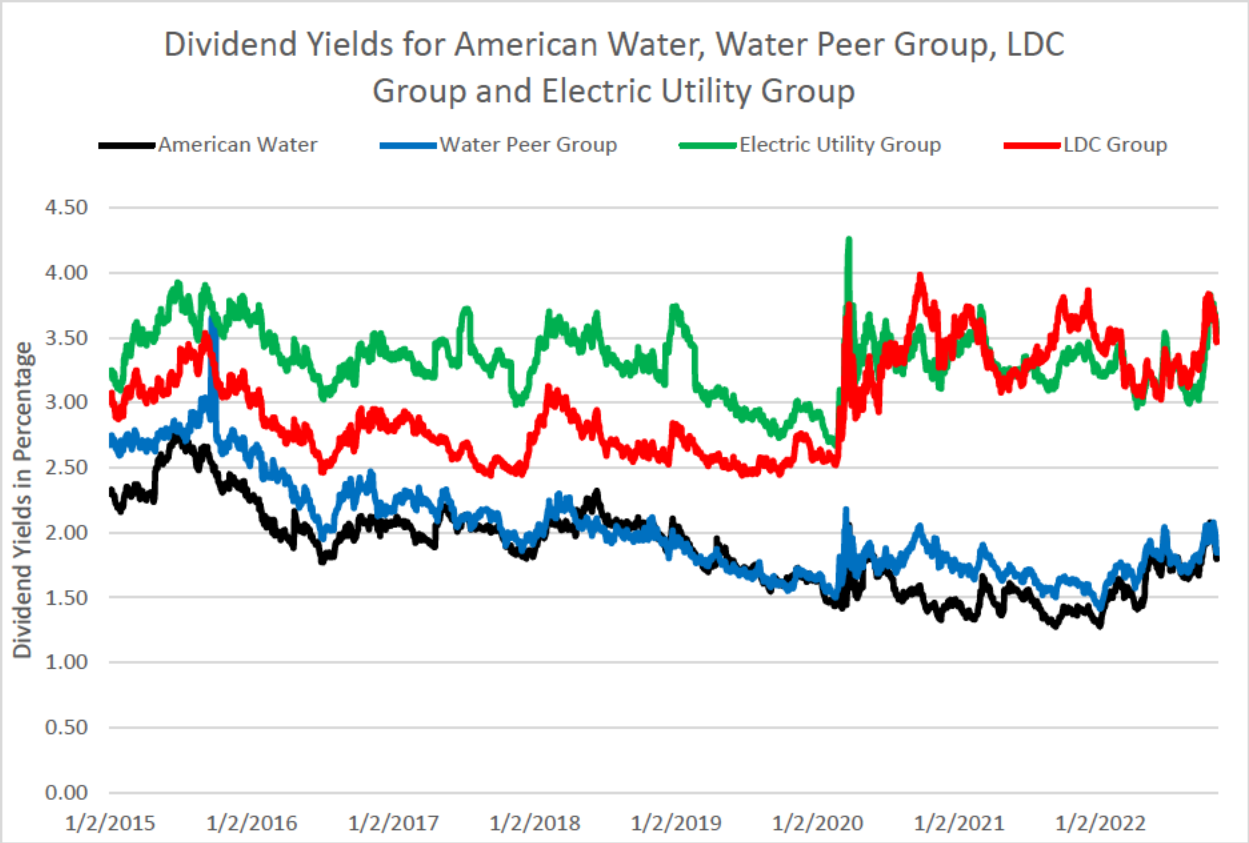

As can be seen in the chart, American Water's dividend yield was about 100 basis points lower than the electric utility group's dividend yield in early 2015. The water utility peer group's dividend yield was approximately 50 basis points lower than the electric utility group's dividend yield. This compares to American Water' approximate 75 basis point lower dividend yield as compared to the LDC group's dividend yield and the water peer group's approximate 40 basis point difference to the LDC group. After 2015, the gap between American Water and the water utility peer group's dividend yields gradually widened with both the electric and gas utility groups' dividend yields being approximately 100 basis points higher shortly before the beginning of massive stimulus measures taken by the Fed and the US Congress in March 2020. Subsequent to the extraordinary steps taken by the Fed and the US Congress to mitigate the economic impacts of the Covid-19 pandemic, American Water's dividend yield declined even lower than its 1.5% dividend yield pre-Covid-19. Because the gas and electric utility group's dividend yields increased subsequent to March 2020, this resulted in a spread of approximately 200 basis points

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between American Water's and the water utility group's dividend yield compared to those of the electric and gas utility groups' dividend yields.

Q. What was American Water's expected long-term CAGR in EPS in 2015?

A. It was 7.34%.[19]

Q. What is it now?

A. 7.65%. Therefore, only a minor proportion of American Water's expanded P/E ratio may be attributed to higher long-term growth rate expectations.

Q. If the expansion in American Water's P/E ratio is not fully explained by higher long-term growth expectations, then what is the logical explanation for its significant expansion?

A. A continued decline it its cost of capital due to lower business risk and high demand for American Water's stock due to its favorability among investors screening for environmental, social and governance ("ESG") criteria.[20]

Q. Are there other reasons investment analysts offer to describe why American Water's common stock trades at such lofty valuation levels?

A. Yes. Goldman Sachs assigns a premium to American Water (and other water utilities) because water utility assets have longer useful lives (lower depreciation rates) allowing for a much longer earnings horizon. Goldman Sachs also indicates that American Water has a much larger and prolonged period of capital expenditures as compared to the electric

[19] Staff Cost of Service Report, 2015, Appendix 2, Schedule 11-5.
[20] ESG investing criteria generally screen for companies based on corporate policies considered to be "responsible" as it relates to pursuing reductions in greenhouse gas emissions, diversity in employees (especially management), and effective controls on corporate governance. American Water received a score of 87 out of 100 based on a S&P Global Ratings December 6, 2021 ESG assessment.

utility industry. This implies that investors in water utilities, such as American Water, may expect higher EPS and DPS growth rates for a longer period than that of electric utilities.[21]

RBC Capital Markets assigns American Water's P/E ratio a 30% premium to the 30x forward P/E ratio it assumes for lower-growth water utilities. RBC indicates the following rationale for its 30% premium, or 39x P/E ratio, it assigns to American Water:

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> _____ **[22]

Guggenheim offers the following explanation for the higher premiums it assigns to the water utility industry in general as compared to the electric and gas utility industries:

> Water utilities continue to be ascribed higher multiples versus electric/gas utility counterparts given higher growth prospects and less risk around CapEx, which haven't slowed and are not expected to anytime soon, and lower perceived risk vs. electric/gas peers.[23]

Q. Is it logical that American Water would trade at a significant premium to electric and gas utilities during the Fed's aggressive loosening of monetary policy in response to Covid-19 economic concerns?

A. Yes. The P/E ratios of companies and sectors that investors viewed as having longer investment horizons increased dramatically during the Fed's loosening of monetary policy. In fact, this was one of the most often cited rationales for the high P/E ratios associated with the technology sector during the period of loose monetary policy. Therefore, lower discount rates (i.e. costs of capital) have a larger impact on the values assigned to shares of

[21] Insoo Kim, CFA, et. al., "Americas Utilities: Analyzing water utility premiums - Upgrade AWK to Buy, Initiate WTRG at Neutral," Goldman Sachs, April 15, 2020.
[22] Shelby Tucker, CFA, "American Water Works Co Inc.: Just Keep Swimming," RBC Capital Markets, March 1. 2022.
[23] Shahriar Pourreza, et. al., "AWK: Straightforward Roll-Forward Comes with More Equity," Guggenheim Securities LLC, November 1, 2022.

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companies that are expected to generate cash flows to investors over a fairly long time horizon.

Q. Are you aware of investors that have used lower COE estimates to discount expected cash flows from an investment in American Water's stock?

A. Yes. Wells Fargo uses a COE of 6.5% to estimate a fair value for American Water's stock. HSBC Global Markets estimated American Water's cost of equity as low as 4.0% in 2020.[24] A cost of equity this low would certainly help explain the significant expansion in American Water's P/E ratio in recent years.

Q. Are you aware of other investment analysts that ascribe lower costs of equity to the water utility industry than the electric utility industry?

A. Yes. Evercore ISI indicated the following when it initiated coverage of the water utility industry:

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Evercore ISI went on to further state the following about expected allowed ROEs for the water utility industry:

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[24] Verity Mitchell, "American Water Works (AWK US), Buy: Refinancing Debt for 2020 – all set for growth," HSBC Global Markets, April 14, 2020, p. 9.
[25] Durgesh Chopra, et. al, "Initiating Coverage On Water Utilities: Top pick AWK (OP); AWR (UP); WTR/CWT/SJW/CTWS (IL)," Evercore ISI, September 17, 2018, p. 10.

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_____ **[26]

RBC Capital indicated the following:

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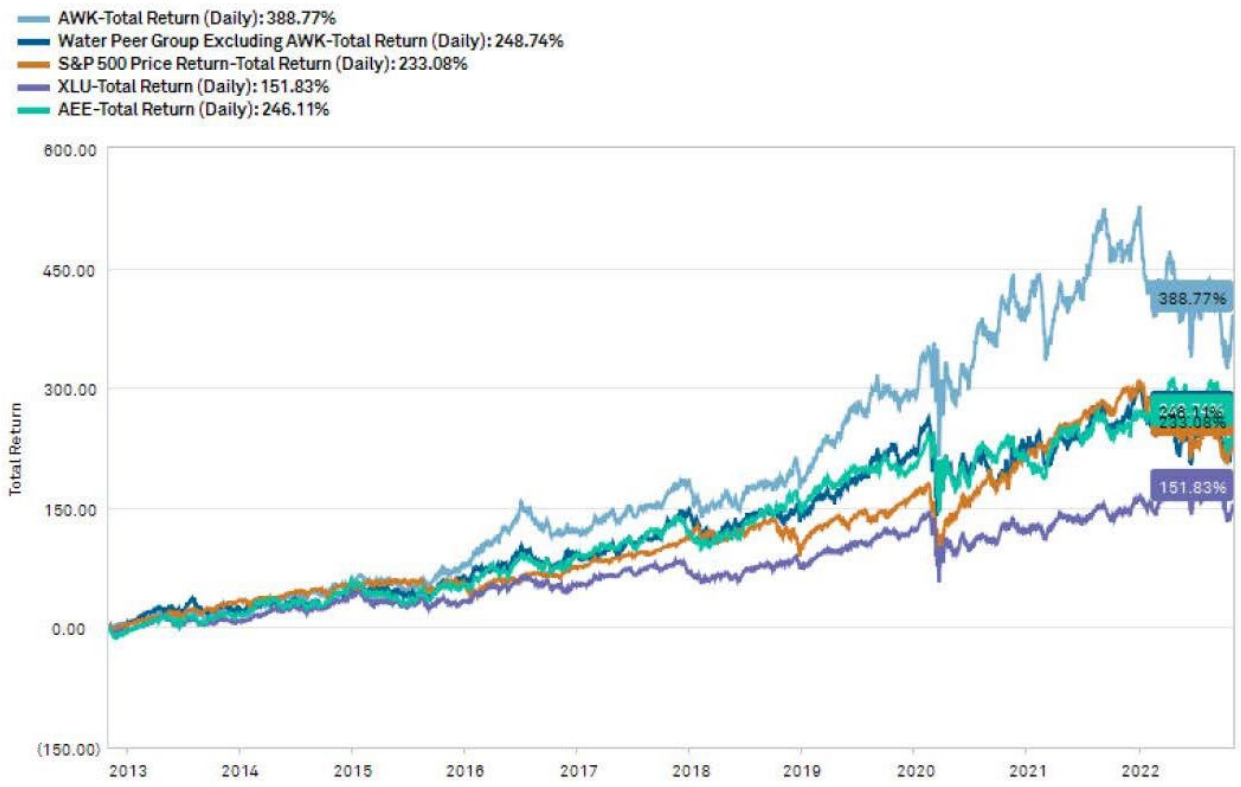
_____ **[27]

Q. Can you provide information on how American Water's shareholder returns have compared to the S&P 500, a broad utility index, Ameren Corp, and its peers over the last ten years?

A. Yes. See the below chart for a graphic illustration of American Water's total return as compared to the S&P 500 (SPX), a broad utility index (XLU), Ameren Corp (AEE), and a water peer group (American States Water, California Water Service Group, Essential Utilities, Middlesex Water Company, and SJW Group).

[26] *Id.,* p. 13.
[27] Shelby Tucker, CFA, "American Water Works Company Inc.: Clear as Water; Initiating at Outperform," RBC Capital Markets, April 24, 2020, p. 1



American Water's total return has exceeded all of the comparable entities and indices. American Water's total return of 388.77% over the last ten years translates into a 14.57% compound annual return. This compares to the compound annual return of 9.58% for the water peer group, 9.47% for Ameren, 8.88% for the S&P 500 and 4.33% for the utilities index.

Q. In MAWC's 2020 rate case, you provided information showing the low yields on American Water Capital Corporation's ("AWCC")[28] long-term bonds. How has the yield on AWCC bonds changed since the 2020 rate case?

A. They have increased significantly. In November of 2020, when I filed direct testimony in MAWC's 2020 rate case, WR-2020-0344, AWCC's 30-year bonds were trading at a YTM of approximately 2.75% to 2.9%. These same bonds have recently been trading at a YTM

[28] AWCC is a financing subsidiary of American Water created for purposes of accessing third-party debt markets. AWCC's creditworthiness is based on American Water's consolidated risk profile. I will explain AWCC in more detail in the capital structure section of my testimony.

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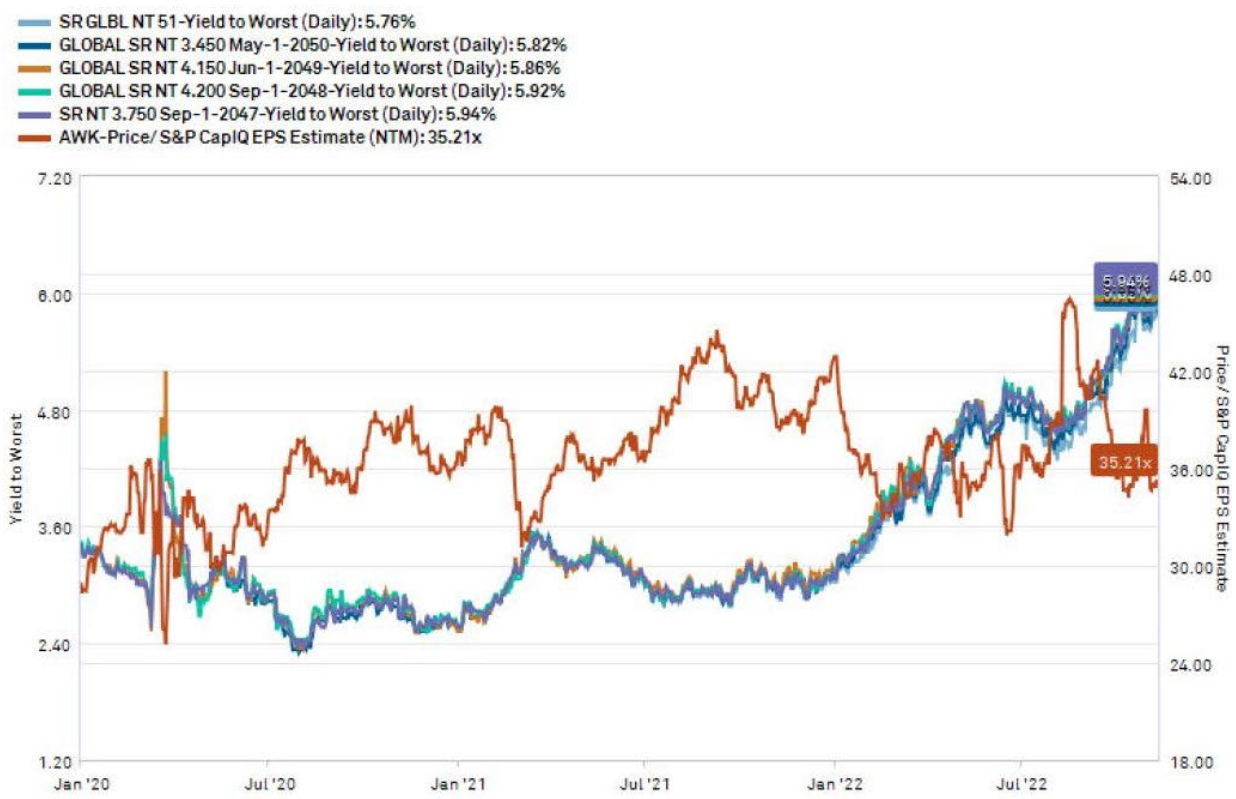
in the range of 5.75% to 6%. As I will discuss later in my testimony, applying the simple rule of thumb of adding a 3% equity risk premium to a company's own bond yields, implies American Water has a COE of around 9%. However, American Water's P/E ratio is much higher than the last time bond yields traded at 6%, implying that investors in American Water's stock are not requiring much of an equity risk premium. Perhaps this is due to investors' perceptions that while bond yields have become more attractive, American Water's stock's defensive characteristics and ability to pass inflationary costs on to ratepayers through rate cases, currently outweighs the attractiveness of higher bond yields.

The below graph shows changes to American Water's bond yields and P/E ratios since January 1, 2020:



While American Water's P/E ratio did decline in early 2022, subsequent to the Fed's signaling to the markets that it would begin to tighten monetary policy, this occurred after American Water's P/E ratio had been trading at over 40x, which was twice the P/E multiple

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at which electric utilities had been typically trading. Although the bond yields have continued to rapidly increase through the rest of 2022, American Water's P/E ratio has not continued to contract. Other than a brief spike in American Water's P/E ratio in September 2022, American Water's P/E ratio has largely oscillated around 36x for most of the period between February 2022 and October 2022. This P/E level is largely consistent with American Water's P/E ratios leading up to the filing of direct testimony in MAWC's 2020 rate case.

Q. What is a fairly reasonable and simple way to translate the above data in terms of an impact on American Water's COE since MAWC's 2020 rate case?

A. Evaluate changes in American Water's dividend yields over the same period. Because American Water has not changed its targeted dividend payout ratio significantly (55% to 60%) and its expected EPS and DPS growth rates have not changed much since 2020, changes in its dividend yields should largely reflect changes in investors' required returns (i.e. the COE) over this period. American Water's dividend yields since January 1, 2020 were as follows:

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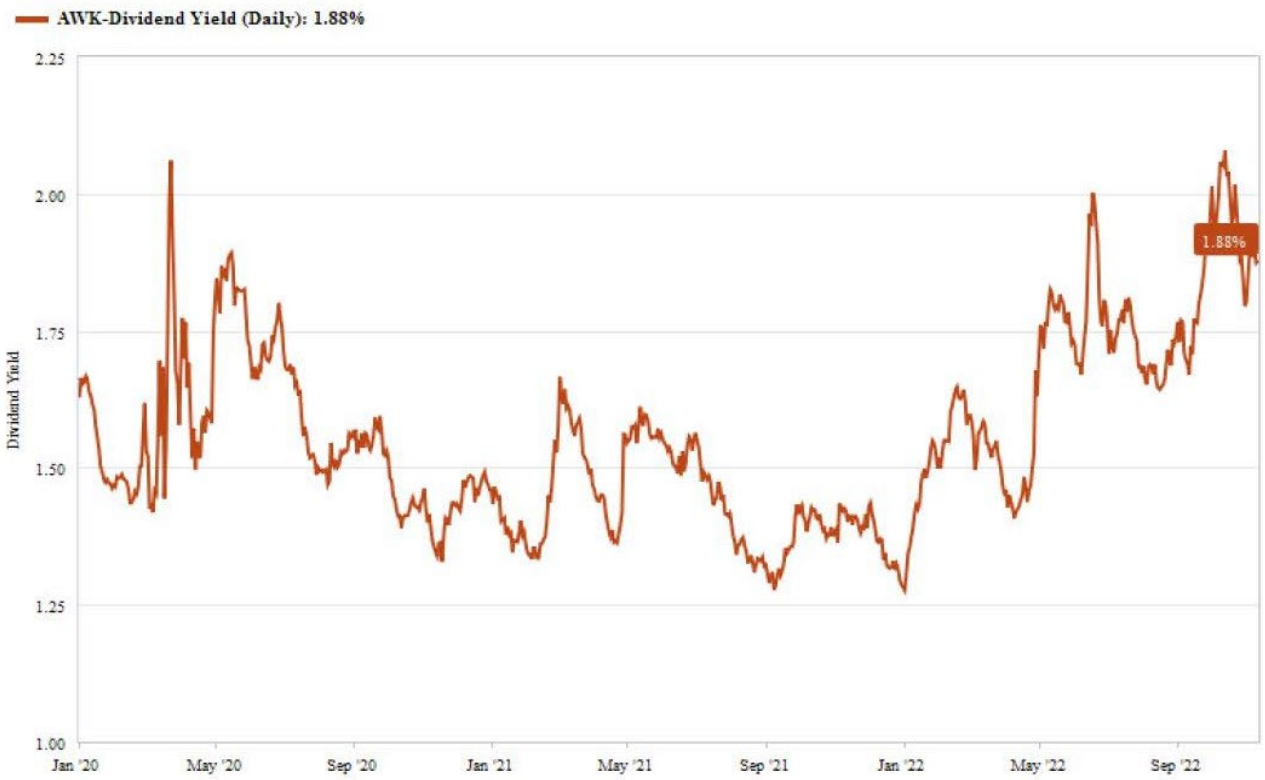


American Water's dividend yields have increased by approximately 20-40 basis points since the period (late spring to early fall of 2020) leading up to my filing of direct testimony in MAWC's 2020 rate case. Because all other factors, such as American Water's expected growth rates and dividend payouts have been fairly constant, this change in dividend yield provides a reasonableness check for at least the relative change in the COE over the period since MAWC's 2020 rate case.

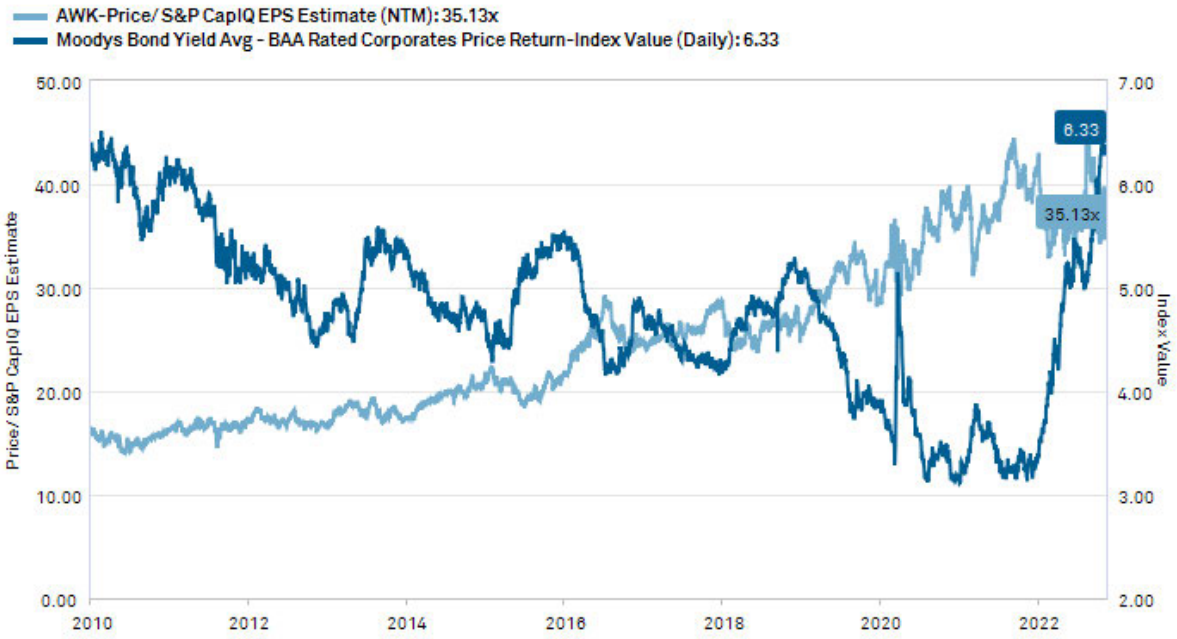
Q. Does the relative change in the COE since the Fall of 2020 justify MAWC being authorized an ROE higher than the Commission's recent decisions for its gas and electric utilities?

A. No. The fact that American Water's P/E ratio has doubled (100% increase) since 2015, while the gas and electric utility industries' P/E ratios have increased by approximately 25%, resoundingly demonstrates the significant premium (i.e. low required returns) investors assign to the water utility industry in the current market environment. This

market data supports authorizing water utilities lower ROEs as compared to electric and gas utilities.

Q. How did American Water's stock trade the last time long-term corporate bonds traded at YTMs of around 6%?

A. As shown in the graph below, the last time corporate bond yields traded at YTMs of around 6%, American Water's P/E ratios were 14x to 16x during most of the 2010 calendar year. These P/E ratios were less than half of American Water's P/E ratios in the current market environment.



Q. Can you summarize your interpretation of the signals capital market conditions are providing as it relates to the cost for the water utility industry in general and American Water, in specific to raise capital?

A. Yes. It is simple to observe the increase in the cost of debt capital for American Water and the water utility industry. The cost of debt has been directly influenced by the Fed's tightening of monetary policy. The Fed is tightening monetary policy in order to attempt to dampen inflationary pressures. Long-term fixed-rate bond valuations are directly impacted by inflationary pressures because inflation erodes the value of the historical

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coupons set during a lower interest-rate environment. To the extent investors fear further increases in inflation, this causes more concern about the value of fixed-rate coupon bonds. While utility stocks have bond-like characteristics, at least investors are compensated by the ability of utility companies to pass increasing costs (due to inflation) through to ratepayers due to cost of service ratemaking. Apparently, as is the case right now, this characteristic causes utility stocks to be more attractive than fixed-rate bonds. Consequently, the required returns on utility stocks may not be that much higher than current coupons on bonds.

COST OF EQUITY

Q. Now that you have provided some context on changes in utility capital market conditions generally and American Water specifically, can you discuss how you decided to approach your COE estimate for MAWC in this case?

A. Yes. I performed a company-specific COE analysis on American Water, as well as a proxy group COE analysis. I used a multi-stage DCF approach and a CAPM. I then tested the reasonableness of my estimates by using some simple, straightforward sanity checks, such as the bond-yield-plus-risk-premium method discussed in the CFA curriculum.

INVESTOR INSIGHT

Q. How have you informed yourself as to reasonable and rational inputs for your COE approaches?

A. Being that the objective of a ROR witness is to emulate investors' approaches to analyzing and making investment recommendations as it relates to investing in utility stocks, I have prioritized reviewing and analyzing how equity research analysts determine a utility stock price estimate in practice. This has allowed me to test the theory of cost of capital estimation in utility ROR testimony as it compares to how utility stocks are actually valued. I have discovered professional equity analysts typically use a combination of valuation approaches. Investment firms may use absolute/intrinsic valuation techniques, such as a multi-stage DCF approach to estimate fundamental values of utility stocks and/or they use

relative valuation techniques that compare a company's P/E ratios to an average for the industry. In my experience, professional equity analysts project long-term CAGR in EPS to determine whether a company's P/E ratio deserves a premium or a discount to its peers. Professional equity analysts do not use these estimated long-term CAGRs in EPS as a proxy for a perpetual dividend growth rate, as some ROR witnesses suggest. Investment analysts use perpetual growth rates for the water utility industry in the range of 3.5% to 4.0% when discounting dividends using the DDM.[29] Finally and most relevant to the task at hand, they estimate water utilities' COE to be in the 5% to 6.5% range.[30]

Q. Why is it important to analyze equity research to determine a fair and reasonable allowed ROE for MAWC?

A. Analyzing this information is important because these professional investment analysts are the very individuals that underlie various consensus estimates widely considered by investors. ROR witnesses recognize the influence investment analysts have on utility stock prices by the very fact that they use consensus EPS forecasts for purposes of estimating the COE.

Q. Did you review all of the firms' research that cover American Water for purposes of performing your cost of equity analysis and preparing your testimony?

A. No. Staff of the Commission ("Staff") Data Request No. 0056 and OPC Data Request No. 3001 requested copies of all equity research published on American Water since January 1, 2020. MAWC objected to this data request, but still provided a response indicating the following:

> Regarding securities analysts' reports, please see MoPSC 0056 Attachment 1 CONFIDENTIAL, which contains recently published equity analyst reports

[29] Insoo Kim, CFA, et. al., "Americas Utilities: Analyzing water utility premiums - Upgrade AWK to Buy, Initiate WTRG at Neutral," Goldman Sachs, April 15, 2020. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," Wells Fargo, August 19, 2019, p. 2.

[30] Becca Followill, and James Carrker, CFA, "American Water Works (AWK) – Initiating Coverage, Overweight - $185 Price Target," U.S. Capital Advisors, January 21, 2021; Jonathan Reeder and Neil Kalton, CFA, "AWK: '23 Guidance Not as Bad as Some Invetors Feared—Reiterate Equal Weight," Wells Fargo, November 1, 2022.

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relating to AWWC through Q1 2022. Debt analyst reports are included in the Company's response to MoPSC 0057.

Upon my review of the research reports MAWC provided, I determined that many research reports were not provided in response to Staff's and OPC's data requests. As of the date I prepared this testimony, MAWC had not provided research from at least the following firms: Bank of America, Goldman Sachs, HSBC Global Research, J.P. Morgan, and Wells Fargo.

Q. Why did MAWC not provide these reports?

A. According to an email I received from Brian LaGrand of MAWC, he indicated that American Water had to obtain permission from these firms to provide Staff and OPC copies of such reports.

Q. Is this explanation consistent with your understanding of the availability of such reports to the investment community at large?

A. No. Over my career, I have established relationships with some firms/analysts who have distributed this material to me directly through their email distribution lists. These relationships were borne from my role as a regulator in which many of these analysts seek information related to Missouri's general and specific regulatory issues. I have also interacted with these analysts through my participation in organizations, such as the Society of Utility and Regulatory Financial Analysts ("SURFA"). My understanding is that the value of this research to each of these firms is its real-time release to clients, not dated research reports, such as those that OPC requested from MAWC.

Q. In MAWC's 2020 rate case, did MAWC provide equity research reports from all analysts following American Water?

A. Yes. MAWC did not withhold reports in the 2020 rate case, Case Number WR-2020-0344.

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Q. Were these reports useful and relevant to evaluating the COE for the water utility industry?

A. Yes. In fact, I quoted many of these reports in my testimony in the 2020 rate case. These analysts and their reports are instrumental to understanding, correctly interpreting and communicating investor expectations influencing stock prices.

Q. Have you encountered this resistance from any of Missouri's other regulated utilities as it relates to providing equity research reports?

A. Not for quite some time. During an Ameren Missouri rate case in 2010, Case No. ER-2010-0036, I encountered resistance. However, after discovering from Ameren Missouri's own witness that this information is typically freely exchanged among those in the investment community, with no concerns about copyright issues, Ameren Missouri began to cooperate with discovery requesting such information.[31]

PROXY GROUP

Q. How did you approach selecting a custom water utility proxy group?

A. Due to the small number of publicly traded water utility companies in the United States, I chose to include most of the companies generally classified as water utility companies by Value Line. My proxy group consisted of the following six companies: American States Water Company, American Water Works Company, California Water Service Group, Essential Utilities,[32] Middlesex Water Company, and SJW Group. Although all of these companies have business risk profiles consistent with MAWC's regulated water and sewer utility operations, investment analysts do not provide financial metric estimates for Middlesex Water Company. Therefore, because I rely on investment analysts' projections

[31] Case No. ER-2010-0036, Murray Surrebuttal, pgs. 26-28.
[32] Although I chose not to exclude Essential Utilities from my proxy group, during my analysis I gave consideration to the fact that it is now a combination water and natural gas distribution utility. Before March 2020, Essential Utilities (f/k/a Aqua America) was primarily a regulated water utility company, but it acquired a sizeable amount of gas distribution assets when it bought Peoples Gas Company in March 2020.

for my multi-stage DDM analysis, I excluded Middlesex Water Company from this analysis. However, I included it in my Capital Asset Pricing Model ("CAPM") analysis.

MULTI-STAGE DCF/DDM

Q. How did you approach the multi-stage DCF/DDM analysis?

A. I used equity analysts' discrete DPS estimates for as many periods as they were available. Investors purchasing stocks in the water utility companies before the end of October 31, 2022 are entitled to the quarterly DPS declared for the fourth quarter of 2022. Therefore, I included this quarter's DPS and the discrete expected annual DPS estimates for the period 2023 through 2026 (with the exception of SJW Group which only had annual DPS estimates available through 2025).

Q. How did you model the expected DPS for your proxy group for annual periods after the discrete stage?

A. I determined each company's estimated dividend payout ratio for the final year where a discrete annual DPS estimate was available (2026 for all companies except SJW Group). I then modeled an equal percentage change in the annual payout ratio from this period until the terminal year, which is when I assumed that all companies would converge to a dividend payout ratio necessary to ensure each company retained sufficient earnings to sustain the assumed perpetual growth rate of 3.7% to 4.3%. This growth rate and retention ratio assume allowed ROEs for water utility companies will eventually converge to no higher than 9.00% in the terminal stage, which is consistent with assumptions used by Wells Fargo and Evercore ISI.

As shown in Schedule DM-D-2, my water utility industry COE estimates based on application of the multi-stage DCF (assuming a 4% perpetual growth rate) to the proxy group shows a COE in the range of 5.90% to 6.66% with a 6.22% average. American Water's specific COE estimate is 6.24%. As shown in Schedule DM-D-3, using a 3.7% perpetual growth rate results in a COE estimate in the range of 5.75% to 6.55% with an average of approximately 6.09%. American Water's company-specific COE estimate is

6.11% using the 3.7% perpetual growth rate. As shown in Schedule DM-D-4, using a 4.3% perpetual growth rate results in a COE estimate in the range of 6.04% to 6.77% with an average of approximately 6.35%. American Water's company-specific COE estimate is 6.37% using the 4.3% perpetual growth rate.

Q. How did you determine your assumed 3.7% to 4.3% perpetual growth rate for DPS?

A. This growth rate range is generally consistent with the following: (1) potential long-term sustainable growth rate of the U.S. economy,[33] (2) water utility industry fundamentals as it relates to expected ROEs on water utility rate base growth, and (3) commentary/analysis available from institutional investors/analysts.[34] As it relates to fundamentals, a sustainable growth rate can be determined by multiplying an average long-term industry retention rate by an expected book ROE of approximately 9.00%. Assuming the water utility industry retains sufficient capital to assure it doesn't have to access external equity markets, then it is reasonable to model an earnings per share ("EPS") retention rate of 44.44%, which applied to a 9.00% ROE, results in a perpetual growth rate of approximately 4%. Both Wells Fargo and Evercore ISI, equity research firms that follow American Water, assume scenarios where allowed ROEs eventually decline to between 8.75% to 9.00%.[35]

Q. How does this compare to perpetual growth rates used by equity analysts to estimate fair prices for the broader utility industry?

A. These perpetual growth rates are higher than those that are typically used for other subsectors of the utility industry. Historically, the electric utility industry has had more

[33] www.cbo.gov/publication/57971, https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/livingston-survey/2022/livjun22.pdf, https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/spf-q1-2022, https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20220921.pdf

[34] Insoo Kim, CFA, et. al., "Americas Utilities: Analyzing water utility premiums - Upgrade AWK to Buy, Initiate WTRG at Neutral," Goldman Sachs, April 15, 2020. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," Wells Fargo, August 19, 2019, p. 2.

[35] Durgesh Chopra, et. al, "Initiating Coverage On Water Utilities: Top pick AWK (OP); AWR (UP); WTR/CWT/SJW/CTWS (IL)," Evercore ISI, September 17, 2018, p. 13. Neil Kalton, Sarah Akers, and Jonathan Reeder, "DDM Analysis Supports Sector Valuation & Quality/Growth Trade," Wells Fargo, August 19, 2019, p. 2.

variability in its construction cycles than the water utility industry. The water utility industry has a fairly visible and consistent need for high capital expenditures required to replace its continuously aging utility infrastructure. This explains why the water industry in general, but American Water specifically, consistently has expected 3 to 5-year compound annual growth rates ("CAGR") in EPS growth rates in the high single digits. Because the electric utility companies have frequent periods of varying capital expenditures, some companies may have low single-digit expected 3-to-5-year CAGR in EPS, but others, such as Ameren, have expected 3-to-5-year CAGR in EPS of 6 to 8%.

Q. Are you aware of examples in which some equity analysts assume American Water can maintain a higher growth rate for a longer period of time when applying the DDM?

A. Yes. In a research report published in early 2021, U.S. Capital Advisors performed a DDM analysis in which it assumed American Water could sustain a 6% CAGR in DPS for the next 40 years. At the end of 40 years (the terminal stage of their DDM), U.S. Capital Advisors assumed American Water's stock would trade at a terminal yield of 4%. Most directly to the task of ROE witnesses estimating the COE, U.S. Capital Advisors used a COE of 5% to determine its target price of $185 for American Water's stock.

Because ROE witnesses are solving for the COE rather than stock price, I simply solved for the discount rate (i.e. COE) that would cause U.S. Capital Advisors assumptions for expected dividends to equal American Water's current stock price of around $145. The COE using this actual investor analysis results in a COE estimate for American Water of around 6.5%, which is consistent with my COE estimates using the assumptions I found to be consistent with consensus investor expectations (see Schedule DM-D-5).

Q. How is the multi-stage DCF analysis you performed in this case different from what you performed when you sponsored testimony on behalf of Staff?

A. While I was with Staff, the multi-stage DCF analysis I performed was more generic. For the first stage (first five years), I assumed that DPS would grow at the same rate as EPS. For the second stage (next five years), I assumed the growth in DPS would gradually

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converge toward the perpetual growth rate, which was the third and final stage of the multi-stage DCF.

The multi-stage DCF I have sponsored since the Ameren Missouri rate case, Case No. ER-2019-0335, has 3 stages, but the first stage discounts discrete consensus annual DPS estimates for as many years as they are available for each company. At the point in which no discrete DPS estimates are available, I apply an estimated dividend payout ratio to each company's projected EPS in order to estimate the dividend payment. Because the projected EPS are based on analysts' estimates for the first five years and then transitions to a sustainable growth rate by the final stage, this approach captures the influence of analysts' estimates on utility stock prices, while still discounting the appropriate metric, DPS. This method also corrects for the fact that the appropriate dividend payout ratio will vary until the company reaches a sustainable state in which it manages its dividend payout ratio to ensure it is not required to issue new equity, which would reduce the value of existing shares.

My current multi-stage DCF approach is more consistent with anticipated impacts on projected DPS caused by investment opportunities and dividend strategies consistent with these investment opportunities. Typically, companies will not increase DPS at the same rate as EPS, especially during periods of higher capital expenditures. In such situations, typically the growth in DPS will lag that of EPS. After the increased capital expenditure cycle ends, then DPS may grow at a rate higher than EPS for a period of time. During this period, companies will adjust their dividend payout ratios to consider their stage in the building cycle. After the building cycle returns to a maintenance level of capital expenditures, then the payout ratio will increase until the company reaches its sustainable/constant state. After a build-cycle, especially with no expected growth in usage, eventually the growth rate would revert back to no higher than historical averages. Because utilities earn a return on the book value of their investment, it is reasonable to assume water utility companies will target a dividend payout ratio that would allow for sufficient internal equity funding to sustain the expected perpetual growth rate.

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Q. If you had performed your multi-stage DCF analysis similar to how you did so when with Staff, what COE would you have estimated for American Water in this case?

A. My overall average COE estimate for the water peer group is 6.33% using the methodology I used when I was with Staff (Schedule DM-D-6). This compares to the 6.22% average for the water peer group based on the approach I used in this case (Schedule DM-D-2).

Using the method I used with Staff implies American Water's company-specific COE is 6.34% compared to the 6.24% company-specific COE implied using my new method.

Although there are only slight differences in the overall result, this is mainly because the water utility industry's current dividend payout ratios should not be that much different than the sustainable payout ratios in the future. Regardless, in order to ensure that earnings, dividends, and book value grow in equilibrium in the terminal stage, this is consistent with the assumptions of the constant-growth DCF and therefore should be used. Because it is clear that the COE is much lower than allowed ROEs, I do not consider it critical to narrow down the COE to a precise estimate.

Q. How do your current multi-stage COE estimates using the past Staff approach compare to the estimates provided in MAWC's rate cases since 2015?

A. My current COE estimate using the same approach I used with Staff is approximately 70 basis points lower than my estimate in MAWC's 2015 rate case, Case Number WR-2015-0301,[36] about the same as Staff's estimate in MAWC's 2017 rate case, Case Number WR-2017-0285,[37] and 10 basis points lower than my estimate in MAWC's 2020 rate case, Case Number WR-2020-0344.[38]

My American Water-specific COE estimate is about 75 basis points lower than my estimate in MAWC's 2015 rate case, 45 basis points lower than Staff's estimate in MAWC's 2017 rate case, and 20 basis points higher than my estimate in MAWC's 2020 rate case (this is

[36] I directly sponsored rate of return testimony in Case No. WR-2015-0301, on behalf of Staff.
[37] I supervised Staff's rate of return witness, Jeffrey Smith, in Case No. WR-2017-0285.
[38] I sponsored testimony on behalf of the Office of the Public Counsel in Case No. WR-2020-0344.

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consistent with the changes in American Water's dividend yields I showed earlier in my testimony).[39]

CAPM

Q. Did you use any other models to estimate American Water and the water peer group's cost of equity?

A. Yes, I used the capital asset pricing model ("CAPM"). The CAPM shows the specific impact of interest rates on the cost of capital. Although COE estimates can be manipulated with the CAPM by using unreasonable risk premium estimates, there are a variety of authoritative sources that provide equity risk premium estimates that can form the basis for a consensus view on a reasonable risk premium based on current capital market conditions.

Q. What is the underlying theory that supports the use of the CAPM to estimate the cost of equity for utilities?

A. The CAPM is based on capital market theory in which it is recognized that although the total risk of a company and/or industry consists of market ("systematic") risk and asset/business-specific ("unsystematic") risk, investors are only compensated for systematic risk because holding a diversified portfolio allows the investor to avoid unsystematic risk. Systematic risks are unanticipated events in the economy, such as economic growth, changes in interest rates, demographic changes, etc., that affect almost all assets to some degree. The required risk premium for incurring the market risk as it relates to the investment/portfolio is determined by adjusting the market risk premium by the beta of the stock or portfolio. The adjusted risk premium is then added to a risk-free rate to determine the cost of equity. The CAPM is typically expressed in equation form as follows:

[39] Staff Cost of Service Report, Case No. WR-2015-0301, Appendix 2, Schedule 15-1. Staff Cost of Service Report, Case No. WR-2017-0285, Appendix 2, Schedule 15-1.

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$K_e = Rf + \beta\ (RP_m)$

Where: K_e = the cost of equity for a security;
Rf = the risk-free rate;
β = beta;
RP_m = equity risk premium.

For purposes of my CAPM analysis, I relied on Kroll's (previously Duff & Phelps) recommended equity risk premium of 6% provided as of October 18, 2022,[40] a range of realized historical market risk premiums of 4.92% (geometric historical mean for 1926 through 2021) to 6.37% (arithmetic historical annual mean for the period 1926 through 2021) derived from data provided by Ibbotson Associates' Stocks, Bonds, Bills and Inflation database, and the fact that ** _____ _____ [41] ** Although each of these market risk premium estimates use various methods and risk-free rates to arrive at their final estimates, I do not consider any estimate outside these to be consistent with the investment community's "consensus."

Q. What does the beta represent in a CAPM analysis?

A. Beta is statistically defined as the covariance of the returns on an asset (in this case an individual stock or group of stocks) with the return on the S&P 500 divided by the variance of the returns on the S&P 500. This statistical measure is intended to provide investors with insight regarding expected volatility and returns as it relates to the market. A beta of less than one implies less expected volatility than the market with the trade-off of a lower expected return than the market. The reverse is expected for a beta greater than one.

Q. What beta do you consider appropriate to estimate a standard COE for the water utility industry based on current market conditions?

A. Approximately 0.75.

[40] https://www.kroll.com/-/media/cost-of-capital/kroll-us-erp-rf-table-2022.pdf
[41] MAWC's response to Staff Data Request No. 54.

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Q. Based on your CAPM analysis, what is the estimated COE for American Water and its peer group?

A. It is around 8% based on a range of 7.53% to 8.46% (see Schedules DM-D-7 through DM-D-9).

Q. How do your current CAPM COE estimates compare to your CAPM COE estimates in the 2020 rate case?

A. My current CAPM COE estimates of 7.53% to 8.46% are over 200 basis points higher than my CAPM COE estimates of 5.5% to 6.0% in MAWC's 2020 rate case, Case Number WR-2020-0344.

Q. Why does the CAPM imply the water utility industries' COE has increased this significantly since 2020?

A. Because the CAPM uses interest rates as a direct input in estimating the COE. Because the average betas for the water utility industry are currently fairly similar to those in the 2020 rate case, the higher implied COE estimates are almost entirely attributed to higher long-term risk-free rates.

RULE OF THUMB (BOND YIELD PLUS GENERIC RISK PREMIUM)

Q. Are there any other simple reasonableness tests to apply to COE estimates derived from more complicated methods?

A. Yes. A simple rule of thumb contained in the Chartered Financial Analyst ("CFA") Program curriculum is to estimate the COE by adding 3% to 4% as a risk premium to a company's own bond yield. This provides a fairly simple, but objective cost of equity. Being that the investment community views utility stocks as bond surrogates/substitutes, it is logical and reasonable to not add a risk premium any higher than 3% to the bond.

Simply adding a 3% risk premium to the YTM on American Water's publicly-traded bonds provides a reasonableness check on more detailed COE estimates. As shown in the chart

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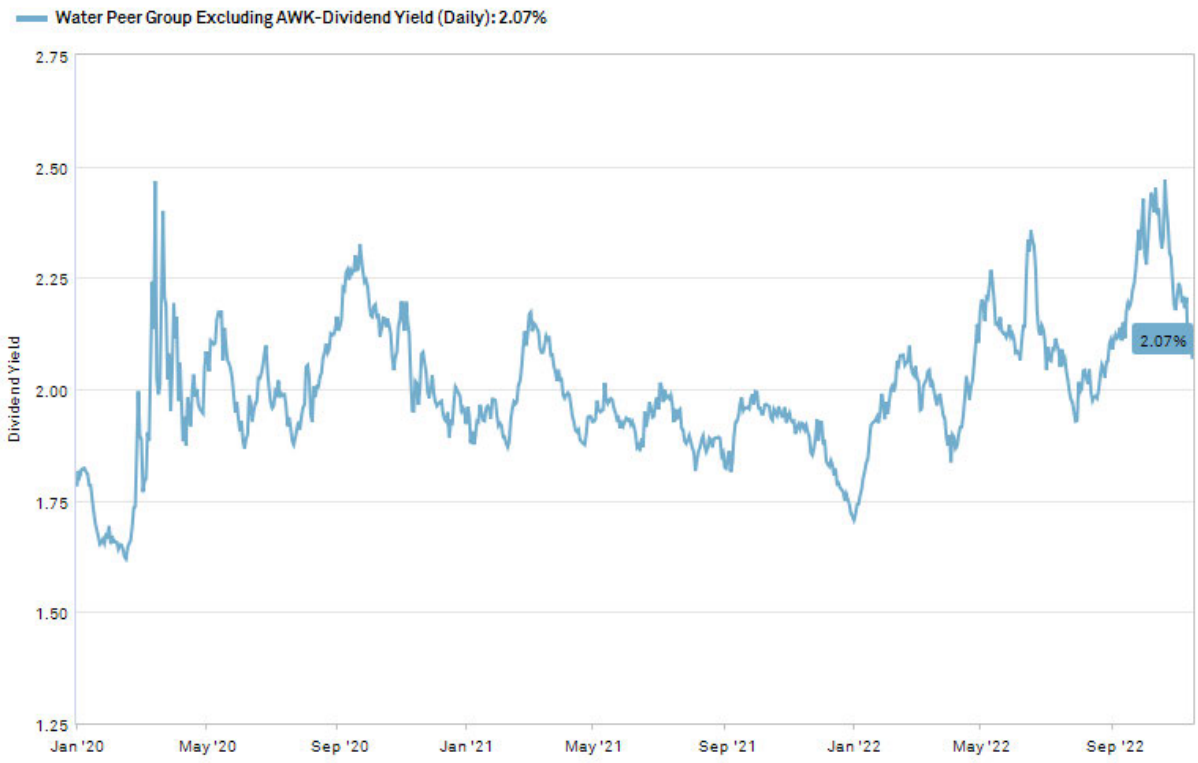
on page 22 of my testimony, American Water's long-term bonds have recently been trading at a YTM of approximately 5.75% to 6%. Adding 3% to represent the risk premium suggests that American Water's COE is roughly 8.75% to 9.0%, which is even higher than my CAPM results. The "rule of thumb" results imply that American Water's COE has increased by 300 basis points since the 2020 rate case.

Q. What do changes in the water utility companies' dividend yields imply about the reliability of the current bond yield plus risk premium estimates?

A. They are overestimating changes in the COE. The below graph shows changes in all of the water utility companies' dividend yields since 2020:



Even at a recent peak of around 2.4% in late September to early October of 2022 the maximum potential increase in the water utility industry's COE is approximately 30 to 40 basis points since late summer/early fall of 2020. After factoring in the recent decline in

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water utility dividend yields to around 2.1%, the spread between average recent dividend yields to those in late summer/early fall of 2020 is closer to around 20 basis points.

RECOMMENDED AUTHORIZED ROE

Q. Based on your analysis and understanding of the utility industry's current COE, investor expectations on allowed ROEs and the COE for water utilities compared to electric utilities, what would be a fair and reasonable allowed ROE in this case?

A. 8.4% to 9.25%. I recommend a 9.0% authorized ROE within this range due to the fact that water utility stocks trade at much higher P/E ratios than electric and gas utilities, justifying lower authorized ROEs. Because my DCF COE estimates for the water utility industry imply a lower COE than for the electric and gas utility industries, a comparatively lower authorized ROE is justified. However, as I will explain in further detail in the following sections of my testimony, American Water's strategy of using affiliate debt financing from American Water Capital Corporation ("AWCC"), to contribute equity to its subsidiaries, including MAWC, allows it to earn an even larger margin over its cost of capital. Therefore, even if the Commission chooses to authorize an ROE of 9.25%, as long as this ROE is applied to the lower common equity ratio consistent with MAWC's debt capacity, I would consider this a reasonable outcome.

CAPITAL STRUCTURE

Q. Will you briefly explain capital structure?

A. Capital structure represents how a company finances its assets. The typical capital structure consists of common equity, long-term debt, and short-term debt. Some utilities' capital structures may also include a small portion of preferred stock, but this has become rare in recent years. Although short-term debt is a consistent component of a utility company's capital structure, if the balances of short-term debt are fairly consistent or below construction work in progress ("CWIP") balances, then it is fair to exclude short-term debt from the rate making capital structure. This is due to the expectation that the short-term debt and its corresponding rates are used to calculate the allowance for funds used during

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construction ("AFUDC") capitalization rate. Based on my review of MAWC's calculations of AFUDC rates since the effective date of rates from MAWC's 2020 rate case, all short-term debt is being captured in the AFUDC rate charged to MAWC's ratepayers.

Q. What capital structure do you recommend for purposes of setting MAWC's ROR?

A. I recommend a capital structure that consists of approximately 40.45% common equity and 59.55% long-term debt (Schedule DM-D-10). The ratios in my capital structure recommendation are consistent with the proportion of debt capacity MAWC's assets support, as demonstrated by American Water's actual capital structure ratios in recent years.

Q. What is the basis for your capital structure recommendation?

A. My recommended capital structure is consistent with American Water's average quarterly consolidated capital structure, net of short-term debt, for the period June 30, 2021 through June 30, 2022 (see Schedule DM-D-11). This capital structure best represents the amount of debt capacity American Water considers reasonable and appropriate for its regulated utility assets, including those of MAWC. Use of this capital structure ensures that MAWC's ratepayers receive credit for their contribution to American Water's debt capacity, which is much higher than that reflected on MAWC's internally-managed balance sheet. Investors recognize that American Water has been able to take advantage of very low debt capital costs by issuing significant amounts of debt through its financing subsidiary, AWCC.[42] Although American Water provides most of the debt capital it raises through AWCC at cost to its subsidiaries, including MAWC, approximately 29% of this debt is loaned to American Water, which then uses this debt capital to purchase equity in its subsidiaries. Due to the fact that equity capital is allowed a much higher return than the cost of the debt capital used to purchase subsidiary equity, this allows American Water to achieve a much higher ROR than its cost of capital. American Water's strategy of not

[42] Richard W. Sunderland, et. al., "American Water Works Company Inc.: Model Update," JP Morgan, September 30, 2020, p. 3.

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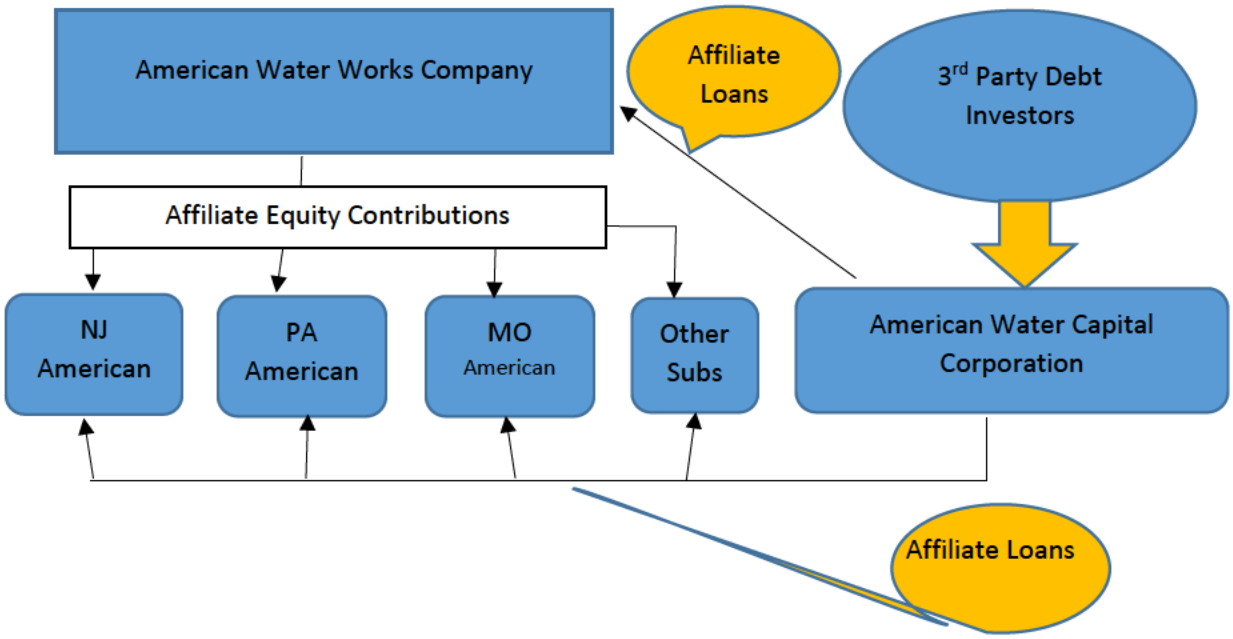
issuing third-party equity to fund its subsidiary equity investments has allowed it to avoid making a public offering of equity for approximately the last twelve years.

Q. Can you provide a graphical illustration of American Water's strategy as it relates to using funds borrowed from AWCC to manage its subsidiaries' per books capital structures?

A. Yes. The following helps with understanding American Water's financing strategy using its financing subsidiary, AWCC:



Q. Does MAWC's capital structure exhibit the same characteristics as Missouri's other major utility subsidiaries, such as Spire Missouri, Ameren Missouri, Evergy Metro and Evergy Missouri West?

A. No. MAWC does not issue its own long-term debt, short-term debt or common equity directly to third-parties. Therefore, there is no commercial benefit to rating MAWC's debt since it mainly represents affiliate loans from AWCC. AWCC issues long-term and short-term debt directly to third-parties on behalf of American Water and its subsidiaries. AWCC's credit rating and cost of debt is based on American Water' consolidated credit profile, which includes the business risk of its regulated utility subsidiaries and the total

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amount of debt it issues to finance the subsidiaries (whether it is through direct affiliate loans or indirect investment through loans to American Water to purchase equity in its subsidiaries). Because American Water's subsidiaries are financed by affiliate loans from AWCC, which are backed by American Water's creditworthiness, parental guarantees have no meaning under this arrangement.

Q. What capital structure reflects the debt capacity of American Water's regulated utility subsidiaries' low-risk regulated utility assets?

A. American Water's capital structure on a consolidated basis. In recent years, American Water has become even more aggressive with its use of leverage (i.e. debt) at the consolidated level. However, at the same time, American Water has reduced the amount of leverage shown on MAWC's balance sheet via the intercompany loans made to it from AWCC. At the very least, it would be reasonable for MAWC's capital structure to reflect a similar proportional increase in leverage at the American Water level, especially considering the fact that American Water's Moody's credit rating was downgraded in 2019 due to its increased use of leverage. The widening divergence between American Water's actual use of leverage and that potentially reflected in MAWC's requested ratemaking capital structure will simply allow American Water to earn an even larger margin over its cost of capital from MAWC's ratepayers.

Over the last ten years, based on year-end capital structures, American Water has reduced the targeted common equity ratio in its capital structure to the 40% to 41% range for the most recent five years as compared to 45% to 47% range for the prior five years. However, over the same period, based on year-end capital structures, MAWC's common equity ratio has increased to the 51% to 52% range from the 50% to 51% range (*see* Schedule DM-D-12).

Q. What common equity ratios has MAWC requested in its ratemaking capital structure over the last three cases?

A. In Case No. WR-2020-0344, MAWC requested a common equity ratio of 53%. In Case No. WR-2017-0285, MAWC requested a common equity ratio of 51.03%. In Case No. WR-2015-0301, MAWC requested a common equity ratio of 52.37%.

Q. What common equity ratio is reflected in MAWC's capital structure (excluding short-term debt) as of the test year in this case?

A. 50.16% as of June 30, 2022.

Q. How does American Water determine the equity ratios it targets for its operating subsidiaries?

A. As shown in Schedule DM-D-13, American Water ** _____ _____ _____ **

Q. Has the Commission ** _____ ** for MAWC?

A. No.

Q. Is American Water's financing strategy an abuse of MAWC's affiliation with its parent company?

A. Yes. American Water's embedded cost of debt on a stand-alone basis was 3.78% as of June 30, 2022. American Water used the proceeds from these debt issuances to purchase equity in MAWC. If American Water is authorized an ROE of 9.00% based on a 50.16% equity ratio compared to the 40.45% it actually has invested in its subsidiaries, this would allow American Water to earn a 5.22% (9.0 - 3.78) margin over its cost. After considering the tax deduction American Water takes for the interest expense at the holding company, it generates a margin of 8.19% ((9.00*1.33) – 3.78) for its equity investors.

Q. How much additional revenue requirement would this generate for American Water's shareholders?

A. Based on MAWC's estimated rate base of $2.094 billion at June 30, 2020, if American Water is allowed to charge MAWC for a cost of capital higher than its cost of borrowed funds, then this generates an additional $20.77 million/year for shareholders through a higher revenue requirement.

Q. Has American Water's credit rating been downgraded due to its more aggressive use of leverage in recent years?

A. Yes. Moody's downgraded American Water's credit rating from 'A3' to 'Baa1' on April 1, 2019, stating the following:

> The financial profile of the company has steadily declined since 2014 with free cash flow deficits and debt issuance having outpaced cash flow growth, as the company took on nearly $6.5 billion of capital spending. For example, free cash flow deficits have grown at a compound annual growth rate (CAGR) of around 62%, debt has grown at over 9% CAGR and [funds from operations ("FFO")] at roughly a 6% CAGR. For most of this time, the company was benefitting from bonus depreciation, which resulted in no cash tax payments. However, 2017 federal tax reform undid these benefits, which has also contributed in key ratios declining, such as funds from operations (FFO) to net debt dropping from 18% in 2014 to 16% in 2018 and retained cash flow (RCF) to net debt falling from 15% in 2014 to just above 12% in 2018.

Q. What have American Water's FFO/debt ratios been recently?

A. They have been around a 13% to 14% range during the last couple of years.[43]

Q. What are they expected to be for the next few years?

A. Around 12% to 13%.[44]

[43] Sloan Millman and Obioma Ugboaja, "American Water Works Co. Inc.," S&P Global Ratings, July 25, 2022.
[44] *Id.,* and Ryan Wobbrock, et. al., "American Water Works Company, Inc.," Moody's Investors Service, November 9, 2021.

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Q. What have MAWC's FFO/debt ratios been during the last three years?

A. They have been in the range of 19.1% to 20.3%.

Q. What are they expected to be in future years?

A. I do not know, but this mainly depends on the ratemaking parameters allowed in this case, with specific focus on the allowed ROR.

Q. How much lower would MAWC's FFO be if the Commission adopted your more leveraged capital structure recommendation as compared to MAWC's per books capital structure?

A. It would be approximately $20.77 million lower. This difference also incorporates my recommended lower cost of debt, but holds the allowed ROE constant.

Q. Would this reduced FFO cause MAWC's FFO/debt ratio to fall below those currently being targeted at American Water?

A. No.

Q. Is it fair to MAWC ratepayers to ask them to pay for a higher-cost capital structure than American Water considers appropriate for managing its market-based consolidated capital structure?

A. No. It is the lower risk profile of American Water's regulated utility subsidiaries that allow it to access significant amounts of debt at low costs and still be able to maintain a solid investment-grade credit rating. While American Water has consistently been charging MAWC for a more equity-rich capital structure than it considers appropriate for raising third-party capital, the fact that American Water is increasing the discrepancy between the leverage it uses in its capital structure as compared to that which it reflects in MAWC's ratemaking capital structure, is particularly egregious because it is the low business-risk associated with American Water's regulated water utility subsidiaries that allow it to do so.

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Q. Do rating agencies typically allow water utility companies to carry more leverage due to the lower business risk associated with water utility assets?

A. Yes. Rating agencies, such as S&P Global Ratings, allow the water utility industry to carry more leverage due to applying less stringent credit metrics as it relates to financial risk. S&P Global Ratings applies "low volatility" benchmarks to the water utility industry as compared to "medial volatility" benchmarks to the electric utility industry. For example, S&P allows water utility companies to have funds from operations-to-debt (FFO/debt) ratios of as low 9% to 13% and still maintain an 'A' credit rating. However, most integrated electric utility companies have to achieve FFO/debt ratios of 13% to 23% in order to maintain an 'A' credit rating. Therefore, while it may be reasonable to authorize an ROE for MAWC that is similar to other Missouri utilities, this only holds true if the ROE is applied to a much lower common equity ratio.

Q. What is your recommended cost of debt in this case?

A. My recommended cost of debt is 4.06%. My cost of debt recommendation is based on an assignment of 97.42% weight to AWCC's embedded cost of debt of 4.02% and 2.58% weight to the 5.66% embedded cost of MAWC's four 3rd party debt issuances. These debt issuances include MAWC's recent loan from the State Revolving Fund as well as three debt issuances from the 1990s. I applied the 4.06% embedded cost of debt to the 59.55% debt capitalization ratio in my recommended capital structure.[45]

Q. What does MAWC claim as its embedded cost of debt as of the update period in this case?

A. 4.50%.

Q. Has American Water communicated to investors its targeted common equity ratio?

A. Yes. The very fact that American Water's recent balance sheets shows it has consistently maintained an equity ratio of approximately 40% provides such communication. However,

[45] I relied on information MAWC provided in response to Staff DR No. 41 and in response to OPC DR No. 3008.

in reviewing various rating agency and equity analysts' reports, it is clear that American Water considers this amount of financial risk to be compatible with the lower amount of business risk of its regulated utility subsidiaries, including MAWC.[46]

Q. How can the Commission determine an equitable, market-tested and objective capital structure that more closely captures the amount of debt capacity that is consistent with MAWC's business risks?

A. The Commission can more closely capture debt capacity consistent with MAWC's business risks by authorizing capital structure ratios consistent with American Water's consolidated capital structure.

SUMMARY AND CONCLUSIONS

Q. Can you summarize your main conclusions and views as it relates to an authorized ROR in this case?

A. Yes. I recommend an ROE of 9% be applied to a 40.45% common equity ratio for purposes of setting MAWC's authorized ROR. My cost of debt recommendation of 4.06% properly considers all debt issued by AWCC, which captures a market-based portfolio of third-party debt issuances rather than internally-assigned debt to MAWC.

While there is significant evidence that suggests that American Water's water utility subsidiaries, including MAWC, have lower business risk than that of electric and gas utilities, American Water largely offsets these lower business risks by incurring more financial risk (i.e. the use of debt). However, American Water does not directly loan all the debt it issues through AWCC to its operating subsidiaries. Instead, AWCC makes affiliate loans to American Water, which in turn infuses these funds in its subsidiaries as equity capital. Although the affiliate transaction rules do not apply to water utility companies, this affiliate financing transaction is an attempt by American Water to charge MAWC an equity return on much lower costs associated with American Water's arms-

[46] Durgesh Chopra, et. al, "American Water Works Company – Speed Bump On The High Road," Evercore ISI, December 11, 2019

length debt financing transactions. The Commission can protect MAWC's ratepayers from this unfair and unreasonable financing practice by appropriately setting MAWC's ratemaking capital structure consistent with American Water's targeted common equity ratio of approximately 40%.

While it is true that bond yields have increased dramatically since the beginning of 2022, utility valuation ratios have not responded in kind. In fact, water utility, and specifically American Water's, P/E ratios are much higher than the last time bond yields were at this level in 2010. These higher valuation ratios demonstrate that while long-term yields have increased, apparently investors are placing a premium on the inflation protection offered by utility stocks as compared to bonds. In fact, water utility stocks have been trading at a significant relative premium to electric and gas utilities, which justifies a lower authorized ROE than the Commission's authorized ROE of 9.37% for Spire Missouri and 9.25% for Empire.

Q. Does this conclude your testimony?

A. Yes.

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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of	)	
Missouri-American Water Company's	)	
Request for Authority to Implement	)	Case No. WR-2022-0303
General Rate Increase for Water and Sewer	)	
Service Provided in Missouri Service Areas	)	

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

David Murray, of lawful age and being first duly sworn, deposes and states:

1. My name is David Murray. I am a Utility Regulatory Manager for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

David Murray
Utility Regulatory Manager

Subscribed and sworn to me this 22nd day of November 2022.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

TIFFANY HILDEBRAND
My Commission Expires
August 8, 2023
Cole County
Commission #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2023.