

Exhibit No.: \_\_\_\_\_  
Issues: Return on Equity, Cost of Debt,  
Capital Structure  
Witness: John Cochrane  
Type of Exhibit: Direct Testimony  
Sponsoring Party: Liberty Utilities  
(Missouri Water) LLC d/b/a Liberty  
Case Nos.: WR-2024-0104 and  
SR-2024-0105  
Date Testimony Prepared: March 2024

**Before the Public Service Commission  
of the State of Missouri**

**Direct Testimony**

**of**

**John Cochrane**

**on behalf of**

**Liberty Utilities (Missouri Water) LLC d/b/a Liberty**

**March 13, 2024**



TABLE OF CONTENTS  
FOR THE DIRECT TESTIMONY OF JOHN COCHRANE  
LIBERTY UTILITIES (MISSOURI WATER) LLC D/B/A LIBERTY  
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION  
CASE NOS. WR-2024-0104 and SR-2024-0105

<b>SUBJECT</b>	<b>PAGE</b>
I. INTRODUCTION.....	1
II. PURPOSE AND OVERVIEW OF TESTIMONY .....	3
III. REGULATORY PRINCIPLES .....	6
IV. PROXY GROUP SELECTION.....	7
V. COST OF EQUITY ANALYSIS.....	9
a. Constant Growth DCF Model.....	10
b. Capital Asset Pricing Model .....	14
c. Bond Yield Plus Risk Premium Model.....	18
d. Adjustment for Flotation Costs.....	22
VI. EXPECTED EARNINGS ANALYSIS.....	26
VII. ADDITIONAL CONSIDERATIONS .....	27
a. Small Size Premium.....	27
VIII. CAPITAL STRUCTURE.....	29
IX. COST OF DEBT .....	32
X. CONCLUSIONS AND RECOMMENDATIONS.....	32

DIRECT TESTIMONY OF JOHN COCHRANE  
LIBERTY UTILITIES (MISSOURI WATER) LLC D/B/A LIBERTY  
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION  
CASE NOS. WR-2024-0104 and SR-2024-0105

1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is John Cochrane. My business address is 200 State Street, 9<sup>th</sup> Floor, Boston,  
4 Massachusetts.

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

6 A. I am a Senior Managing Director in the Power, Renewables & Utilities practice at FTI  
7 Consulting, Inc. (“FTI”).

8 **Q. Please describe FTI and its Power, Renewable & Utilities practice.**

9 A. FTI is a worldwide consulting firm dedicated to helping organizations manage change,  
10 mitigate risk, and resolve disputes. Our Power, Renewables & Utilities practice brings  
11 these services to firms in regulated and competitive energy industries including  
12 regulatory services and utility ratemaking, support for strategic decision-making, and  
13 advice regarding investments and capital allocation. Our team is comprised of former  
14 utility executives, regulators, investment bankers, and financial analysts that combine  
15 for hundreds of years of experience in the regulated energy space.

16 **Q. On whose behalf are you testifying in this proceeding?**

17 A. I am testifying on behalf of Liberty Utilities (Missouri Water) LLC d/b/a Liberty  
18 (“Missouri Water” or the “Company”).

19 **Q. Please describe your educational and professional background.**

20 A. I have more than 40 years of experience in utility finance. Prior to joining FTI, I held  
21 senior executive positions at National Grid plc, where I was most recently Executive

1 Vice President of Global Mergers & Acquisitions and Business Development. Prior to  
2 holding that position, I was Executive Vice President, Chief Financial Officer, and  
3 Treasurer for National Grid’s U.S. business. In addition to all traditional finance and  
4 accounting responsibilities I have overseen regulatory, energy supply and many other  
5 functions. I also serve or have served as a member of the Board of Directors of several  
6 utilities and other companies in the energy sector. I hold a Bachelor of Arts degree in  
7 Biology from Harvard University and an MBA from Northeastern University.

8 **Q. Have you previously testified before the Missouri Commerce Commission (the**  
9 **“Commission”) or any other regulatory agency?**

10 A. Yes, I have previously submitted testimony on behalf of The Empire District Electric  
11 Company (“Empire Electric”) in Case No. ER-2019-0374 and Liberty Utilities  
12 (Midstates Natural Gas) Corp. in Case No. GR-2024-0106. In addition, I have testified  
13 on behalf of subsidiaries of Liberty Utilities Co. on a number of occasions in other  
14 states. A full list of the proceedings in which I have testified as of the date of my pre-  
15 filed testimony is provided in **Direct Schedule JC-1**.

16 **Q. What Direct Schedules are you sponsoring?**

17 A. I am sponsoring the following Direct Schedules:

<b>Direct Schedule</b>	<b>Title</b>
JC-1	Resume of John Cochrane
JC-2	Summary of Results
JC-3	Proxy Group Selection Criteria
JC-4	Constant Growth DCF Model
JC-5	Proxy Group

JC-6	Required Market Return Calculations
JC-7	CAPM Results
JC-8	Bond Yield Plus Risk Premium Results
JC-9	Flotation Cost Results
JC-10	Expected Earnings Analysis
JC-11	Small Size Premium
JC-12	Proxy Group Capital Structure
JC-13	Comparison of CWIP to Short-Term Debt for Proxy Group
JC-14	Weighted Average Cost of Capital
JC-15	Weighted Average Cost of Debt
JC-16	Algonquin Power & Utilities Co. Capital Structure
JC-17	Liberty Utilities Co. Capital Structure

1 **II. PURPOSE AND OVERVIEW OF TESTIMONY**

2 **Q. What is the purpose of your direct testimony?**

3 A. The purpose of my testimony is to provide recommendations regarding (i) the Return  
4 on Equity (“ROE”) that the Company should be allowed to recover through its rates;  
5 and (ii) the Company’s cost of debt and capital structure that should be used for  
6 ratemaking purposes.

7 **Q. Please summarize your recommendations.**

8 A. Based on the analyses that I describe in this testimony, I conclude that the reasonable  
9 range within which the Commission should authorize Missouri Water’s ROE is  
10 between 10.19% and 10.94%. I also conclude a capital structure of 52.6% common  
11 equity and 47.4% long-term debt at a cost of 5.04% is reasonable for this case.

1 **Q. Please summarize how you reached your recommendation regarding ROE.**

2 A. My recommendations regarding the reasonable range of ROE are based on quantitative  
3 and qualitative analyses I undertook utilizing analytical approaches that are widely  
4 accepted for estimating a utility's cost of capital in Missouri<sup>1</sup> and elsewhere. I used  
5 three different methods to develop my recommendation. First, I used a Constant  
6 Growth Cash Flow ("DCF"). Next, I utilized the Capital Asset Pricing Model  
7 ("CAPM"). And lastly, I used the Bond Yield Plus Risk Premium Model ("RPM"). I  
8 then undertook a quantitative analysis to adjust that range to account for the costs that  
9 Missouri Water's ultimate parent company would incur in the issuance of new equity  
10 capital. Based on the results developed from each, I estimated a reasonable range of  
11 ROEs for the Company of 10.19% and 10.94%.

12 **Q. What Return on Equity is the Company requesting in this case?**

13 A. The Company requests a 10.62% ROE, which is the midpoint of my reasonable range.

14 **Q. How did you reach your recommendation regarding capital structure and long-**  
15 **term debt cost?**

16 A. A capital structure of 52.6% common equity and 47.4% long-term debt is reasonable  
17 and consistent with Missouri Water's Proxy Group on a historical basis and also  
18 forward investor expectations. My capital structure recommendation does not contain  
19 an allowance for short-term debt/money pool borrowings. I will further elaborate on  
20 the appropriateness of the capital structure later in my testimony. The Company  
21 currently has \$5,715,000 of long-term debt outstanding. The Company filed an  
22 Application with the Commission for approval to issue up to \$30 million of long-term

---

<sup>1</sup> Missouri Public Service Commission Order, Confluence Rivers, Case No. WR-2023-0006.

1 indebtedness on October 13, 2023, in File No. WF-2024-0135.<sup>2</sup> That application was  
2 approved on February 29, 2024, effective March 30, 2024. My recommended cost of  
3 debt is 5.04% based on **Direct Schedule JC-15**.

4 **Q. What would be the Company's authorized Rate of Return if your**  
5 **recommendations are accepted?**

6 A. If my recommendations are accepted, the Company's authorized rate of return would  
7 be 7.98%, based on **Direct Schedule JC-14**.

8 **Q. How is the remainder of your testimony organized?**

9 A. The remainder of my testimony is organized as follows:

- 10 • Section III describes the key regulatory principles underlying the estimation of the  
11 cost of capital for a regulated utility;
- 12 • Section IV describes the selection and composition of the Proxy Group I used to  
13 conduct the analyses that underlies my testimony;
- 14 • Section V details the analyses I undertook to estimate Missouri Water's cost of  
15 common equity;
- 16 • Section VI details my Expected Earnings analysis which provides support for my  
17 cost of common equity results;
- 18 • Section VII covers additional considerations regarding size premium adjustment  
19 for cost of common equity given the Company's small size and also Capital  
20 expenditure risk;
- 21 • Section VIII discusses my findings regarding the Company's proposed debt and  
22 common equity capital structure components;

---

<sup>2</sup> *In the Matter of the Application of Liberty Utilities (Missouri Water) LLC's Application for Authority to Issue Long Term Unsecured Debt*, File No. WF-2024-0135.

- 1           • Section IX discusses my findings regarding the Company’s proposed cost of debt;  
2           and  
3           • Section X summarizes my conclusions and recommendations.

4 **III. REGULATORY PRINCIPLES**

5 **Q. Please describe the guiding principles relevant to determining an appropriate**  
6 **ROE authorization for a regulated utility.**

7 A. The United States Supreme Court established standards for determining the  
8 reasonableness of a utility’s allowed ROE in *Bluefield Water Works and Improvement*  
9 *Co. v. Public Service Commission of Virginia (“Bluefield”)* and *Federal Power*  
10 *Commission v. Hope Natural Gas Co (“Hope”).*<sup>3</sup> In those proceedings, the Court  
11 established that a regulated utility’s ROE should be sufficient to attract capital and  
12 support the company’s credit quality and that the ROE should be consistent with returns  
13 investors would require in making investments of similar risk.

14 **Q. How are the *Hope* and *Bluefield* standards relevant to this proceeding?**

15 A. The Company, like any utility, must be able to attract capital at competitive rates in  
16 order to maintain a safe and reliable system for service to its customers. To do so, it  
17 must be able to offer investors returns that are commensurate with those available from  
18 other investments whose level of risk is similar. ROE, therefore, is an important part of  
19 this proceeding, wherein the Commission will authorize an ROE high enough to allow  
20 the Company to compete for capital, which will, in turn, serve as an important  
21 determinant of the Company’s revenue requirement, from which its retail rates are  
22 calculated.

---

<sup>3</sup> *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923); *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).



1 **Q. Would you say that the methods you used are consistent with the Commission’s**  
2 **guidance and with approaches used in other, recent proceedings?**

3 A. Yes.

4 **IV. PROXY GROUP SELECTION**

5 **Q. Please summarize this section of your testimony.**

6 A. In this section, I describe how I selected the Proxy Group of water utilities I analyzed  
7 to estimate the Company’s ROE.

8 **Q. Please briefly describe Missouri Water.**

9 A. Missouri Water serves small rural communities in Southeast, Southwest and East  
10 Central Missouri. In total Missouri Water owns and operates 25 water systems and 9  
11 wastewater systems. The Company is a subsidiary of Liberty Utilities Co. (“LUCo”),  
12 which is the parent company for all regulated utility investments in the United States  
13 for Algonquin Power & Utilities Corp. (“AQN”), LUCo’s ultimate parent company.  
14 AQN is headquartered in Ontario, Canada.

15 **Q. Why is the use of proxy companies necessary?**

16 A. The Company’s cost of equity cannot be directly observed because it is not a publicly  
17 traded entity. It is therefore necessary to compile a Proxy Group of comparable,  
18 publicly traded firms whose finances can be analyzed and from which inferences about  
19 the Company’s ROE can be drawn.

20 **Q. How did you select the companies for analysis?**

21 A. I have developed a Proxy Group which I believe is representative of the risks of  
22 Missouri Water. To do so, I compiled a list of the ten water utility companies for which  
23 financial information is tracked and reported by Value Line, Inc. (“Value Line”), a  
24 financial research firm whose data has been used for this purpose on numerous

1 occasions before the Commission and in other jurisdictions. Of these, I eliminated five  
2 from further consideration based on a set of screening criteria which are intended to  
3 identify companies whose financial position or lack of data make them inappropriate  
4 proxies for the Company.

5 **Q. What screening criteria did you use?**

6 A. Companies were included if all of the following criteria were true:

- 7 • They received at least 60% of their operating income or net income from regulated  
8 water utility operations;
- 9 • They had investment-grade issuer ratings from either Standard & Poor's ("S&P")  
10 or Moody's;
- 11 • They paid dividends, with no cuts, in every quarter since 2019;
- 12 • They were covered by an analyst from at least two of the following sources: Value  
13 Line, Zack's, or Yahoo Finance;
- 14 • They had positive earnings growth estimates from at least two of the following  
15 sources: Value Line, Zack's, or Yahoo Finance; and
- 16 • They had not been part of a significant transaction within the past six months.

17 **Q. Have similar criteria been used to select Proxy Group companies in past  
18 proceedings before the Commission?**

19 A. Yes, the criteria I used to select Proxy Group companies are similar to those used in  
20 recent water utility proceedings before the Commission related to utility ROE.<sup>4</sup>

21 **Q. Did you deviate from these criteria?**

22 A. No.

23 **Q. Please list the companies in your Proxy Group.**

---

<sup>4</sup> Missouri Public Service Commission Order, Confluence Rivers, Case No. WR-2023-0006.

1 A. Each of the companies shown in Table 1 below are members of my Proxy Group:

2 **Table 1: Proxy Group Companies**

<b>Company Name</b>	<b>Stock Ticker</b>
American Water Works	AWK
American States Water	AWR
California Water	CWT
Middlesex Water	MSEX
SJW Group	SJW
Essential Utilities	WTRG

3 **V. COST OF EQUITY ANALYSIS**

4 **Q. Please explain the relevance of a regulated utility's ROE in the context of setting**  
5 **retail water and wastewater rates.**

6 A. Utilities are allowed to earn a return on the capital investments they make to provide  
7 for safe and reliable operation of their water distribution and wastewater systems.  
8 Those returns contribute to the utility's cost of service, which are recovered through  
9 rates approved by the Commission. Regulators authorize the rate of return that utilities  
10 are allowed to earn on their investments based on the weighted average cost of debt  
11 and cost of equity for investments made, which permits the utility to continue to attract  
12 the capital required to provide safe and reliable utility service.

13 **Q. How is a regulated utility's ROE typically estimated?**

14 A. While a utility's cost of debt can generally be observed directly from market rates paid  
15 for newly issued debt, the cost of equity must be estimated using market-based  
16 information. For reasons I describe above, the generally accepted approach to doing so  
17 – and the one that the Commission has indicated as being appropriate – is to select a  
18 Proxy Group of utility companies with similar risk and operating profiles and use their  
19 financial information to develop the estimate.

1 **Q. Which methods did you utilize to estimate Missouri Water’s ROE?**

2 A. I utilized three different methods to analyze the Proxy Group and estimate the  
3 Company’s ROE: the Constant Growth DCF, the CAPM, and the RPM. I used the  
4 results from each to establish a preliminary range of reasonable ROEs. I then adjusted  
5 that range to account for the costs that Missouri Water’s ultimate parent incurs when  
6 issuing new common equity to fund investments in its subsidiaries.

7 **Q. Does the use of multiple methods afford any additional benefits?**

8 A. Yes. Since the models rely on different data inputs and assumptions, using more than  
9 one model reduces the potential for some anomalous market result or transient market  
10 condition to have an undue influence of results.

11 **a. Constant Growth DCF Model**

12 **Q. Please describe the Constant DCF approach.**

13 A. The Constant Growth DCF method of estimating a utility’s ROE is based on the theory  
14 that a company’s stock price represents the Present Value (“PV”) of all future dividend  
15 payments. Dividend payments are assumed to continue at their current level in  
16 perpetuity and stock prices can be observed in the market. The discount rate implied  
17 by the dividends and the current stock price is equal to the company’s cost of equity.

18 Thus, the theory holds that a company’s stock price is equal to the following:

19 
$$P_0 = \frac{D}{ROE - g}$$

20 where P<sub>0</sub> is the current stock price, D is the current dividend, ROE is equal to the  
21 discount rate required to yield the observable stock price given expected dividends, and  
22 g is the expected growth rate in dividends. By restating the same equation, ROE can be  
23 expressed as:

1 
$$ROE = \frac{D}{P_0} + g$$

2 **Q. Please summarize your approach to estimating ROE using the Constant Growth**  
3 **DCF method.**

4 A. The Constant Growth DCF method relies on the assumption that a company’s dividend  
5 payments, earnings, and book value will grow at a constant rate, and that its current  
6 cost of equity, its dividend payout ratio, the ratio between a company’s total dividend  
7 payments to its net income, and its Price-Earnings Ratio (“PE Ratio”), which is the  
8 ratio of its stock price to its earnings, will all remain constant. The Constant Growth  
9 DCF method also requires a discount rate that is greater than the expected earnings  
10 growth rate. Assuming that each of these assumptions hold true, I calculated the ROE  
11 for each of the companies in the Proxy Group using publicly available data for stock  
12 prices and analyst estimates of earnings growth. The ROE estimate for Missouri Water  
13 is based on the average of the ROE estimates for each Proxy Group company. Low,  
14 Mid, and High estimates are developed based on which growth estimates are used, as I  
15 describe in detail below.

16 **Q. Please explain the stock price data you used in your calculations.**

17 A. Rather than relying on a single stock closing price, I averaged the closing stock prices  
18 over three periods: 30, 90, and 180 days. The periods I used for each calculation are  
19 shown in Table 2 below:

**Table 2: Stock Price Averaging Periods**

<b>Averaging Period</b>	<b>Start Date</b>	<b>End Date</b>
30-day	December 12, 2023	January 11, 2024
90-day	October 13, 2023	January 11, 2024
180-day	July 15, 2023	January 11, 2024

1 **Q. Why did you use different averaging periods?**

2 A. I used different averaging periods to reduce any bias that could be introduced by  
3 anomalous market conditions if the stock price were based on the results of a single  
4 day. Utility stock prices move inversely to interest rates based on the high percentage  
5 of net income they pay out as dividends. Interest rates move up and down daily based  
6 on numerous factors. In addition, major domestic and international events occur  
7 frequently which also adds to stock market volatility. These factors and others create  
8 the anomalous conditions that require longer and different averaging periods.

9 **Q. Did you make any adjustments to the dividend yield?**

10 A. Yes, I made adjustments to the dividend yield to account for the fact that dividends are  
11 paid on a quarterly basis and may be increased at different times, I have adjusted the  
12 dividend yield by one-half of the expected long-term growth rate. This adjustment has  
13 been common practice in many jurisdictions. For example, the Federal Energy  
14 Regulatory Commission has observed:

15 For ratemaking purposes, the Commission rearranges the DCF formula  
16 to solve for “k”, the discount rate, which represents the rate of return  
17 that investors require to invest in a company’s common stock, and then  
18 multiplies the dividend yield by the express  $(1 + .5g)$  to account for the  
19 fact that dividends are paid on a quarterly basis. Multiplying the  
20 dividend yield by  $(1 + .5g)$  increases the dividend yield by one half of  
21 the growth rate and produces what the Commission refers to as the  
22 “adjusted dividend yield.”<sup>5</sup>

23

24 **Q. Please identify the source of the growth expectations assumptions you used in**  
25 **your calculations.**

26 A. For each company in the Proxy Group, I used the latest earnings growth estimates as  
27 reported by Value Line, Zacks, and Yahoo Finance. Each of those sources is widely

---

<sup>5</sup> Opinion No. 531, 147 FERC ¶ 61,234 at p. 9.

1 used for this purpose in recent water and wastewater utility regulatory proceedings  
2 before the Commission<sup>6</sup> and in other jurisdictions.

3 **Q. Please describe the results of your analysis using the Constant Growth DCF**  
4 **method.**

5 A. Using the stock prices from each of the three averaging periods, I developed three ROE  
6 estimates, which vary by the earnings growth estimate on which it relies. My Mid ROE  
7 calculation is based on average earnings growth estimates from, Value Line, Zacks,  
8 and Yahoo Finance. The Low ROE and High ROE calculations use the earnings growth  
9 estimates that are the lowest and highest, respectively, of the three sources. My  
10 calculations are provided in Direct Schedule JC-4.

11 **Q. Were any adjustments made to growth rates from Value Line used in the Constant**  
12 **Growth DCF model?**

13 A. Yes. We adjusted the AWK 3.0% growth rate upward to 5.5% due to a large one-time  
14 gain of \$2.70 per share in 2021 which was footnoted by Value Line and has the adverse  
15 effect of distorting and lowering the projected growth rate forward for AWK to 3.0%.  
16 Value Line footnotes this one-time item but does not formally make the correct  
17 normalizing adjustment. My calculations are provided in Direct Schedule JC-4.

18 **Q. What are your results from the Constant Growth DCF model?**

19 A. My Constant Growth DCF method calculations for the Proxy Group resulted in an  
20 estimated range for the Company's ROE of 8.09% to 10.21%. The results are shown in  
21 Table 3 below and in my Summary of Results Direct Schedule JC-2.

---

<sup>6</sup> Missouri Public Service Commission Order, Confluence Rivers, Case No. WR-2023-0006.

1 **Table 3: Constant Growth DCF Method Calculations Median Results**

Averaging Period	Low	Mid	High
30-day	8.08%	9.33%	10.20%
90-day	8.17%	9.43%	10.29%
180-day	8.02%	9.27%	10.14%
<b>Results</b>	<b>8.09%</b>	<b>9.34%</b>	<b>10.21%</b>

2 **b. Capital Asset Pricing Model**

3 **Q. Please summarize the CAPM model.**

4 A. The CAPM describes the relationship between the price of a security and the return that  
5 investors will require to hold it. The analytical basis is that any security is subject to  
6 market risk and that investors will require higher returns for holding riskier assets, all  
7 else being equal. In the case of a regulated utility stock, the required return is equal to  
8 the ROE. Analysis of the risk profile and market conditions to which the Proxy Group  
9 is exposed using the CAPM yields an ROE estimate for Missouri Water. I provide these  
10 estimates for the Proxy Group.

11 **Q. Please provide the analytical form of the CAPM.**

12 A. The CAPM is defined as the follows:

13 
$$RR_i = R_f + \beta_i(R_m - R_f)$$

14 Where:

15  $RR_i$  is the required return of the investment, which is equal to the ROE;

16  $R_f$  is the risk-free rate;

17  $\beta_i$  is the beta coefficient of the investment; and

18  $R_m$  is the expected return of the securities market as a whole.



1 **Q. Please explain the meaning and significance of the risk-free rate.**

2 A. Investors require compensation for risk and for the time-value of money, the risk-free  
3 rate accounts for the latter. The risk-free rate is set at the return that investors could  
4 achieve while exposing themselves to zero risk. It is the minimum return any investor  
5 will accept since, by definition, taking on more than zero risk will require compensation  
6 beyond this amount. It is typical for the risk-free rate to be estimated using yields on  
7 U.S. Treasury bonds.

8 **Q. How did you estimate the risk-free rate?**

9 A. I estimated the risk-free rate by taking the average of the yields on 30-year constant  
10 maturity U.S. Treasury securities as reported by the U.S. Department of the Treasury  
11 over recent periods. Specifically, I averaged the yields on the 30-year treasuries for  
12 each of 30, 90, and 180 days, with each period ending as of January 11, 2024 (the same  
13 periods shown in Table 2, above). The results of that analysis are shown in Table 4  
14 below:

15 **Table 4: Average Yields of 30-Year U.S. Treasuries**

<b>Period</b>	<b>Average</b>
30-day Average	4.18%
90-day Average	4.53%
180-day Average	4.25%

16 **Q. Why did you use multiple averaging periods to estimate treasury yields?**

17 A. I used multiple averaging periods for the same reason that other time series data are  
18 averaged over multiple periods; that is, to reduce the possibility of biasing my results  
19 by relying on outcomes from what may be transitory market conditions.

1 **Q. Please explain the meaning and significance of the beta coefficient.**

2 A. The beta coefficient is a measure of a security's exposure to systematic, or non-  
3 diversifiable, risk. It indicates a stock's riskiness (volatility) compared to that of the  
4 market as a whole. If a stock has a beta coefficient of 1.0, it is exactly as risky as the  
5 market. A higher coefficient indicates that the stock is riskier than the market and,  
6 conversely, a lower coefficient means that the security is less risky than the market.  
7 Beta is calculated by analyzing the returns of a security and the returns of the market  
8 over some historical period, and is mathematically defined as:

9 
$$\beta_i = \text{Covariance}(r_i, r_m) / \text{Variance}(r_m)$$

10 where  $\beta_i$  is the beta coefficient of the security,  $r_i$  is the return of the security, and  $r_m$   
11 is the return of the market. Calculation of the covariance between  $r_i$  and  $r_m$  measures  
12 the degree to which the returns of the security and market returns move together, while  
13 the variance of  $r_m$  measures the degree of volatility in the market.

14 **Q. How did you estimate the beta coefficient?**

15 A. The beta coefficients I use in my CAPM analysis are based on the average of the beta  
16 coefficients for the companies in my Proxy Group, which equals 0.83. The Proxy  
17 Group betas include market information through January 11, 2024, and are reported by  
18 Value Line. These are shown below in Table 5 and included as **Direct Schedule JC-5:**

19 **Table 5: Proxy Group Companies**

<b>Company Name</b>	<b>Beta</b>
American Water Works	0.95
American States Water	0.70
California Water	0.75
Middlesex Water	0.75
SJW Group	0.85
Essential Utilities	1.00
<b>Water Proxy Group Average</b>	<b>0.83</b>

1 **Q. Please explain the meaning and significance of the expected market return.**

2 A. The primary relevance of the expected market return is its use to calculate the Market  
3 Risk Premium, which is defined by the term  $(R_m - R_f)$ . This represents the return that  
4 investors can expect from the securities market as a whole above the return that would  
5 be provided by a risk-free investment.

6 **Q. How did you calculate the expected market return?**

7 A. I calculated the expected market return by applying the Constant Growth DCF method  
8 described earlier in my testimony to the companies in the S&P 500 Index as reported  
9 by Value Line. Using this approach, I estimate that the expected market return is  
10 13.96%. My calculations are provided in **Direct Schedule JC-6**. The expected market  
11 risk premiums that result from reducing the expected market return by the risk-free  
12 rates I estimated for each of the three periods of 30, 90, and 180 days (the same as for  
13 stock prices) are shown in Table 6 below:

14 **Table 6: Calculation of the Market Risk Premium**

	<b>30-day Average</b>	<b>90-day Average</b>	<b>180-day Average</b>
Expected Market Return	13.96%	13.96%	13.96%
Risk-Free Rate	<u>4.18%</u>	<u>4.53%</u>	<u>4.25%</u>
<b>Market Risk Premium</b>	<b>9.77%</b>	<b>9.43%</b>	<b>9.70%</b>

15 **Q. What were the results of your CAPM analysis?**

16 A. Based on the three risk-free estimates I developed, as well as the Proxy Group average  
17 beta, and market risk premium calculations I describe above, the CAPM method  
18 calculations indicate that Missouri Water's ROE is between 12.33% and 12.38%. My  
19 calculations are summarized below in Table 7 and are also provided in **Direct Schedule**  
20 **JC-7**.

1

**Table 7: CAPM Results**

		<b>30-day Average</b>	<b>90-day Average</b>	<b>180-day Average</b>
Risk-free rate	<i>a</i>	4.18%	4.53%	4.25%
Beta	<i>b</i>	0.83	0.83	0.83
Expected market return	<i>c</i>	<u>13.96%</u>	<u>13.96%</u>	<u>13.96%</u>
Market risk premium	<i>d = c - a</i>	<u>9.77%</u>	<u>9.43%</u>	<u>9.70%</u>
CAPM ROE	<i>e = a + b*d</i>	12.33%	12.38%	12.34%
<b>Average ROE</b>	<b><i>Average of e, f</i></b>	<b>12.35%</b>		

2

**c. Bond Yield Plus Risk Premium Model**

3

**Q. Please summarize the RPM Model.**

4

A. The Bond Yield Plus Risk Premium Model is another way of estimating the cost of equity by employing similar principles to the CAPM model. In essence, equity investors must be compensated for the additional risk they incur by investing in riskier assets such as equities. The RPM approach estimates the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. For my analysis, I used actual authorized returns for water utilities as the historical measure of the cost of equity and the 30-year Treasury Bond Rate for my risk-free rate.

11

**Q. Please explain how you performed your RPM analysis.**

12

A. First, I defined the risk premium as the difference between historical authorized ROEs and the then-prevailing 30-year Treasury Rate. I utilized authorized ROEs from water rate case proceedings dating back 13 years. I then matched the 30-year Treasury Rate at that time to the decision date. I then graphed a scatterplot of the relationship between the 30-year Treasury Rates and the Risk Premia in order to conduct a regression analysis that would produce a predictive formula in the following form:

18

$$RP = \alpha + \beta(T)$$

1           Where:  
2                      $RP$  is the risk premium;  
3                      $\alpha$  is the intercept term;  
4                      $\beta$  is the slope term; and  
5                      $T$  is the 30-year Treasury Rate.

6   **Q.    How did you determine the historical period you used for your analysis?**

7   A.    I sourced past rate case decisions from Cap IQ<sup>7</sup>. Its database has case decisions from  
8           early 2010 through June 2023 for water rate case decisions, a time period that I felt was  
9           sufficient enough to provide a representative overview of the relationship between rate  
10          case decisions and corresponding Treasury Rates. More specifically, a 13-year period  
11          is long enough to capture multiple business cycles – which incorporates changes in  
12          treasury rates – while still being relative to today in order to create a meaningful sample.  
13          The total sample size included 154 decisions.

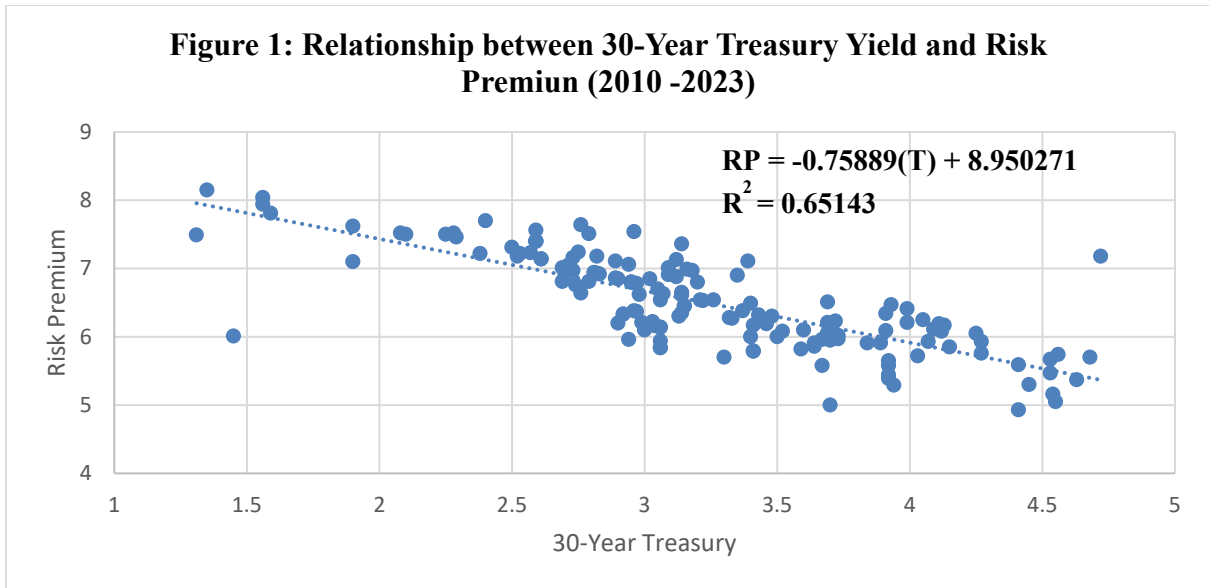
14   **Q.    What were the results of your regression?**

15   A.    A simple regression on the scatterplot below resulted in coefficients of  $\alpha$  equal to  
16          0.089503<sup>8</sup> and  $\beta$  equal to -0.758893. From there, I applied the 30-, 90-, and 180-day  
17          average 30-year Treasury rates to the above equation to calculate my risk premium. To  
18          estimate the implied ROE, I then added the resulting risk premium to the 30-year  
19          Treasury Rate. Figure 1 below shows the relationship between the 30-Yr Treasury  
20          Yield and the Risk Premium over the last 13 years.

---

<sup>7</sup> S & P Cap IQ Source “Water utility rate case data, 2010-March 2023”, the data was updated by CapIQ representative through August of 2023.

<sup>8</sup> The coefficient displayed in the chart is shown assuming the percentage times 100 (i.e., 8.9503% x 100 = 8.9503).



1

2 **Q. Why is this regression statistically significant?**

3 A. The regression equation shown in Figure 1 uses a 95% confidence interval, which is a  
4 commonly accepted threshold for statistical significance. The formula also has an R-  
5 squared of 0.651 meaning 65.1% of the variability in the dependent variable (risk  
6 premium) is explained by the independent variable (30-Yr treasury yield). This level  
7 of R-squared indicates the formula is a good fit for the data.

8 **Q. What were the results of your RPM model?**

9 A. Based on the methodology described above, my RPM model indicates that Missouri  
10 Water's ROE is between 9.96% and 10.04%. The results of my RPM analysis are  
11 shown in Table 8 and are also provided in **Direct Schedule JC-8**:

12

1

**Table 8: RPM Results**

		<b>30-day Average</b>	<b>90-day Average</b>	<b>180-day Average</b>
Intercept term	$\alpha$	0.089503	0.089503	0.089503
Slope term	$\beta$	-0.758893	-0.758893	-0.758893
30-year Treasury Rate	$T$	<u>4.18%</u>	<u>4.53%</u>	<u>4.25%</u>
Risk premium	$RP = \alpha + \beta(T)$	<u>5.78%</u>	<u>5.52%</u>	<u>5.72%</u>
ROE <sup>9</sup>	$RP + T$	9.96%	10.04%	9.98%

2 **Q. Has the Commission recognized that authorized ROEs in other jurisdictions are**  
3 **a relevant consideration when determining the appropriate authorized ROE for**  
4 **a utility?**

5 A. Yes, it has. As noted earlier, the Commission has acknowledged the use of risk  
6 premium models which rely on authorized ROEs in other jurisdictions. I believe my  
7 RPM is a reasonable proxy given it covers multiple business and interest rate cycles  
8 and provides a high statistical correlation. More importantly, previously authorized  
9 ROEs are publicly available information and are a benchmark an investor will consider  
10 in making his or her investment decisions so using authorized ROEs from other  
11 jurisdictions is crucial to determine Missouri Water's ROE so it is competitive with  
12 other companies competing for investor capital.

13 **Q. Briefly summarize your results using the DCF, CAPM, and RPM methods.**

14 A. As I previously described, using the Constant Growth DCF method, I calculated  
15 estimates of Missouri Water's ROE that range from 8.09% to 10.21%. Using the  
16 CAPM method, I calculated estimates of Missouri Water's ROE that range from  
17 12.33% to 12.38%, and for the RPM method, I calculated estimates of ROE that range

---

<sup>9</sup> In the 180-day Average case, the 30-year treasury rate plus the risk premium does not equal 9.98% due to minor rounding adjustments.

1 from 9.96% to 10.04%. Averaging all three approaches as demonstrated by Table 9  
2 below, I came to an ROE range of 10.12% to 10.88%.

3 **Table 9: Aggregation of Preliminary Analytical Results**

	<b>Low</b>	<b>Mid</b>	<b>High</b>
Constant Growth DCF	8.09%	9.34%	10.21%
CAPM	12.33%	12.35%	12.38%
RPM	9.96%	9.99%	10.04%
<b>Average</b>	<b>10.12%</b>	<b>10.56%</b>	<b>10.88%</b>

4 **d. Adjustment for Flotation Costs**

5 **Q. Have you made any adjustments to your preliminary range?**

6 A. Yes, I made adjustments to my preliminary range. Specifically, I incorporated an adder  
7 to account for security flotation costs in my estimate.

8 **Q. What are security flotation costs?**

9 A. Flotation costs are expenses that companies incur when they issue new common stock  
10 or other securities. Flotation costs include underwriting, legal expenses, issuance  
11 preparation and other expenses.

12 **Q. Should flotation costs be recovered through ROE rather than through operating  
13 expenses?**

14 A. Yes, flotation costs should be recovered through ROE rather than through operating  
15 expense. A utility's cost to issue new stock is part of its capital rather than operating  
16 costs. If a company cannot recover its flotation costs through ROE, its actual ROE will  
17 be less than that required by investors to own the stock. This will, in turn, impair the  
18 company's ability to attract the capital required to operate a safe and reliable system.  
19 This situation could become particularly problematic if other utilities with whom the  
20 Company competes to attract capital are allowed recovery of their flotation costs while  
21 Missouri Water is not.



1 **Q. Does Missouri Water issue common stock publicly?**

2 A. No, it does not.

3 **Q. If not, why should Missouri Water receive an adjustment to its ROE for flotation**  
4 **costs?**

5 A. Missouri Water's third-party external source of common equity is through its ultimate  
6 parent AQN. AQN is competing with other utility holding companies for external  
7 common equity capital. If the source of AQN's returns to common equity investors  
8 include the results from its owned regulated utilities then their returns need to reflect  
9 the cost of issuing that common equity to the public.

10 **Q. Are flotation costs accounted for in DCF, CAPM, and RPM models you used to**  
11 **develop the preliminary estimates?**

12 A. No, flotation costs are not accounted for in the DCF, CAPM and RPM models I used  
13 to develop the preliminary estimates. The models are designed to estimate the returns  
14 that an investor would require for holding a stock based on expected dividend payments  
15 (in the case of the DCF models) and/or has a certain risk profile (in the case of the  
16 CAPM and RPM). For purposes of this proceeding, that required return is used as a  
17 proxy for the Company's ROE since the authorized return must match investor  
18 requirements to enable Missouri Water to attract capital. Therefore, it is appropriate to  
19 consider flotation costs when determining where within the range of reasonable results  
20 the Company's return should fall.

21 **Q. Is the need to consider flotation costs recognized by the academic and financial**  
22 **communities.**

23 A. Yes. The need to reimburse shareholders for the lost returns associated with equity  
24 issuance costs is recognized by the academic and financial communities in the same

1 spirit that investors are reimbursed for the costs of issuing debt. This treatment is  
2 consistent with the philosophy of a fair ROR. According to Dr. Shannon Pratt:

3 Flootation costs occur when new issues of stock or debt are sold to the  
4 public. The firm usually incurs several kinds of flotation or transaction  
5 costs, which reduce the actual proceeds received by the firms. Some of  
6 these are direct out-of-pocket outlays, such as fees paid to underwriters,  
7 legal expenses, and prospectus preparation costs. Because of this  
8 reduction in proceeds, the firm's required returns on these proceeds  
9 equate to a higher return to compensate for the additional costs.  
10 Flootation costs can be accounted for either by amortizing the costs, thus  
11 reducing the cash flow to discount, or by incorporating the cost into the  
12 cost of capital. Because flotation costs are not typically applied to  
13 operating cash flow, one must incorporate them into the cost of capital.<sup>10</sup>  
14

15 **Q. How did you estimate Missouri Water's flotation cost adjustment?**

16 A. I estimated Missouri Water's flotation costs by examining the costs of issuing equity  
17 incurred by the Proxy Group companies in their two most recent common equity  
18 issuances. After calculating the average flotation costs for the Proxy Group, I adjusted  
19 the Constant Growth DCF model to incorporate a dividend yield that would allow  
20 investors to recover costs associated with the issuance of equity. The resulting dividend  
21 yield is calculated by dividing the current dividend yield by one minus the weighted  
22 average flotation costs of the Proxy Group companies. The difference between the  
23 resulting ROE from the adjusted Constant Growth DCF and the unadjusted Constant  
24 Growth DCF is the flotation cost adjustment. My calculations can be found in **Direct**  
25 **Schedule JC-9.**

26 **Q. What is your estimate of the appropriate adder to Missouri Water's ROE estimate**  
27 **to cover flotation costs?**

28 A. Using this method, I estimate that the ROE adder required to cover flotation costs is  
29 0.06%.

---

<sup>10</sup> Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

1 **Q. Please update your preliminary ROE range to account for flotation costs.**

2 A. In Table 10 below, I added the flotation cost adjustment to the preliminary ROE  
3 estimates I previously described.

4 **Table 10: Flotation Adder Effect to ROE Range**

	<b>Low<sup>11</sup></b>	<b>Mid</b>	<b>High</b>
Preliminary estimate	10.12%	10.56%	10.88%
Flotation costs	<u>0.06%</u>	<u>0.06%</u>	<u>0.06%</u>
<b>ROE estimate</b>	<b>10.19%</b>	<b>10.62%</b>	<b>10.94%</b>

5 Based on the information shown in Table 10, I conclude that Missouri Water's  
6 authorized ROE should fall within the reasonable range of 10.19% to 10.94%.

7 **Q. Has the Commission authorized an ROE for any water and/or wastewater utilities**  
8 **in the past 10 years?**

9 A. Yes. Recently, the Commission issued a Report and Order in the Confluence Rivers  
10 rate case on October 25, 2023. The Commission ordered an ROE of 9.90%.<sup>12</sup> The  
11 previous rate cases (Missouri American Water - WR-2022-0303, Missouri American  
12 Water - WR-2015-0301, Missouri American Water - WR-2017-0285, and Missouri  
13 American Water - WR-2020-0344) ended with settlements and the ROEs were not  
14 specified. In the Missouri American Water case (WR-2017-0285), the Commission  
15 issued a Report and Order on May 2, 2018, which did not comment on or authorize a  
16 specific ROE but approved a Stipulation and Agreement that identified an ROE range  
17 of 9.50% to 10.00% for the purposes of calculating the revenue requirement.<sup>13</sup>

---

<sup>11</sup> In the low case, the preliminary estimate plus the flotation cost does not equal 10.19% due minor rounding adjustments.

<sup>12</sup> Missouri Public Service Commission Order, Confluence Rivers, Case No. WR-2023-0006.

<sup>13</sup> Missouri Public Service Commission Order, Missouri American Water, Case No. WR-2017-0285.

1 **Q. How have interest rates performed since the Confluence Rivers case (WR-2023-**  
2 **0006) direct testimony was filed on 12/21/2022?**

3 A. Since the Confluence Rivers case was filed, thirty-year treasury bond rates have risen  
4 from 3.74% (the 30-day average prior to the 12/21/2022 date when Confluence Rivers  
5 filed direct testimony) to 4.18% (the 30-day average ending 1/11/2024, the end date for  
6 my data collection), which results in an increase of 0.44%. Consequently, dividend  
7 yields have also increased since that date. This significant movement in interest rates  
8 demonstrates that the cost of capital and ROE's have risen since that case was decided.

9 **VI. EXPECTED EARNINGS ANALYSIS**

10 **Q. Have you conducted any additional analysis to corroborate your ROE results?**

11 A. Yes, I also conducted an Expected Earnings analysis to provide further support for the  
12 cost of equity for Missouri Water based on the projected ROEs for the Proxy Group  
13 companies.

14 **Q. What is an expected earnings analysis?**

15 A. The Expected Earnings analysis is a comparable earnings analysis that calculates the  
16 earnings that an investor expects to receive on the book value of a stock. Thus, it is a  
17 forward-looking estimate of investors' expected returns. The analysis will provide a  
18 range of the expected returns on the Proxy Group, which will be helpful in determining  
19 the opportunity cost of investing in the Company.

20 **Q. Please summarize the approach of your analysis.**

21 A. Using data from Value Line, I used the projected ROE for each of the Proxy Group for  
22 the period from 2026 – 2028. I then adjusted the projected ROEs to account for the fact  
23 that the ROEs reported by Value Line are calculated based on common equity balances  
24 at the end of the period, as opposed to average common equity over the entire period.

1 My adjustments resulted in a mean ROE estimate of 10.60% and a median ROE  
2 estimate of 10.07%, as shown in **Direct Schedule JC-10**. The results are at the top-end  
3 of my ROE range, and though I am not using them in my calculation, should serve as  
4 additional support for my other ROE estimation models.

5 **VII. ADDITIONAL CONSIDERATIONS**

6 **Q. Are there any other factors that could impact your recommendation for**  
7 **Missouri Water’s ROE?**

8 A. Yes. In this section of my testimony, I explain that the Company is exposed to  
9 additional risk that is not captured in my financial analysis of the Proxy Group.  
10 Notably, Missouri Water is considerably smaller than the utilities in the Proxy Group,  
11 a situation that creates risk for the Company’s investors for which they will need to be  
12 compensated with a higher return. I will not recommend additional cost of equity  
13 adjustments based on this factor, but it should be considered in terms of the appropriate  
14 ROE that the Commission decides to award.

15 **a. Small Size Premium**

16 **Q. Do investors perceive that smaller utilities are riskier than larger ones?**

17 A. In my professional opinion, investors perceive that smaller utilities are riskier than  
18 larger ones. There is a broad body of research that has determined the existence of a  
19 “firm size effect” on firms in general, and utilities in particular, that requires smaller  
20 companies to provide higher returns than larger companies in the same industries.<sup>14</sup>

21 Smaller utilities have smaller customer bases, fewer financial resources, and are less

---

<sup>14</sup> Shannon Pratt and Roger Grabowski, *Cost of Capital: Applications and Examples*, 3rd Edition, New Jersey, John Wiley & Sons, 2008 at Chapter 12; Duff & Phelps, *2018 Cost of Capital: Annual US Guidance and Examples*, 2018 at Chapter 4 pp. 1-7; Rolf W. Banz, “The Relationship between Return and Market Value of Common Stocks”, *Journal of Financial Economics* (March 1981) at pp. 3–18.

1 diversified in terms of customers and geography.<sup>15</sup> These challenges increase investors'  
2 risks of owning securities in small companies which, in turn, require them to pay a  
3 higher return in order to attract capital. In addition, due to their size smaller companies  
4 do not have access to the same markets and investor groups as larger companies  
5 because larger investors generally require more liquidity for the securities they  
6 purchase, which smaller companies cannot provide.

7 **Q. Is the Company smaller than the other companies in the Proxy Group?**

8 A. The Company is considerably smaller than the companies in the Proxy Group. As  
9 shown in **Direct Schedule JC-11**, Missouri Water is much smaller than the smallest  
10 member of the Proxy Group, measured by customer count. The smallest Proxy Group  
11 member has a customer count of 310 thousand compared to Missouri Water's customer  
12 count of approximately 17 thousand.

13 **Q. Are there other ways to measure firm size?**

14 A. Yes. Market capitalization is also a useful measure of firm size. To compare the  
15 Company to the Proxy Group along these terms, I estimated its market capitalization  
16 by applying the mean market-to-book ratio of the Proxy Group companies (2.50) to  
17 Missouri Water's equity of \$2.67 million. The resulting implied market capitalization  
18 for Missouri Water's is approximately \$6.7 million, or about 0.09% of the mean market  
19 capitalization (\$7,572.1 million) for the Proxy Group companies.

20 **Q. What did you conclude regarding a small size premium for Missouri Water's**  
21 **ROE?**

22 A. By calculating an implied market capitalization for the Company, I was able to evaluate  
23 the impact of Missouri Water's micro size on its ROE relative to the Proxy Group

---

<sup>15</sup> Duff & Phelps, *2018 Cost of Capital: Annual US Guidance and Examples*, 2018 at Chapter 4 p. 2.

1 companies. In its Cost of Capital Navigator, Duff & Phelps calculates size premia  
2 associated with deciles of market capitalizations, as well as categorizations of Mid Cap,  
3 Low Cap, and Micro Cap. As shown in Direct Schedule JC-11, the mean market  
4 capitalization of the Proxy Group companies is \$7,572.1 million, which falls into the  
5 third decile of market capitalization and corresponds to a size premium of  
6 approximately 0.57%. The median market capitalization of \$2,948.6 million falls into  
7 the fifth decile of market capitalization and corresponds to a size premium of 0.93%.  
8 Missouri Water's implied market capitalization of \$7.0 million falls in the tenth decile  
9 and Micro Cap category. According to the Duff & Phelps data, Missouri Water merits  
10 a size premium of 4.83%, the size premium for the mean and median of the Proxy  
11 Group.

12 **Q. Do you propose adjusting your reasonable range to account for the size premium?**

13 A. No, I do not propose adjusting my reasonable range to account for the size premium.  
14 Estimating the size premium is a complex analysis that lacks the transparency of the  
15 calculations on which I relied for other aspects of my testimony. Missouri Water is  
16 exposed to the small size premium, but the magnitude of the impact of this influence is  
17 a matter of debate in academic literature and limitations regarding data availability  
18 make the estimation less robust. The results of the size premium analysis should be  
19 considered as an additional input supporting Missouri Water's proposal that its  
20 authorized ROE be set at 10.62% which is the midpoint of my reasonable range.

21 **VIII. CAPITAL STRUCTURE**

22 **Q. What do you recommend from the Company's proposed common equity and**  
23 **long-term debt capital structure?**

24 A. I recommend a capital structure of 52.6% common equity and 47.4% long term debt.

1 **Q. How did you arrive at this recommendation for Missouri Water?**

2 A. Using my Proxy Group and Value Line information I calculated the 5-year average  
3 common equity ratio for the 2018-2022 period. The mean and median results were  
4 50.45%-50.53% and the range was 41.72%-57.52%. I also looked at the forecasted  
5 common equity ratios from Value line for the 2023 and 2024 and the 2026-2028 period.  
6 The mean, medians and ranges for those years and three-year period are shown in Table  
7 11 below and in **Direct Schedule JC-12**. Based on these results my recommended  
8 common equity ratio is within the range for the Proxy Group for the historical 2018-  
9 2022 period, as well as the forecasted periods of 2023, 2024 and 2026-2028.

10 **Table 11: Summary of Forecasted Common Equity Ratios**

Forecast Year(s)	Mean	Median	Range
2023	51.43%	52.00%	44.50% - 58.50%
2024	51.50%	50.50%	42.50% - 59.50%
2026 - 2028	52.50%	53.50%	42.50% - 62.00%

11 **Q. Did you include short-term debt/money pool borrowings in your Proxy Group**  
12 **capital structure calculations?**

13 A. No, I did not.

14 **Q. Please explain.**

15 A. Short-term debt is typically used to fund a utility's short-term working  
16 capital/construction needs first. Primarily, short-term debt should cover costs  
17 associated with construction work in progress ("CWIP"). The allowance for funds used  
18 during construction ("AFUDC") rate calculation recovers the cost of short-term debt  
19 interest. If short-term debt were included in the capitalization ratio calculations to



1 determine the return on rate base, short-term debt interest cost recovery would be  
2 double counted. As shown in Direct Schedule JC-13, I calculated the amounts that  
3 CWIP balances exceeded the short-term debt balances for the Proxy Group companies  
4 at year ends 2021 and 2022. The results of Direct Schedule JC-13 show that CWIP  
5 balances exceeded short-term debt balances over the two-year historical period for the  
6 Proxy Group. Therefore, short-term debt costs are being recovered through the AFUDC  
7 rate and should be excluded from the capital structure calculations and recommendation  
8 for Missouri Water.

9 **Q. Did you include short-term debt/money pool borrowings in Direct Schedule JC-**  
10 **14 as part of your capital structure recommendation?**

11 A. No, I did not. The proceeds from \$12 million of long-term debt financing and  
12 \$17,000,000 of capital contributions were used to reduce the initial short-term  
13 debt/money pool balance at 12/31/2022 of \$30,315,281 to \$1,315,281, which is less  
14 than the year end 2022 CWIP balance of \$1,799,415 and the average balance for 2022  
15 of \$2,562,070. Therefore, based on both the results of my Proxy Group analysis and  
16 year end 2022 pro-forma adjustments for new long-term debt and common equity  
17 financings described above short-term debt/money pool borrowings were not included  
18 in the capital structure calculations for Missouri Water.

19 **Q. Did you perform any other capital structure analysis?**

20 A. Yes, I did. I calculated the capital structure ratios for LUCo and APUC at year end  
21 2022. My calculations are shown in Direct Schedules JC-16 and JC-17 and follow  
22 the methodology used in Empire Electric's 2019 rate case decision in Case No. ER-  
23 2019-0374, as well as the Commission's Order for Spire Missouri, Inc. in GR-2021-  
24 0108.

1 **Q. What were the results of your analysis of LUCo's and APUC's capital structure?**

2 A. Based on year end 2022 actuals and pro-forming in the adjustments per ER-2019-0374  
3 for LUCo and APUC, as well as reducing short-term debt for CWIP and deferred gas  
4 costs, LUCo's common equity ratio was 68.80% and long-term debt ratio 31.09%.  
5 APUC's common equity ratio was 65.72% and long-term debt ratio 30.23%. Both  
6 LUCo and APUC's common equity ratios are higher than my recommended common  
7 equity ratio for Missouri Water of 52.6%.

8 **IX. COST OF DEBT**

9 **Q. What is your recommended cost of debt?**

10 A. Based on Direct Schedule JC-15, I am recommending 5.04% which reflects the  
11 issuance of \$12 million of new long-term debt financing at 6.30%, the currently  
12 outstanding \$5,715,000 of 2.079% long-term debt issued in November of 2021 and the  
13 annual amortization of issuance expenses for both issues. The new long-term debt  
14 financing application, Case No. WF-2024-0135, was recently approved by the  
15 Commission on February 29, 2024, with an effective date of March 30, 2024.

16 **X. CONCLUSIONS AND RECOMMENDATIONS**

17 **Q. Please summarize your conclusions.**

18 A. I have three primary conclusions. First, I conclude the reasonable range for the  
19 Company's ROE to be 10.19% to 10.94%, including a flotation cost adjustment.  
20 Second, a capital structure of 52.6% common equity and 47.4% long-term debt is  
21 reasonable based on my proxy group and pro-formed capital structure for the Company.  
22 Lastly, the cost of debt is 5.04% based on actuals and current market rates for Missouri  
23 Water's recently Commission approved long-term debt financing.

1 **Q. Please summarize your recommendations.**

2 A. I recommend the Commission accept my (i) proposed authorized ROE of 10.62%,  
3 which is the midpoint of my range, (ii) proposed capital structure of 52.6% common  
4 equity to 47.4% long-term debt, and (iii) proposed cost of debt of 5.04% for Missouri  
5 Water in this case, and, as a result, authorize a total rate of return of 7.98%.

6 **Q. Does this conclude your direct testimony?**

7 A. Yes.

**VERIFICATION**

I, John Cochrane, under penalty of perjury, on this 13th day of March, 2024, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ John Cochrane