Exhibit No. 4

Empire District Electric Company – Exhibit 4
Testimony of Daniel S. Dane
Direct
File No. ER-2024-0261

Exhibit No.: _____
Issues: Capital Structure, ROE, Cost of Debt
Witness: Daniel S. Dane
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District Electric Company d/b/a Liberty
Case No.: ER-2024-0261
Date Testimony Prepared: November 2024

Before the Public Service Commission
of the State of Missouri

Direct Testimony

of

Daniel S. Dane

on behalf of

The Empire District Electric Company d/b/a Liberty

November 6, 2024

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FOR THE DIRECT TESTIMONY OF DANIEL S. DANE
THE EMPIRE DISTRICT ELECTRIC COMPANY D/B/A LIBERTY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2024-0261

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Daniel S. Dane. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts, 01752.

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

A. I am the President of Concentric Energy Advisors, Inc. ("Concentric").

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

A. I am testifying on behalf of The Empire District Electric Company ("Empire" or the "Company"). Empire is an indirect, wholly-owned subsidiary of Liberty Utilities Co. ("LUCo"), which is an indirect, wholly-owned subsidiary of Algonquin Power & Utilities Corp. ("APUC"). The Company generally does business under the name Liberty. To avoid confusion in this testimony, however, I will use the labels Empire, LUCo, and APUC.

Q. Please describe your educational and professional background.

A. I have more than 20 years of experience in the energy, utility, and financial services industries providing advisory services to power companies, natural gas pipelines, local gas distribution companies, and water utilities in the areas of regulation and ratemaking, litigation support, mergers and acquisitions, valuation, and regulatory accounting. I have provided expert testimony and developed expert reports on regulated ratemaking matters for investor- and provincially-owned utilities, including on the cost of capital and capital structure, earnings sharing mechanisms and rate

adjustment mechanisms, revenue requirements, lead-lag studies/cash working capital, and utility productivity and benchmarking. I have also provided expert testimony in utility merger approval proceedings related to utility valuations and the financial and cost of capital implications of utility transactions. I have an MBA from Boston College in Chestnut Hill, Massachusetts, and a BA in Economics from Colgate University in Hamilton, New York. I am also a certified public accountant licensed in the Commonwealth of Massachusetts.

Q. Please describe Concentric.

A. Concentric provides financial and economic advisory services to many and various energy and utility clients across North America. Our regulatory, economic, and market analysis services include utility ratemaking and regulatory advisory services; energy market assessments; market entry and exit analysis; corporate and business unit strategy development; demand forecasting; resource planning; and energy contract negotiations. Our financial advisory activities include buy- and sell-side merger, acquisition, and divestiture assignments; due diligence and valuation assignments; project and corporate finance services; and transaction support services. In addition, we provide litigation support services on a wide range of financial and economic issues on behalf of clients throughout North America.

Q. Have you previously testified in a proceeding before the Missouri Public Service Commission ("Commission") or any other utility regulatory agency?

A. I have not previously testified before this Commission. I have submitted testimony and expert reports before regulatory commissions in Alaska, Arkansas, Connecticut, Illinois, Maine, Massachusetts, New Hampshire, New Mexico, Oklahoma, Rhode

Island, South Dakota, Texas, Vermont, Nova Scotia, and Ontario. My background and list of prior testimony are presented in more detail in **Direct Schedule DSD-1**.

Q. What is the purpose of your direct testimony in this proceeding?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding the Company's return on equity ("ROE"), as well as to review the reasonableness of the Company's proposed capital structure and cost of long-term debt for ratemaking purposes. My analysis and conclusions are supported by the data presented in **Direct Schedules DSD-2 through DSD-12**, which were prepared by me or under my direction.

Q. Please provide a brief overview of Empire's Missouri electric operations.

A. Empire is a wholly owned subsidiary of Liberty Utilities (Central) Co., which is in turn owned by LUCo. As noted, LUCo is an indirect, wholly owned subsidiary of APUC. Empire provides electric generation, transmission, and distribution services to approximately 182,600 retail customers in portions of Missouri, Kansas, Oklahoma and Arkansas.[1] As of September 2023, approximately 164,300 of the electric retail customers were located in southwest Missouri. Empire's current issuer credit ratings are: (1) S&P Global Ratings BBB (Outlook: Stable); and (2) Moody's Investor's Service ("Moody's") Baa1 (Outlook: Stable).[2]

[1] Source: Moody's Investors Service, Credit Opinion: Empire District Electric Company (The), September 4, 2024, at 2.
[2] Source: Credit reports published by S&P Global Ratings and Moody's Investors Service, dated December 13, 2023, and September 4, 2024, respectively.

Q. Please summarize your principal conclusions regarding the appropriate cost of capital for Empire.

A. Based on the analyses I performed and that are discussed herein, I find a reasonable range for the authorized ROE for Empire to be from 9.75 percent to 11.00 percent. As described in greater detail later in my testimony, that range is based on the use of several well-accepted methodologies for estimating ROE and reflects market data from companies directly comparable to Empire. Empire's ROE could reasonably be set above the midpoint of that range based on the Company's business risk profile relative to the proxy group and other factors discussed herein. However, in an effort to mitigate the rate impact on customers, Empire is proposing an authorized ROE of 10.00 percent, which is towards the low end of my recommended range and, therefore, represents a conservative estimate of the Company's ROE. I also conclude that the Company's proposed capital structure of 53.1 percent common equity and 46.9 percent long-term debt and its proposed long-term debt cost of 4.22 percent are reasonable.

Figure 1: Capital Structure and Cost of Capital

	Percent	Cost Rate	Weighted Cost
Common Equity	53.1%	10.00%	5.31%
Long-term debt	46.9%	4.22%	1.98%
Total			7.29%

Q. What would be the Company's authorized Rate of Return ("ROR") in Missouri if the Commission accepts your recommendations?

A. The Company's authorized ROR would be 7.29 percent in Missouri as shown in Company witness Charlotte T. Emery's direct testimony, Direct Schedule CTE-8.

Q. Is your recommendation consistent with ratemaking assurances reflected in the Stipulation and Settlement Agreement in Case No. EM-2016-0213?

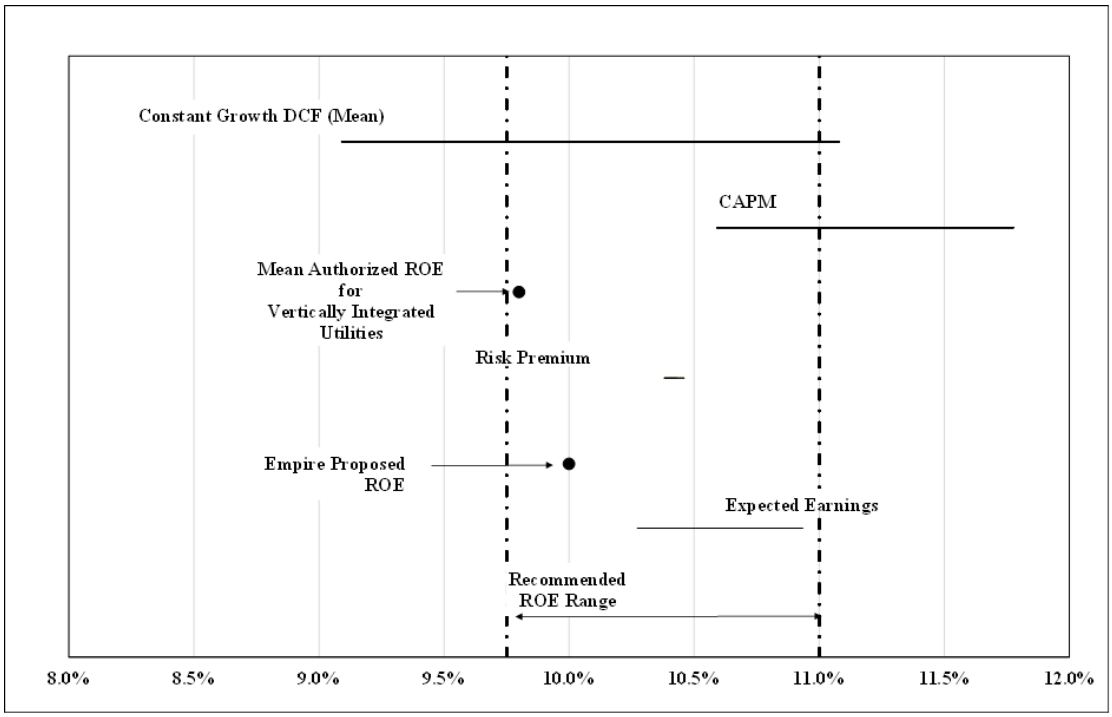
A. Yes. The Stipulation and Settlement Agreement with Staff in Case No. EM-2016-0213, which was approved by the Commission, included ratemaking assurances that: "(1) Empire shall not seek an increase to the cost of capital as a result of this Transaction or Empire's ongoing affiliation with Algonquin Power & Utilities Corp. and its affiliates other than Empire after the Transaction;" and (2) "If Empire's per books capital structure is different from that of the entity or entities in which Empire relies for its financing needs, Empire shall be required to provide evidence in subsequent rate cases as to why Empire's per book capital structure is "most economical" for purposes of determining a fair and reasonable allowed rate of return for purposes of determining Empire's revenue requirement."[3] As described herein, my recommendations reflect market data and Company-specific (i.e., not parent company) risks, and are thus consistent with those assurances. The Company is proposing to use its actual capital structure at the end of the pro forma period, and I have compared that proposed capital structure to the entities on which Empire relies for its financing needs (i.e., APUC and LUCo), and to those of the operating utilities held by the proxy group companies, finding that the Company's capital structure is reasonable, contains a lower equity ratio than the adjusted capital structures for APUC and LUCo, and is within the range of the proxy group.

[3] Missouri Public Service Commission, Case No. EM-2016-0213, Order Approving Stipulations and Agreements and Authorizing Merger Transaction, issued September 7, 2016, at PDF pages 22-23.

Q. Please provide a brief overview of the analyses that led to your conclusions.

A. I used multiple cost of capital estimation models in performing my assessment of the appropriate ROE for the Company. Specifically, my ROE recommendation is based primarily on the constant growth form of the Discounted Cash Flow ("DCF") approach, the Capital Asset Pricing Model ("CAPM"), and the Bond Yield Plus Risk Premium approach. I further checked the reasonableness of the results of those models with an Expected Earnings analysis for the proxy group, as well as recent data regarding allowed ROEs for vertically-integrated electric utilities in the U.S. Figure 2 summarizes the range of results produced by these models, the average authorized ROE for vertically-integrated utilities, my recommended ROE range for the Company, and Empire's proposed 10.00 percent ROE.

Figure 2: Summary of Cost of Equity Results



The range of results produced by the various ROE models, as shown in Figure 2, demonstrates the importance of considering multiple models when estimating the

Company's ROE. My recommended ROE range of 9.75 percent to 11.00 percent aligns with the middle-to-high end of the DCF results and overlaps the Bond Yield Plus Risk Premium results, while also considering the range of results produced by the CAPM. As discussed above, I also considered these results within the context of expected earnings for comparable vertically-integrated electric utilities (which align with the high end of my recommended range of ROEs for the Company), as well as the average allowed ROE of 9.80 percent for vertically-integrated electric utilities from January 2023 through September 17, 2024.[4] This latter point, which is near the low end of my recommended range, is an important benchmark representing investors' return expectations for U.S. vertically-integrated electric utilities. It provides a conservative estimate of Empire's authorized return, however, due to additional factors that impact the Company's ROE. Specifically, I considered among other factors: (1) current and prospective capital market conditions; (2) company-specific risks such as Empire's capital investment plans, Empire's small size relative to the proxy group, and Empire's somewhat above average regulatory risk; and (3) the costs of issuing common equity, known as flotation costs. I did not, however, make an explicit adjustment for those items. In order for Empire to compete for capital on reasonable terms, those additional risk factors and costs should be reflected in the Company's authorized ROE.

Q. How is the remainder of your direct testimony organized?

A. Including this introduction, my direct testimony is organized into nine sections. Section II discusses the regulatory guidelines and financial considerations pertinent to the development of the cost of capital. Section III explains my selection of a proxy group of comparable-risk electric utilities. Section IV describes my analysis and

[4] Source: Regulatory Research Associates.

explains the analytical basis for my recommendation of the appropriate ROE for the Company. Section V summarizes the results of the cost of capital analyses I conducted. Section VI discusses current and expected economic and capital market conditions and their effect on the cost of capital. Section VII describes specific business risks and other factors that have a direct bearing on the ROE to be authorized for the Company in this proceeding. Section VIII provides a discussion of my evaluation of the reasonableness of the Company's proposed long-term capital structure and cost of long-term debt. Section IX summarizes my conclusions and recommendations.

II. REGULATORY GUIDELINES

Q. Please describe the guiding principles to be used in establishing the ROE for a regulated utility.

A. The standards for determining the fairness and reasonableness of a utility's allowed ROE were established in the United States Supreme Court's *Hope* and *Bluefield* cases. In those cases, the United States Supreme Court established standards that: (1) authorized returns be consistent with other businesses having similar or comparable risks; (2) the return be adequate to support credit quality and access to capital; and (3) the means of arriving at a fair return are not of paramount importance, only that the end result leads to just and reasonable rates.[5]

Based on the standards established in *Hope* and *Bluefield*, the authorized ROE in this proceeding should provide the Company with the opportunity to earn a fair and reasonable return that is:

[5] 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).

- Adequate to allow the Company to attract the capital that is necessary to provide safe and reliable service (the "capital attraction" standard);
- Sufficient to ensure the Company's ability to maintain its financial integrity (the "financial integrity" standard); and
- At a level that is comparable to returns required on investments of similar risk (the "comparability" standard).

Q. What is the relationship between a utility's ability to earn an adequate return and its ability to attract equity capital at reasonable terms?

A. The allowed ROE should be sufficient to enable the Company to finance capital expenditures and working capital requirements at reasonable rates and maintain financial integrity during a variety of economic and capital market conditions. The ability to attract adequate capital at reasonable terms allows a utility to maintain its financial integrity while funding its operations in a safe and reliable manner. While the "capital attraction" and "financial integrity" standards are important principles in normal economic conditions, the practical implications of those standards are even more pronounced given, as discussed in more detail below, the Company's small size compounded by its substantial capital investment requirements and when considered in the context of recent and expected capital market conditions.

In addition, the rates set in this case, including the ROE and capital structure, will directly affect the Company's cash flows during the period in which rates are in effect. The ability to generate internally the cash flows required to meet financial obligations (and to provide an additional amount for unexpected events) is of critical importance to investors; thus, cash flows have a bearing on credit quality, which in turn affects the terms at which a company can raise capital.

Lastly, the deemed supportiveness of the regulatory environment within which a utility operates is a key consideration for ratings agencies such as S&P and Moody's, as I describe in more detail herein.

Q. What are your conclusions regarding regulatory guidelines and capital market expectations?

A. The Company's ability to fund capital investments will be dependent on its ability to access external capital on reasonable terms. Further, the authorized ROE established in this proceeding should provide Empire an opportunity to earn a fair and reasonable return and enable sufficient access to capital under a variety of market conditions. Consequently, it is important for the ROE authorized in this proceeding to take into consideration not only returns required on investments of comparable risk, but also the Company's substantial capital investment plans, the economic environment in which it operates, and investors' expectations relative to both risks and returns.

Q. How does the fact that the Company is a subsidiary of APUC, a publicly-traded company, affect your analysis?

A. In this proceeding, consistent with the stand-alone principle of ratemaking and the ratemaking assurances in Case No. EM-2016-0213, it is appropriate to establish the authorized ROE for Empire, not its publicly traded parent APUC. Further, the return on equity established in this proceeding should allow Empire to attract capital on reasonable terms on a stand-alone basis and within the APUC corporate structure.

III. PROXY GROUP SELECTION

Q. Please explain why you have used a group of proxy companies to determine the ROE for Empire.

A. Consistent with the *Hope* and *Bluefield* decisions, the authorized ROE for a public utility should be commensurate with the equity return required on investments of similar risk. Investments in enterprises of similar risk thus represent opportunity costs with a direct bearing on the ROE of the subject utility.

In addition, in this proceeding I am estimating the ROE for Empire, a rate-regulated, indirect subsidiary of APUC. Since Empire is not a publicly-traded entity on a stand-alone basis, I established a group of companies that are publicly-traded and comparable in certain fundamental aspects to serve as a "proxy" in estimating an appropriate ROE.

Q. How did you select the companies included in your proxy group?

A. I began with the companies that Value Line classifies as "Electric Utilities," which comprise a group of 36 domestic U.S. utilities. I then simultaneously applied the following screening criteria to select a proxy group of companies that:

- Consistently pay quarterly cash dividends that have not been reduced or omitted during the most recent two-year period;
- Have positive earnings growth forecasts from at least two sources that are commonly relied on by investors;
- Have investment grade senior bond and/or corporate issuer ratings from S&P and/or Moody's (*i.e.*, BBB- to AAA and Baa3 to Aaa, respectively);
- Own regulated generation assets;

- Derive more than 60 percent of total operating income from regulated utility operations;
- Derive more than 80 percent of regulated operating income from electric utility operations; and
- Were not engaged in mergers or other transformative transactions during the analytical period (180 days).

Q. Did you include APUC in your analysis?

A. No. In order to avoid the circular logic that otherwise would occur, I excluded APUC from the proxy group.

Q. Which companies met your screening criteria?

A. The criteria discussed above resulted in the following group of companies:

Figure 3: Proxy Group Screening Results

Company	Ticker
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Evergy, Inc.	EVRG
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
NorthWestern Corporation	NWE
OGE Energy Corp.	OGE
Pinnacle West Capital Corp.	PNW
Portland General Electric Company	POR
PPL Corporation	PPL
Southern Company	SO
TXNM Energy, Inc	TXNM
Xcel Energy Inc.	XEL

The results of my proxy group screening are shown in **Direct Schedule DSD-3.**

IV. RETURN ON EQUITY ESTIMATION

Q. How is the return on equity estimated in regulatory proceedings?

A. The return on equity is not directly observable, and, therefore, must be inferred by using one or more market-based analytical techniques to determine investors' expectations of required returns, adjusted for certain incremental costs and risks. Informed judgment is applied, based on the results of those analyses, to determine where within the range of results the return on equity for the Company falls. The resulting adjusted return on equity serves as the recommended ROE for ratemaking purposes. It is important that the determination of a utility's required return on equity ensure that the methodologies employed reasonably reflect investors' view of the financial markets, as well as investments in the subject company's common equity.

Q. What analytical approaches did you use to determine the company's ROE?

A. I considered the results of the Constant Growth DCF model and two forms of risk premium models (i.e., the CAPM and the Bond Yield Plus Risk Premium approach). I also performed a comparative earnings analysis and a review of recently-authorized ROEs for other vertically integrated electric utilities as reasonableness checks of the DCF and risk premium results. It is appropriate to consider multiple methodologies for estimating a reasonable ROE, and the reasonableness of the results both individually and collectively.

A. Constant Growth DCF Model

Q. Are DCF models widely used to determine the ROE for regulated utilities?

A. Yes. Regulated utilities tend to be established, dividend-paying companies. DCF models, which incorporate expected dividends in the determination of ROEs, are

widely used in regulatory proceedings and have sound theoretical bases. Neither the DCF model nor any other model, however, can be applied without considerable judgment in the selection of data and the interpretation of results.

Q. Please describe the Constant Growth DCF approach.

A. In its simplest form, the DCF model expresses the cost of equity as the sum of the expected dividend yield and long-term growth rate. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows, which, for purposes of the model, are assumed to be equal to all expected future dividends. Thus, the return required by investors is implied by the per share price of a company's common stock. In its most general form, the DCF model is expressed as follows:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + ... + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

Where P_0 represents the current stock price, $D_1 \ldots D_\infty$ are all expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation, which can be simplified and rearranged into the following formula:

$$k = \frac{D(1+g)}{P_0} + g \quad [2]$$

Equation [2] is often referred to as the "Constant Growth DCF" model in which the first term is the expected dividend yield, and the second term is the expected long-term growth rate.

Q. What assumptions underlie the Constant Growth DCF model?

A. The Constant Growth DCF model requires the following assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant

price-to-earnings multiple; and (4) a discount rate that is greater than the expected growth rate. To the extent any of these assumptions do not hold true, considered judgment and/or specific adjustments should be applied to the results.

Q. What market data did you use to calculate the dividend yield in your DCF model?

A. I used readily available market data to calculate the dividend yield component of the DCF model. Specifically, the dividend yield is based on the proxy companies' current annualized dividend, and average closing stock prices over the 30-, 90-, and 180-trading days ended August 30, 2024.

Q. What adjustments did you make to the dividend yield to account for periodic growth in dividends?

A. Since current dividend data reflects the last dividend paid (i.e., D_0) by each proxy company, the dividend must be adjusted to reflect the next dividend expected by investors (i.e., D_1). Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, I applied one-half of the expected annual dividend growth for the purposes of calculating the expected dividend yield component of the DCF model, as shown in **Direct Schedule DSD-4**. This adjustment ensures that the expected dividend yield is, on average, representative of the coming twelve-month period and does not overstate the aggregate dividends to be paid during that time.

Q. What growth rate assumption did you use in the DCF analysis?

A. As implied by its name, the Constant Growth DCF model uses a single constant growth rate for earnings and dividends and assumes that rate in perpetuity. The growth rate in the DCF model reflects investors' expectations of future growth. Therefore, I used

investment analysts' expected earnings per share growth rates for each proxy group company. Since the cost of equity is a forward-looking concept, and since the DCF model is based on the premise that today's stock price is based on expected cash flows, it is important to use forecasted, as opposed to historical, estimates of proxy company growth. I used investment analysts' expected earnings growth rates primarily because: (1) they are widely relied upon by investors and available from multiple sources; (2) over the long run, dividend growth can only be sustained by earnings growth; and (3) significant academic research supports the use of analysts' forecasts as the source of DCF growth rates.[6]

Q. Please summarize your application of the Constant Growth DCF model.

A. I applied the DCF model to the proxy group of vertically-integrated electric utility companies, using the following inputs for the price and dividend terms:

1. The average daily closing prices for the 30-, 90-, and 180-trading days ended August 30, 2024, for the term P_0; and
2. The annualized dividend per share as of August 30, 2024, for the term D_0.

I then calculated the DCF results using each of the following growth terms:

1. Zacks Investment Research consensus long-term earnings growth estimate;
2. Thomson First Call consensus long-term earnings growth estimates; and
3. Value Line earnings per share growth estimates.

Q. How did you calculate the range of Constant Growth DCF results?

A. I used the mean of all three growth rates in combination with the dividend yield to determine the mean DCF result. I calculated the mean high DCF result for each proxy

[6] *See*, Morin, Roger, *New Regulatory Finance*, Public Utility Reports, Inc. (2006), at 299-302, for a summary of empirical research on this topic.

company using the maximum growth rate (i.e., the maximum of the Value Line, Zack's, and Thomson First Call EPS growth rates) in combination with the dividend yield for each of the proxy group companies. Thus, the mean high result reflects the average maximum DCF result for the proxy group. I used a similar approach to calculate the mean low results, using the minimum growth rate for each proxy group company.

Q. What are the results of your Constant Growth DCF analysis?

A. Figure 4 (below) provides the results of my Constant Growth DCF analysis. The mean DCF results range from 10.16 percent to 10.54 percent, depending on the averaging period used for stock prices. The results of the Constant Growth DCF analysis are also presented in **Direct Schedule DSD- 4**.

Figure 4: Constant Growth DCF Results

	Mean Low	Mean	Mean High
30-Day Average	9.09%	10.16%	11.08%
90-Day Average	9.31%	10.38%	11.30%
180-Day Average	9.47%	10.54%	11.46%

B. CAPM Analysis

Q. Please briefly describe the Capital Asset Pricing Model.

A. The CAPM is an analytical approach that captures the relationship between risk and return, reflecting the fact that investors require a higher return for taking on additional risk. Specifically, the CAPM is a risk premium model that is based on a required return that compensates the investor for the time value of money (indicated by a risk-free rate of return) as well as a premium for bearing systematic, non-diversifiable risk. Systematic risk is the risk inherent in the entire market or market segment that cannot be diversified away by investing in a portfolio of assets. Non-systematic risk is the risk

of a specific company that can, theoretically, be mitigated with an appropriately diversified portfolio.

The CAPM requires four inputs, each of which must theoretically be a forward-looking estimate:

$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

Where:

Ke = the current required market ROE;

β = Beta coefficient of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market.

In this specification, the term ($r_m - r_f$) represents the Market Risk Premium ("MRP"). According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should only be concerned with non-diversifiable risk. Systematic risk is measured by the Beta coefficient, a measure of the volatility of a security as compared to the market as a whole. The Beta coefficient is defined as:

$$\frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [4]$$

The variance of the market return (i.e., Variance (r_m)) is a measure of the uncertainty of the general market. The covariance between the return on a specific security and the general market (i.e., Covariance (r_e, r_m)) reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, the Beta coefficient represents the risk of the security relative to the general market. A Beta coefficient of 1.0 indicates a security whose returns generally move in the same direction as the overall market and by the same percentage. Positive Beta

coefficients of less than or greater than 1.0 also tend to move in the same direction as the overall market, but to a lesser (for securities with Beta coefficients of less than 1.0) or greater (for securities with Beta coefficients of more than 1.0) extent. Utility companies have historically tended to have Beta coefficients of less than 1.0, indicating less riskiness with regard to market risk. This lower level of market risk contributes to utility investments traditionally being considered a "defensive" sector for investors.

Q. What risk-free rate is reflected in your CAPM analysis?

A. I considered three estimates of the expected risk-free rate: (1) the current 30-day average yield on 30-year U.S. Treasury bonds (i.e., 4.23 percent);[7] (2) the projected 30-year U.S. Treasury bond yield for Q4 2024 through Q4 2025 (i.e., 4.12 percent);[8] and (3) the projected 30-year U.S. Treasury bond yield for 2026 through 2030 (i.e., 4.30 percent).[9]

Q. What Beta coefficients are reflected in your CAPM analysis?

A. I reflected the proxy companies' Beta coefficients in my CAPM analysis, as reported by Value Line and Bloomberg. The Beta coefficients reported by Value Line are based on five years of weekly returns relative to the New York Stock Exchange ("NYSE") Composite Index, and those sourced from Bloomberg reflect ten years of weekly returns relative to the S&P 500 Index. The Beta coefficients are shown on **Direct Schedule DSD-5.3**.

Q. How did you estimate the MRP in the CAPM?

A. As shown in equation [3], above, the MRP is equal to the required return on the market (r_m) less the expected risk-free rate of return (r_f). The risk-free rate of return component

[7] Bloomberg Professional, as of August 30, 2024.
[8] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2.
[9] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14.

is discussed above. For the required return on the market, I estimated a range of results from the analyses described below and then narrowed that range to determine the inputs to the CAPM.

Q. Please describe your estimation of the expected market return.

A. I first began with an analysis of the overall expected market return and then considered adjustments and alternatives to that measure. Like the ROE, the expected market return is not directly observable, and so it must be estimated or inferred by analyzing market data. I began my analysis of the expected market return by determining the expected total return on the S&P 500 Index. That determination can be performed in a similar manner to the determination of the proxy group ROE by applying the Constant Growth DCF model, but instead of applying it to only a proxy group of comparable companies, applying it to all companies in the S&P 500 Index[10] using earnings per share growth rates published by Value Line. This approach resulted in an estimated expected market return of 14.21 percent, as shown in **Direct Schedule DSD 5.1**. This data point represents the high end of the broader expected market return discussed above.

Q. Did you consider any adjustments to the expected market return to develop a range of estimations?

A. Yes. I further adjusted the calculation of the expected market return to exclude the EPS growth rates of companies in the S&P 500 index that had a projected earnings growth rate that was less than 0 percent or greater than 20 percent. This is consistent with the methodology currently employed by the Federal Energy Regulatory Commission. As

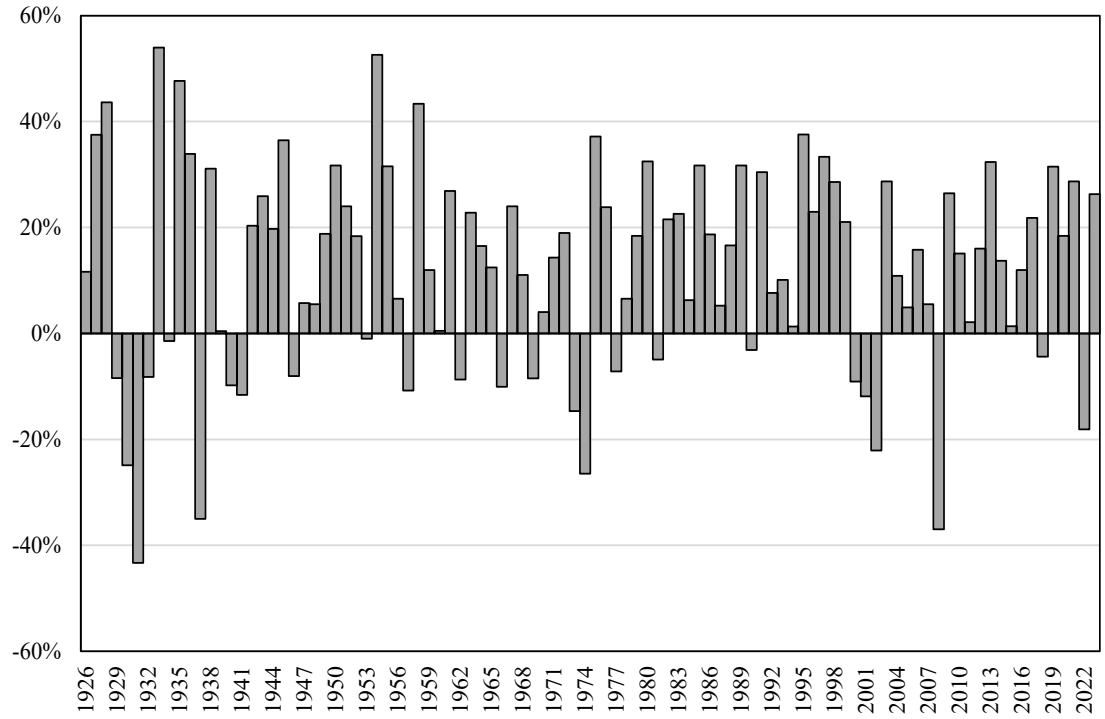
[10] For purposes of this analysis, I removed all non-dividend paying companies from the Constant Growth DCF model. There are theoretical bases against this adjustment and the growth rate adjustment described below. For example, it could be argued that it is inconsistent to apply Beta coefficients for the proxy companies that are measured against the entire S&P 500 to an MRP based on just a subset of the S&P. However, this adjustment has been relied on in setting regulatory ROEs (see, e.g., 169 FERC ¶ 61,129, at 134 and 138) and, as such, I considered it reasonable for purposes of evaluating the expected market return.

shown in **Direct Schedule DSD-5.2**, this approach resulted in an estimated expected market return of 11.25 percent. This data point represents the low end of the broader expected market return discussed above, and, depending on the assumed risk-free rate, produces an MRP (i.e., the required return on the market less the expected risk-free rate of return) of 6.95 percent to 7.13 percent.

Q. What analyses did you perform to benchmark the expected market return calculated using the Constant Growth DCF model (both adjusted and unadjusted)?

A. I benchmarked the expected market return by reviewing annual equity returns that have been observed over the past century. As shown in Figure 5, a current expected return of 11.25 percent (i.e., the adjusted expected market return described above) is reasonable given the range of annual equity returns over that time. The arithmetic average market return from 1926-2023 was 12.17 percent, as reported by Kroll, which is somewhat higher than my current expected return, as adjusted. In 55 out of the past 98 years (or 56 percent of observations), the realized equity return was 11.25 percent or greater. In addition, the unadjusted expected market return of 14.21 percent is below observations in 50 of the past 98 years (or 51 percent of observations) but is somewhat above the long-term arithmetic average.

Figure 5: Realized U.S. Equity Market Returns (1926-2023)[11]



Q. Please summarize your analysis of the required return on the market (r_m).

A. The above analyses present a range for the required market return (r_m) of 11.25 percent to 14.21 percent. Given the degree to which the top end of that range currently provides CAPM results that are difficult to reconcile with the results of other ROE estimation models, I focus on the lower end of that range.

Q. Did you consider any alternative specifications of the expected market return?

A. Yes. I also considered an alternative version of the expected market return based on the historical average return for large company stocks of 12.17 percent. That result is within, albeit towards the lower end of the broader range described above, and results in an MRP from 7.87 percent to 8.05 percent, depending on the risk-free rate. In my application of the CAPM, I relied on the narrower range formed by the expected market

[11] Depicts the annual total return on the S&P 500 Index of large company stocks.

return calculated using the adjusted Constant Growth DCF model (i.e., 11.25 percent) on the low end, and the historical average return for large company stocks on the high end (i.e., 12.17 percent).

Q. What are the results of your CAPM analysis?

A. As shown in **Direct Schedules DSD-5.1 through 5.5**, my CAPM analyses result in returns within a range from 9.78 percent to 11.78 percent, with an approximate midpoint of 10.78 percent.

Figure 6: CAPM Results

	Constant Growth DCF Methodology (Subset of S&P 500 Companies)	Long-Term Historical Market Return Methodology
Value Line Betas		
Current Risk-Free Rate	10.90%	11.77%
2024-25 Projected Risk-Free Rate	10.89%	11.77%
2026-30 Projected Risk-Free Rate	10.90%	11.78%
Bloomberg Betas		
Current Risk-Free Rate	9.80%	10.54%
2024-25 Projected Risk-Free Rate	9.78%	10.51%
2026-30 Projected Risk-Free Rate	9.82%	10.55%

C. Bond Yield Plus Risk Premium Analysis

Q. Please provide an overview of the bond yield plus risk premium approach you employed.

A. In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with ownership and therefore must be compensated for bearing that additional risk. That is, since returns to equity holders are riskier than returns to bondholders, equity investors require a premium over the

return on less risky bonds. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for electric utilities as the historical measure of the cost of equity to determine the risk premium.

Q. Please further describe the Risk Premium analysis.

A. I developed the analysis based on a regression of the risk premium (i.e., authorized ROEs less Treasury yields) as a function of Treasury yields. More specifically, I let authorized ROEs serve as the measure of required equity returns and defined the yield on the long-term Treasury bond as the relevant measure of interest rates. The risk premium is simply the difference between those two points.

Q. Are there other factors that should be considered?

A. Yes. In addition, it is important to recognize both academic literature and market evidence indicating that the equity risk premium is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). My analysis thus reflects the inverse relationship between interest rates and the equity risk premium and applies that relationship to expected market conditions.

Q. What did your bond yield plus risk premium analysis reveal?

A. As shown in Figure 7, from 1992 through August 30, 2024, there was, in fact, a strong negative relationship between risk premia and interest rates for electric utilities. To estimate that relationship, I conducted a regression analysis for electric utilities using the following equation:

$$RP = a + b\,(T) \qquad [5]$$

where:

RP = Risk Premium (difference between allowed ROEs and the yield on 30-year Treasuries)

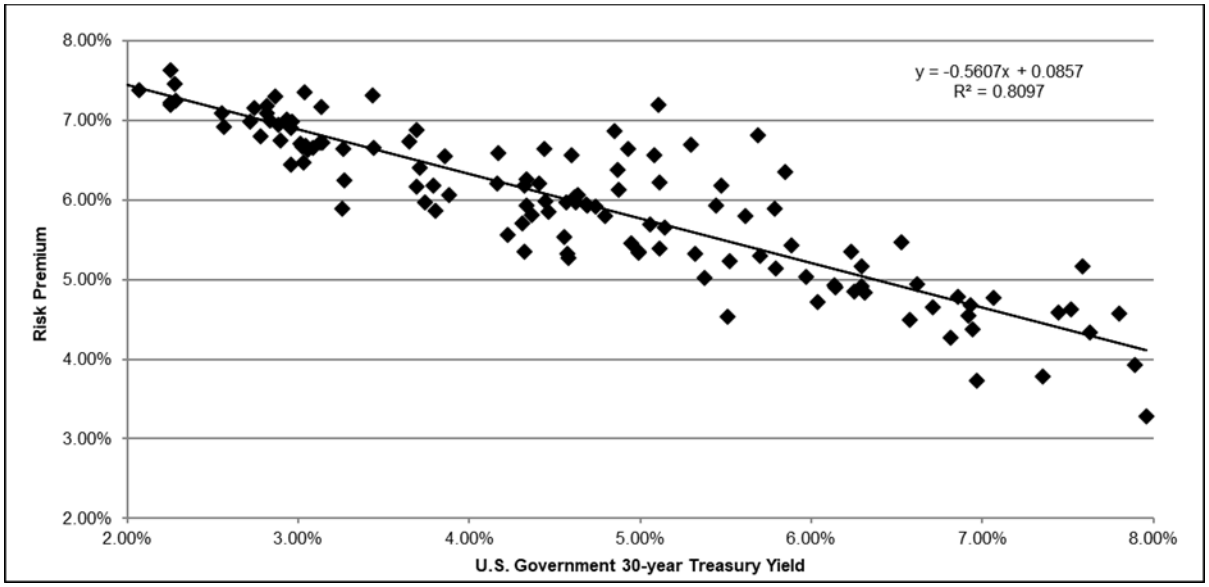
a = Intercept term

b = Slope term

T = 30-year Treasury Bond Yield

Data regarding allowed ROEs for vertically-integrated electric utilities were derived from more than 700 rate cases from 1992 through August 2024 as reported by Regulatory Research Associates. That equation's coefficients were statistically significant at the 99.00 percent level.

Figure 7: Electric Utilities Risk Premium vs. Interest Rates[12]



As shown in **Direct Schedule DSD-6**, based on the current 30-day average yield on 30-year Treasury bonds of 4.23 percent, the risk premium would be 6.20 percent, resulting in an estimated ROE of 10.43 percent. Based on the near-term (2024-2025) projections of the 30-year Treasury bond yield (i.e., 4.12 percent), the risk

[12] Source: Bloomberg Financial and Regulatory Research Associates, rate cases through August 31, 2024.

premium would be 6.26 percent, resulting in an estimated ROE of 10.38 percent. Based on longer-term (2026-2030) projections of the 30-year Treasury Bond yield (i.e., 4.30 percent), the risk premium would be 6.16 percent, resulting in an estimated ROE of 10.46 percent. The mean of these estimated ROE results is 10.42 percent. These results are consistent with my recommended ROE range of 9.75 percent to 11.00 percent, and Empire's proposed ROE of 10.00 percent.

D. Expected Earnings Analysis

Q. Have you conducted any other analysis to corroborate the DCF and CAPM results?

A. Yes. I also conducted an Expected Earnings analysis to provide further context for the cost of equity for Empire based on the projected ROEs for the proxy group companies.

Q. What is an Expected Earnings analysis?

A. The Expected Earnings methodology is a comparable earnings analysis that calculates the earnings that an investor expects to receive on the book value of a stock. The Expected Earnings analysis is a forward-looking estimate of investors' expected returns. The use of an Expected Earnings approach based on the proxy companies provides a range of the expected returns on a group of risk comparable companies to the subject company. This range is useful in helping to determine the opportunity cost of investing in the subject company, which is relevant in determining a company's ROE.

Q. How did you develop the Expected Earnings approach?

A. I relied primarily on the projected ROE for each of the proxy companies as reported by Value Line for the period from 2027-2029. I then adjusted those projected ROEs to account for the fact that the ROEs reported by Value Line are calculated on the basis

of common shares outstanding at the end of the period, as opposed to average shares outstanding over the entire period. As shown in **Direct Schedule DSD-7**, the Expected Earnings analysis results in a mean ROE estimate of 10.93 percent and a median ROE estimate of 10.27 percent. Those results overlap with the top end of my recommended ROE range, and, as such, serve as a reasonableness check on the other ROE estimation models I analyzed.

E. Authorized Returns Nationwide

Q. In addition to the traditional models used to estimate the cost of equity, have you also considered any other relevant benchmark?

A. Yes. In addition to the results of the traditional ROE estimation models, I also considered the average authorized ROE of 9.80 percent for vertically-integrated electric utilities since January 2023 as an important benchmark representing return expectations of utility investors.[13] Based on the results of the other ROE estimation models described herein, as well as Company-specific risk factors, that result, while consistent with the lower end of my recommended range of ROEs for the Company, serves as a conservative estimate of Empire's cost of equity, due to additional factors that impact the Company's ROE.

V. SUMMARY OF COST OF CAPITAL ANALYSES

Q. Please provide a summary of your cost of capital analyses.

A. Figure 8 provides a summary of the analyses described above.

[13] Source: Regulatory Research Associates, as of September 17, 2024.

Figure 8: Summary of Cost of Capital Analyses

Constant Growth DCF Results			
	Mean Low	Mean	Mean High
30-day average	9.09%	10.16%	11.08%
90-day average	9.31%	10.38%	11.30%
180-day average	9.47%	10.54%	11.46%
Capital Asset Pricing Model (Subset of S&P 500 Companies)			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Value Line Betas	10.90%	10.89%	10.90%
Bloomberg Betas	9.80%	9.78%	9.82%
Capital Asset Pricing Model (Historical Market Return)			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Value Line Betas	11.77%	11.77%	11.78%
Bloomberg Betas	10.54%	10.51%	10.55%
Risk Premium			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Risk Premium Results	10.43%	10.38%	10.46%
Expected Earnings			
Average	10.93%		
Median	10.27%		

Q. Were there other factors that you considered in your determination of a recommended ROE for Empire?

A. Yes. As described in the subsequent two sections, I also considered the impact of current and expected economic and capital market conditions on the various models used to estimate the return on equity, as well as business risks specific to the Company

and other relevant factors. Those considerations informed my opinion regarding where, within the range of results, Empire's ROE reasonably falls.

VI. ECONOMIC AND CAPITAL MARKET CONDITIONS

Q. Why is it important to consider economic and capital market conditions in your assessment of the Company's ROE?

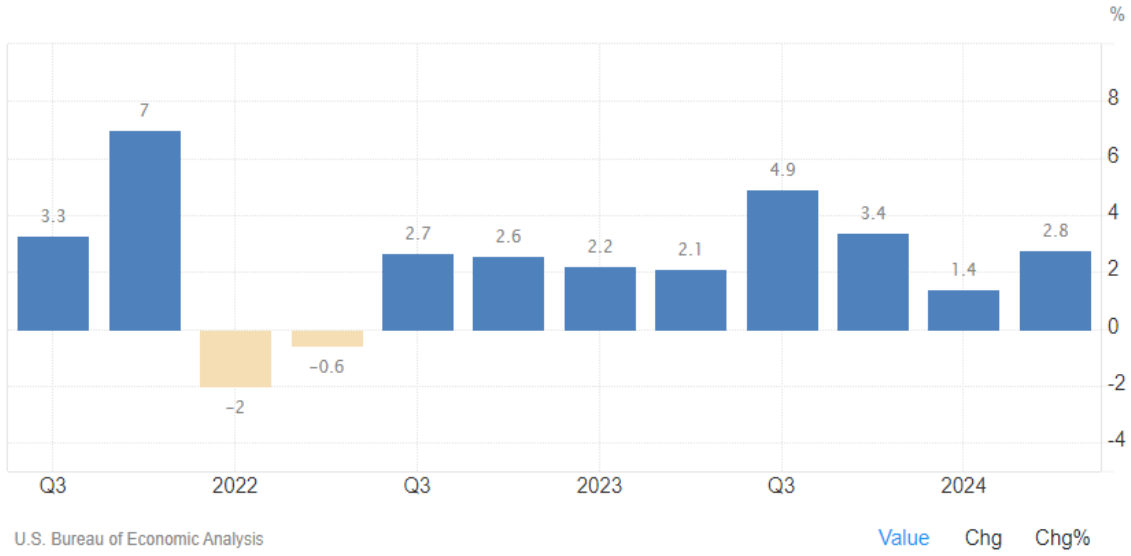
A. It is important to consider current and expected conditions in the general economy and financial markets because the authorized ROE for a public utility should allow the utility to attract investor capital at a reasonable cost under a variety of economic and financial market conditions, as underscored by the *Hope* and *Bluefield* decisions. The standard ROE estimation tools, such as the DCF, CAPM, Risk Premium, and Expected Earnings models, each reflect the state of the general economy and financial markets by incorporating specific economic and financial data. These inputs are, however, only samples of the various economic and market forces that determine a utility's required return. Consideration must be given to whether the assumptions relied on in the current or projected market data are appropriate. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' forward-looking required return. Therefore, an assessment of current and projected market conditions is integral to any ROE recommendation.

Q. Please discuss economic conditions.

A. Economic conditions were unsettled in 2023 due to ongoing inflationary pressure and the prospects for weaker economic growth or a possible recession as the Federal Reserve continued to tighten monetary policy to combat higher than expected inflation. Real Gross Domestic Product ("GDP") grew at an annual rate of 2.5 percent in 2023

compared to 1.9 percent in 2022. Figure 9 shows that real GDP growth ranged from 2.1 percent to 2.7 percent from the third quarter of 2022 through the second quarter of 2023, before expanding at an annualized rate of 4.9 percent in the third quarter of 2023 and 3.4 percent in the fourth quarter of 2023. Economic conditions in 2024 have stabilized, as inflation has gradually declined, economic growth has slowed, and the unemployment rate has started to rise. GDP growth slowed in the first quarter of 2024 to an annualized rate of 1.4 percent as higher interest rates started to weigh on economic growth but rebounded to an annualized rate of 2.8 percent in the second quarter of 2024, which has been attributed to consumer spending, business investments, and slowing inflation.[14]

Figure 9: U.S. Real GDP Growth[15]



Q. Please discuss the path of monetary policy.

A. The U.S. Federal Reserve (the "Fed") continued to tighten monetary policy in 2023 to slow economic growth and combat higher-than-expected inflation. Specifically, the

[14] Torry, Harriet. "Economic Growth Quickens, Rising at 2.8% Rate in Second Quarter," The Wall Street Journal, July 25, 2024.
[15] Source: https://tradingeconomics.com/united-states/gdp-growth.

Fed raised the federal funds rate from a range of 0.00 to 0.25 percent in March 2022 to a range of 5.25 to 5.50 percent (the highest level in the last 20 years). In August 2024, Fed Chair Jerome Powell signaled that the economic data on inflation and unemployment was likely to lead to a reduction in short-term interest rates as soon as the next Federal Open Market Committee meeting in September 2024. On September 18, 2024, the Fed announced a reduction in the federal funds rate of 50 basis points to a range of 4.75 to 5.00 percent. In announcing this decision to cut short-term interest rates for the first time since 2020, the Fed noted that the balance of risks had shifted between inflation and employment. With regard to the path of future monetary policy, Chair Powell has indicated that the "timing and pace of rate cuts will depend on incoming data, the evolving outlook, and the balance of risks."[16] Current projections indicate that the Fed expects to reduce the federal funds rates by an additional 25 to 50 basis points by the end of 2024, depending on economic data.[17]

Q. What are the key factors affecting the return on equity for regulated utilities in the current and prospective capital markets?

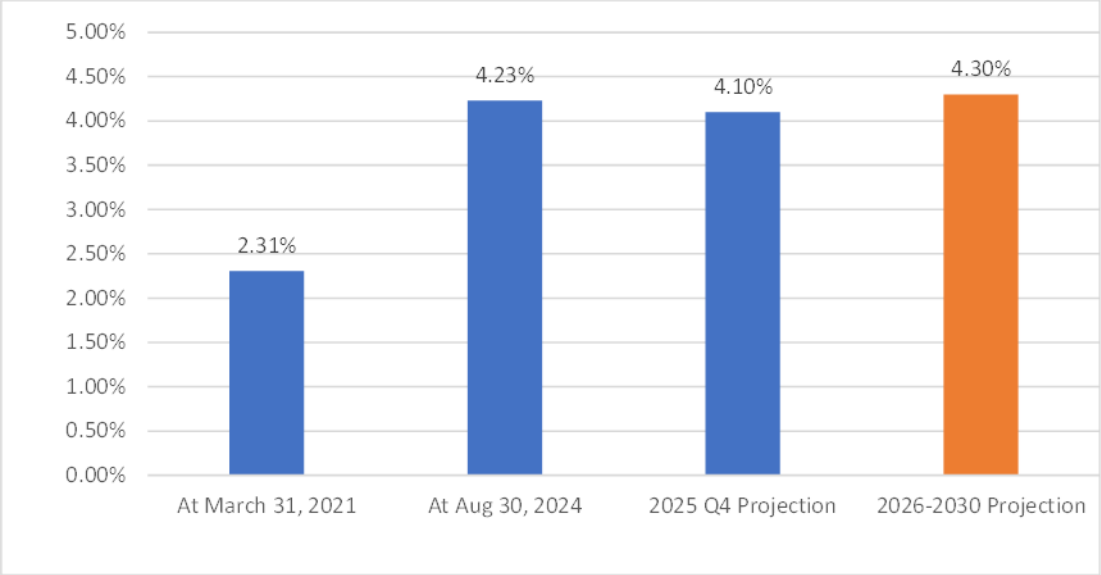
A. The return on equity for regulated utilities is being affected by several key capital market factors. Those factors include the interest rate environment and the longer-term outlook for inflation. In this section, I discuss these factors and how they affect the models used to estimate the equity return for regulated utilities.

[16] Review and Outlook, Remarks by Jerome H. Powell, Chair, Board of Governors of the Federal Reserve System, at "Reassessing the Effectiveness and Transmission of Monetary Policy," an economic symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 23, 2024, at 3.
[17] Federal Reserve Board, Summary of Economic Projections, September 18, 2024, at 4.

Q. Please discuss investor expectations regarding government bond yields and explain the implications for equity investors considering the utility sector.

A. The 30-day average yield on 30-year Treasury bonds was 2.31 percent as of March 31, 2021 (when the ROE analysis in Empire's previous rate case was performed). As shown in Figure 10, as of August 30, 2024, the 30-day average yield on the 30-year Treasury bond increased to 4.23 percent, or 192 basis points higher. 30-year Treasury yields are projected to remain near current levels, at 4.10 percent in the fourth quarter of 2025[18] and to average 4.30 percent over the period from 2026-2030.[19]

Figure 10: Comparison of U.S. Treasury Bond Yields



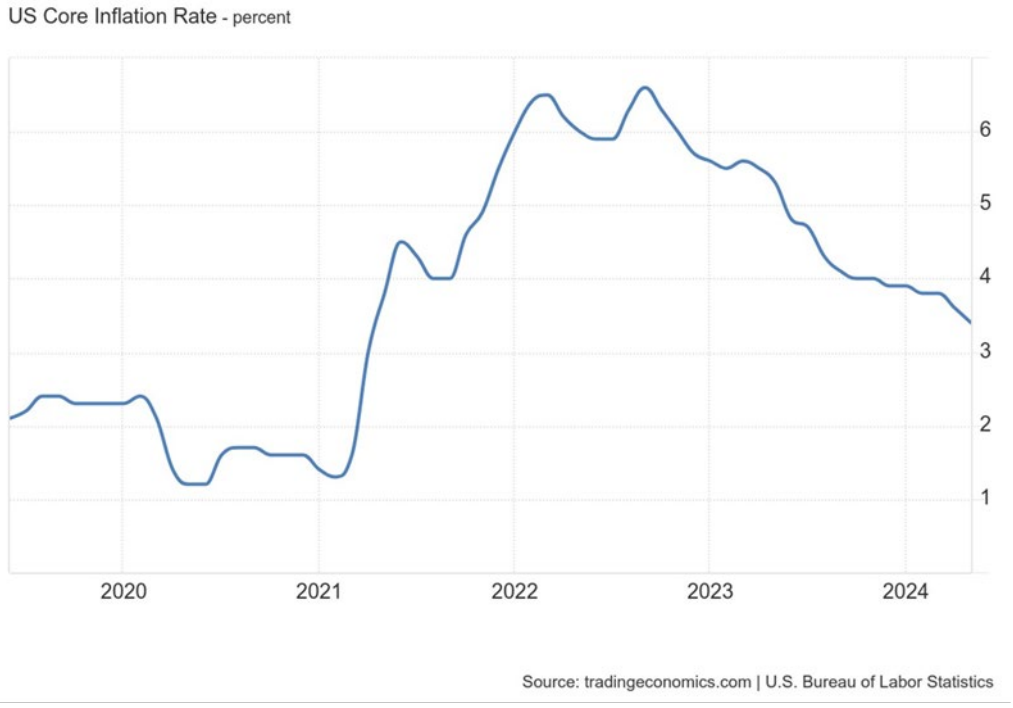
This indicates that investors do not expect yields to decline to the very low interest rate environments of the recent past, indicating continued upward pressure on equity return requirements.

[18] Blue Chip Financial Forecasts, Vol. 43, Issue No. 9, August 30, 2024, at 2.
[19] Blue Chip Financial Forecasts, Vol. 43, Issue No. 6, May 31, 2024, at 14.

Q. Please discuss the status of inflation.

A. As shown in Figure 11, the core inflation rate, which excludes volatile food and energy prices, was 3.2 percent for the 12-month period as of September 2024. While the Consumer Price Index ("CPI") has declined from the extreme levels of June 2022 when it reached an annualized rate of 9.1 percent, the core inflation rate has been more persistent and remains well above the Federal Reserve's long-term inflation target of 2.0 percent.

Figure 11: Core Inflation Rate[20]



Near-term inflation expectations have been declining in more recent months, as shown in the University of Michigan's consumer confidence survey, which indicated that U.S. consumers expect inflation of 2.7 percent over the next year, while long-term inflation expectations were changed little at 3.1 percent, which remains "modestly

[20] Source: https://tradingeconomics.com/united-states/core-inflation-rate.

elevated relative to the range of readings seen in the two years pre-pandemic."[21] The Fed has indicated that it could reduce the federal funds rate one or more times before the end of 2024, from the current range of 4.75 to 5.00 percent, if inflationary pressure continues to decline. However, the size of that reduction and the timing or magnitude of any further reductions in short-term interest rates remains unknown and are highly dependent on economic data. In fact, as discussed above, while there were expectations for as many as six interest rate cuts in 2024, those expectations have diminished as the year has progressed, due in large part to more persistent than expected levels of inflation.

Q. Please summarize your conclusions regarding the effect of capital market conditions on the authorized ROE for Empire in this proceeding.

A. Although the Fed has started to reduce the level of short-term interest rates, yields on government and utility bond yields increased sharply in 2022 and 2023 and have remained elevated in 2024 as compared to the very low interest rate environment following the Great Recession. Under these conditions, it is reasonable that equity investors would require a higher ROE to keep pace with the increased yields on lower-risk bonds and to compensate them for the additional risks of owning common stock.

Q. Do the models used to estimate the ROE reflect these economic circumstances?

A. Yes. These circumstances are reflected in the results of multiple models used to estimate the return on equity, such as the DCF, CAPM, Risk Premium, and Expected Earnings approaches. In other words, while I have made no adjustment to the ROE estimation models to reflect changes in economic conditions, by relying on multiple models that reflect current market data, my analysis reflects current investor sentiment

[21] Source: University of Michigan Consumer Confidence Survey, September 27, 2024.

regarding the implications of broader economic factors on the ROE of regulated utilities.

VII. BUSINESS RISKS AND OTHER CONSIDERATIONS

Q. What is the focus of this section of your testimony?

A. This section of my direct testimony focuses on business risks and other considerations that impact the Company's authorized return. As I described at the outset of this testimony, based on the results of multiple ROE models, I find a reasonable range for the authorized ROE for Empire to be from 9.75 percent to 11.00 percent. Further, the Company's ROE could reasonably be set above the midpoint of that range, reflecting the Company's elevated business risk compared to the proxy group, as well as other factors. In particular, in this section I discuss the Company's increased business risk related to the following factors, as well as the relative impact of these risks on Empire as compared to the proxy companies: (1) small size risk; (2) capital expenditure risk; and (3) regulatory risk. I also consider the costs of issuing common stock, also known as flotation costs. While I did not make explicit adjustments for these factors, they informed my opinion regarding where, within the range of results, Empire's ROE reasonably falls.

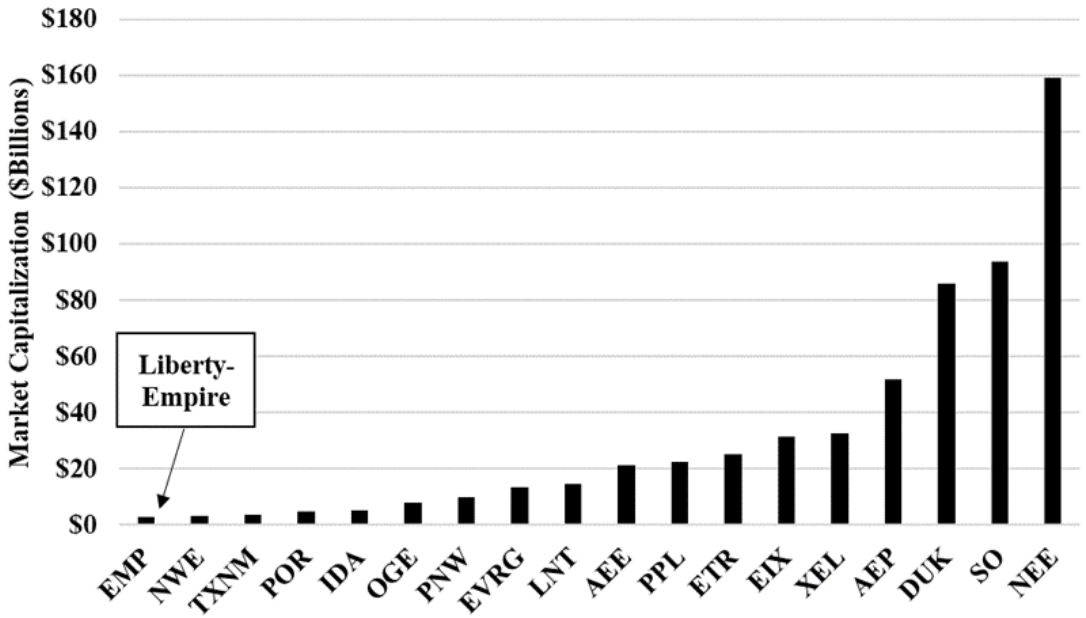
A. Small Size Risk

Q. How does the Company's small size affect its risk profile and cost of equity?

A. The small size of Empire relative to the proxy group companies is an important risk factor in determining the Company's cost of equity. Smaller companies generally are thought to be riskier than larger companies, and thus investors require a higher return for investment in smaller firms. That higher return requirement is known as the "size premium." Academic literature recognizes that smaller companies tend to be rewarded

with higher total returns than larger companies, even after the relative illiquidity of smaller company stock is taken into account. Figure 13 (see also **Direct Schedule DSD-8**) shows Empire's implied market capitalization relative to the proxy group companies. As shown in that Figure, Empire's implied market capitalization is $2.8 billion, or 13.07 percent of the proxy group median market capitalization of $21.45 billion.

Figure 13: Market Capitalization of Empire vs. Proxy Group



Empire's small size relative to the proxy group companies means that the Company's earnings and cash flows may be disproportionately affected by circumstances such as the loss of large customers, weaker than expected demand for electric utility service due to general macroeconomic conditions in the service territory, or fuel price volatility. Similarly, capital expenditures for non-revenue producing investments such as system maintenance and replacements will put proportionately greater pressure on customer costs. Taken together, these risks affect the return required by investors for smaller companies. While I recognize that, as a wholly-

owned, indirect subsidiary of LUCo, Empire may have some protection from such external shocks, on a stand-alone basis the Company is relatively small as compared to the proxy group companies used for the ROE analysis. This small size magnifies the effect of other business and financial risks on Empire.

Q. Do credit rating agencies consider small size as a distinguishing risk factor?

A. Yes. Moody's, for example, considers the size and diversity of utility operations to be a distinguishing factor that makes some utilities riskier than others. In discussing its rating methodology for regulated electric and gas utilities, Moody's states:

> We also consider the diversity of utility operations (e.g., regulated electric, gas, water, steam) when there are material operations in more than one area. Economic diversity is a typically a function of the population, size and breadth of the territory and the businesses that drive its GDP and employment. For the size of the territory, we typically consider the number of customers and the volumes of generation and/or throughput. For breadth, we consider the number of sizeable metropolitan areas served, the economic diversity and vitality in those metropolitan areas, and any concentration in a particular area or industry. In our assessment, we may consider various information sources.[22]

Empire's service territory is characterized by both the small size and lack of geographic and economic diversity that Moody's describes as increased risk factors for regulated utilities.

Q. Have any credit rating agencies commented on Empire's small size?

A. Yes. Moody's, for example, notes that "[o]ur assessment of Empire also incorporates the utility's small size and limited geographic diversity on a stand-alone basis. However, this is offset to some degree by its position as a segment of the larger and more diversified Liberty Utilities Co., (Liberty, Baa2 stable) a wholly-owned

[22] Moody's Investors Service, "Rating Methodology: Regulated Electric and Gas Utilities," June 23, 2017, at 16.

subsidiary of Algonquin Power & Utilities Corp. (Algonquin, not rated)."[23] Moody's further commented that a "credit challenge" for the Company is its "[s]mall stand-alone size and scale."[24]

Q. What is your conclusion regarding how Empire's small size affects the company's return on equity?

A. My conclusion is that Empire is smaller than the proxy group companies. While I have not made a specific adjustment to reflect the Company's small size, the risk associated with small size indicates that Empire's authorized ROE should be higher than the midpoint of the range of proxy group results.

B. Capital Expenditure Risk

Q. How do Empire's capital expenditure requirements affect its risk profile?

A. The Company's risk profile is adversely affected because of its projected level of capital investment that, though beneficial to customers, increases the risk of under-recovery. This risk is more pronounced in the current inflationary environment. An inadequate return would put downward pressure on cash flow.

Q. Does the investment community recognize the risks associated with elevated capital expenditures?

A. Yes, it does. A company's capital expenditure program reduces its cash flows and consequently exerts corresponding pressure on credit metrics, alerting investors to the potential for declining credit quality and credit ratings. S&P describes how regulatory support for large capital projects is essential in preserving utilities' financial integrity and credit quality:

[23] Moody's Investors Service, Empire District Electric Company (The), Credit Opinion, September 4, 2024, at 1.
[24] *Id*., at 2.

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining. Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.[25]

Q. Has the Company implemented any credit supportive regulatory approaches?

A. Yes. Empire elected Plant in Service Accounting ("PISA") treatment in Missouri, which reduces the risk of delayed recovery of the invested capital, a common cause of regulatory lag. Moody's describes PISA as "work[ing] towards shortening regulatory lag, a credit positive when implemented."[26]

Q. What are your conclusions regarding the effect of Empire's capital spending program on its risk profile?

A. Capital expenditures-related risk generally represents an industry-wide challenge, and so this risk is not unique to the Company. For Empire, timely and full cost recovery is needed to maintain the Company's credit metrics at a level consistent with the current credit ratings. In addition, as discussed below, several of the proxy group companies have capital cost recovery mechanisms, so the implementation of PISA, while being incrementally credit supportive, does not reduce the Company's relative risk when compared to the proxy group companies on average. The financial community

[25] S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.
[26] *Id*., at 3.

recognizes the additional risks associated with substantial capital expenditures. As such, continued access to capital on reasonable terms is required to facilitate investment in the Company's system.

C. Regulatory Risk Assessment

Q. Why is a utility's regulatory framework an important consideration for investors?

A. Regulatory risk is a key component of business risk for regulated utilities. For instance, S&P Global, in its rating methodology for regulated utilities, states "[t]he regulatory framework/regime's influence is of critical importance when assessing regulated utilities' credit risk because it defines the environment in which a utility operates and has a significant bearing on a utility's financial performance."[27] Moody's, in its rating methodology for regulated electric and gas utilities, lists "Regulatory Framework" as one of "four key factors that are important in [Moody's] assessment of ratings in the regulated electric and gas utility sector."[28] Moody's states that "[a]n over-arching consideration for regulated utilities is the regulatory environment in which they operate. The nature of regulation can vary significantly from jurisdiction to jurisdiction,"[29] and the agency assigns "Regulatory Framework," together with "Ability to Recover Costs and Earn Returns," a 50% factor weighting in its ratings scorecard.

Q. What factors did you consider in assessing Empire's regulatory framework and regulatory risk?

A. I considered the ratemaking conventions and adjustment mechanisms available to Empire compared to the proxy companies.

[27] S&P Global, "Key Credit Factors for the Regulated Utilities Industry," November 19, 2013, at 6.
[28] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 2.
[29] *Id*., at 3.

Q. Please describe your analysis of ratemaking conventions and adjustment mechanisms.

A. I conducted an analysis of the ratemaking conventions and adjustment mechanisms that most significantly impact the Company's risk profile as compared to those of the operating utility companies held by the proxy group. Specifically, I examined the following factors that affect the business risk of Empire and the proxy group companies: (1) fuel and purchased power cost recovery; (2) test year convention; (3) rate base convention; (4) revenue decoupling; and (5) capital cost recovery. The results of that analysis are provided in **Direct Schedule DSD-9**.

Fuel and Purchased Power Costs: Empire has a fuel cost recovery mechanism that allows the Company to recover 95 percent of the variation between actual and forecasted fuel and purchased power costs. Slightly more than 90 percent of the proxy group companies have a fuel adjustment clause that allows them to fully pass through fuel and purchased power costs dollar for dollar without any limitations, while slightly less than ten percent have less than full pass through of these costs like the Company. In this regard, Empire has greater business risk than the proxy group. As discussed in the direct testimony of Company witness John J. Reed, Empire is proposing changes to its fuel adjustment clause ("FAC") that would allow Empire to pass through 100 percent of fuel and purchased power costs. If the Commission approves this proposal, Empire will be more similar to the proxy group companies on this risk factor. If the proposal is not approved, Empire will continue to have greater business risk than the proxy group related to fuel cost recovery.

Test Year Convention: Approximately 45 percent of the operating companies (i.e., 38 out of 84) in the proxy group provide service in jurisdictions that allow the use of a

fully or partially forecasted test year. By contrast, Empire's rates are set based on a historical test year, adjusted for known and measurable changes, which results in increased regulatory lag. PISA acts to reduce regulatory lag, but, as described below, several of the proxy group companies have capital cost recovery mechanisms as well.

Rate Base Convention: Like Empire, 54 percent of the operating companies in the proxy group (i.e., 45 out of 84) use test year-end rate base, which provides more timely cost recovery of capital investments, while 46 percent use average rate base.

Volumetric Risk/Revenue Decoupling: Approximately 51 percent of the operating utilities (both gas and electric) held by the proxy group (i.e., 43 out of 84) have full or partial revenue decoupling mechanisms or weather normalization adjustment clauses that allow them to break the link between customer usage and revenues. Empire does not have a revenue decoupling or weather normalization mechanism for its electric utility operations in Missouri. Absent the decoupling mechanism, Empire has higher business risk than the proxy group companies.

Capital Cost Recovery: As noted previously, Empire has elected PISA treatment in Missouri, which allows the Company to include 85% of deferred depreciation and its respective return on certain capital investments in rate base between the filing of rate cases. Approximately 75 percent of the operating utilities held by the proxy group (i.e., 63 out of 84) have capital cost tracking mechanisms that allow them to seek recovery of capital investments for generation capacity or generic infrastructure replacements that are placed into service between rate cases, and approximately the same percentage (76 percent) of the operating companies in the proxy group can seek recovery of some or all of construction work in progress ("CWIP") between rate cases. In this regard, and considering that its capital cost recovery mechanism is not for full recovery and is

only for certain qualifying investments, Empire is not advantaged compared to the majority of the proxy group companies on this factor, and the Company retains significant risk related to capital.

Q. Based on these considerations, what is your conclusion regarding the level of regulatory risk for Empire relative to that of the proxy group companies?

A. My conclusion is that Empire's electric utility business has somewhat higher regulatory risk than the proxy group due primarily to: (1) the use of a historical test year, which contributes to regulatory lag; and (2) volumetric risk that is not mitigated through revenue decoupling or weather normalization mechanisms. In addition, if Empire's proposed changes to its FAC are not approved, Empire will be riskier on that factor relative to the proxy group. For these reasons, my conclusion is that Empire has somewhat higher regulatory risk than the proxy group.

D. Flotation Costs

Q. What are flotation costs?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include underwriter discounts; audit, legal and listing fees; printing costs; and other direct issuance expenses. Flotation costs are similar to debt issuance costs in that they are necessary for the issuance of equity securities, and they reduce the net proceeds available to the issuing company. As an example, where a company's share price at the time of a stock issuance may be $22.00, if flotation costs are equal to $0.50 per share, the Company will receive only $21.50 per share. In order to compensate investors for the return they require (implied by the $22.00 price at the time of the issuance), the enterprise must earn a higher ROE on the reduced proceeds.

Q. Should flotation costs be considered when setting the authorized ROE?

A. Yes. Flotation costs are not expenses that flow through the income statement, but instead reduce the proceeds of the securities issuances, resulting in a permanent net reduction to the common equity portion of the balance sheet. As a result, flotation costs should be recovered through a return adjustment, regardless of whether an issuance occurs during, or is planned for, the test year. Recovery of investments is not limited to the year in which the investment is made, and neither should the recovery of legitimately incurred, direct flotation costs. According to Dr. Shannon Pratt:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[30]

In addition, in order to attract and retain new investors, a regulated utility must have the opportunity to earn a return that is both competitive and compensatory. To the extent that a company is denied the opportunity to recover prudently incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diminishing the company's ability to attract adequate capital on reasonable terms.

Q. Are flotation costs part of the utility's invested costs or part of its expenses?

A. Flotation costs are part of the invested costs of the utility, which are reflected on the balance sheet under "paid in capital." As a result, the large majority of a utility's

[30] Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition, at 220-221.

flotation costs are incurred prior to the test year but remain part of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes. Therefore, cost recovery is appropriate even if no new issuances are planned in the near future because failure to allow such recovery may deny the Company the opportunity to earn its required rate of return in the future.

Q. Is the need to consider flotation costs eliminated because the Company is a subsidiary of APUC?

A. No. Although the Company is a subsidiary of APUC, it is appropriate to consider flotation costs because the source of capital used by the Company was the result of a public issuance by its parent organization, which led to the issuance costs. To deny recovery of issuance costs associated with the capital that is invested in the utility ultimately will penalize the investors that fund the utility operations and will inhibit the utility's ability to obtain new equity capital at a reasonable cost.

Q. Does the DCF model already incorporate investor expectations of a return that compensates for flotation costs?

A. No. All the models used to estimate the appropriate ROE assume no "friction" or transaction costs, as these costs are not reflected in the market price (in the case of the DCF model). Therefore, it is appropriate to consider flotation costs when estimating the Company's ROE.

Q. Have you calculated the effect of flotation costs on the ROE?

A. Yes. I modified the DCF calculation to provide a dividend yield that would reimburse investors for issuance costs. Based on the issuance costs shown in **Direct Schedule DSD-10**, an adjustment of 0.07 percent (i.e., 7 basis points) would be reflective of flotation costs for the Company.

Q. Are you proposing to directly increase your recommended ROE to account for flotation costs?

A. No. I reflected no such adjustment in my analysis. I did consider flotation costs, however, as well as the other factors discussed above, in determining where Empire's ROE reasonably falls within the range of results.

VIII. CAPITAL STRUCTURE AND COST OF DEBT

Q. What is Empire's proposed capital structure as of September 30, 2023?

A. As of September 30, 2023, Empire's actual capital structure is comprised of 53.1 percent common equity and 46.9 percent long-term debt, which reflects an adjustment for approximately $300 million of new intercompany borrowings entered into on June 12, 2024. I recommend that Empire's actual capital structure be used for ratemaking purposes in this proceeding.

Q. In your assessment of the Company's capital structure, did you make any pro forma adjustments?

A. Yes, I did. In my analysis of Empire's capital structure, I included a pro forma adjustment for the Company's approximately $300 million intercompany borrowings issued on June 12, 2024. This adjustment reflects changes to the capital structure supporting the permanent asset base.

Q. Does your recommended capital structure include short-term debt?

A. No. The $300 million intercompany borrowings described above were used to refinance short-term borrowings from the Company's money pool. Further, when evaluating the incorporation of short-term debt in the ratemaking capital structure, the Commission has previously found it appropriate to offset short-term debt/money pool borrowings with construction work in progress ("CWIP"). For example, the

Commission found that "[w]hen short-term debt is used by a utility to support construction work in progress (CWIP) it is typically excluded from the ratemaking capital structure."[31] Similarly, deferred fuel costs, which are flowed through the Company's fuel adjustment clause typically within one year, are also supported in the near term by short-term borrowings. Since the Company's CWIP and deferred fuel costs as of September 30, 2023 offset the remainder of the Company's short-term borrowings after reflecting the $300 million pro forma adjustment, my recommended capital structure includes $0 in short-term debt.[32]

Q. The Stipulation and Settlement Agreement in Case No. EM-2016-0213 required Empire to provide evidence in subsequent rate cases as to why Empire's per book capital structure is "most economical" for purposes of determining a fair and reasonable allowed rate if Empire's per books capital structure is different from that of the entity or entities on which Empire relies for its financing needs. Have you performed an analysis to address that requirement?

A. Yes. As described below, I also analyzed the capital structures at LUCo and APUC. That analysis supports using Empire's actual capital structure to establish rates in this proceeding.

Q. Did you make any adjustments to LUCo's and APUC's short-term debt in the assessment of the companies' capital structures using the CWIP and deferred fuel costs adjustments described above?

[31] Missouri Public Service Commission, Case No. ER-2019-0374, Amended Report and Order, issued July 23, 2020, at 87-88.

[32] In early 2024, Liberty completed the securitization of approximately $305 million in costs incurred because of the 2021 extreme weather event called Winter Storm Uri and the Asbury generation plant that was removed from service. While the securitization included deferred fuel costs, the transaction was also used to pay down money pool borrowings. As such, while deferred fuel costs may have been higher than normal in December 2023, the fact that the securitization reduced money pool borrowings has a similar impact on the Company's short-term debt balances as netting out deferred fuel costs.

A. Yes, I did. Those adjustments were similar to the adjustments described above, whereby I adjusted LUCo's and APUC's short-term debt balances by those companies' balances in CWIP and deferred fuel costs.

Q. What are the results of the capital structure analysis for LUCo and APUC?

A. Based on the capital structures at the end of the test year September 30, 2023, and offsetting short-term debt by CWIP and deferred fuel costs (**Direct Schedule DSD-11**), LUCo's common equity ratio was 66.1 percent and its long-term debt ratio was 33.9 percent. APUC's common equity ratio was 63.5 percent and the long-term debt ratio was 36.5 percent. These equity ratios are both above Empire's actual 53.1 percent common equity ratio.

Q. Have you analyzed the capital structures of the proxy group companies?

A. Yes. I calculated the mean and median proportions of common equity and long-term debt over the most recent eight quarters for each of the proxy group companies at the utility operating company level. My analysis of the proxy group's utility operating company capital structures is provided in **Direct Schedule DSD-12**. As shown in that schedule, the average and median common equity ratios for the proxy group over the last eight quarters are 52.25 percent and 52.04 percent, respectively, within a range from 43.93 percent to 60.69 percent, not including the effect of off-balance sheet transactions that may be imputed as debt and may affect the investment community's perception of a company's leverage. Empire's proposed equity ratio of 53.1 percent is near the average and median for the operating utilities held by the proxy group companies.

Q. Have you conducted any additional analysis of the capital structures of the proxy group companies?

A. Yes, in addition to reviewing the actual capital structure for the proxy group companies, I also reviewed the current authorized equity ratio for each of the operating companies held by the proxy group. As shown in **Direct Schedule DSD-12**, the average and median common equity ratios for the proxy group over the last eight quarters are 52.79 percent and 52.17 percent respectively. The proposed equity ratio for Empire is very close to those average and median results, and well within the broader range of equity ratios for the operating companies.

Q. What is your conclusion regarding Empire's proposed capital structure?

A. The proposed equity ratio for Empire of 53.1 percent is within the range established by the operating utilities held by the proxy group companies. It is also below the equity ratios, as adjusted, of both LUCo and APUC. As such, my conclusion is that the Company's proposed actual capital structure is reasonable and appropriate for ratemaking purposes.

Q. What is the Company's cost of long-term debt?

A. As shown in Charlotte T. Emery's direct testimony, Direct Schedule CTE-9, the Company's cost of debt is 4.22 percent. This cost reflects the Company's actual capital structure, which is comprised of 53.1 percent equity and 46.9 percent debt.

Q. Have you assessed the Company's cost of long-term debt relative to other integrated electric utilities?

A. Yes, I calculated the embedded cost of debt for authorized integrated electric utility returns from January 1, 2023, through September 17, 2024. The mean embedded cost of long-term debt over that period was 4.13 percent and the median was 4.12 percent. Further, I reviewed recent yields on utility debt as measured by the Moody's Baa-rated utility bond index, which averaged 5.81 percent for the 180 trading days ending August

30, 2024. Based on that review, the Company's 4.22 percent cost of long-term debt is reasonable, if not conservative relative to current industry benchmarks.

IX. CONCLUSION

Q. Please summarize your cost of capital recommendations.

A. Based on the various quantitative and qualitative factors discussed herein, I find that a reasonable range of ROE results for Empire is from 9.75 percent to 11.00 percent. This range reflects several well-accepted methodologies for estimating ROE, recently authorized ROEs for other vertically integrated electric utilities, and prevailing and expected capital market conditions. As discussed herein, Empire's ROE could reasonably be set above the midpoint of that range (10.4 percent or above). However, Empire is requesting an authorized ROE of 10.00 percent in an effort to mitigate the rate impact on customers. Figure 14 below summarizes the ROE model results that informed my recommendation.

In addition, I conclude the Company's proposed capital structure of 53.1 percent common equity and 46.9 percent long-term debt is reasonable and within the range of the capital structures maintained by the operating utilities held by the proxy group companies. Further, the Company's proposed cost of long-term debt of 4.22 percent is reasonable as compared to the authorized debt cost for other electric utilities with rate case decisions since January 2023 and to the average interest rate on the Moody's Baa utility bond index as of August 2024.

Figure 14: Summary of Cost of Capital Analyses

Constant Growth DCF Results			
	Mean Low	Mean	Mean High
30-day average	9.09%	10.16%	11.08%
90-day average	9.31%	10.38%	11.30%
180-day average	9.47%	10.54%	11.46%
Capital Asset Pricing Model (Subset of S&P 500 Companies)			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Value Line Betas	10.90%	10.89%	10.90%
Bloomberg Betas	9.80%	9.78%	9.82%
Capital Asset Pricing Model (Historical Market Return)			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Value Line Betas	11.77%	11.77%	11.78%
Bloomberg Betas	10.54%	10.51%	10.55%
Risk Premium			
	Current Risk-Free Rate	2024-25 Projected Risk-Free Rate	2026-2030 Projected Risk-Free Rate
Risk Premium Results	10.43%	10.38%	10.46%
Expected Earnings			
Average	10.93%		
Median	10.27%		

Q. Does this conclude your direct testimony at this time?

A. Yes.

VERIFICATION

I, Daniel S. Dane, under penalty of perjury, on this 6th day of November, 2024, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Daniel S. Dane