Ameren Exhibit 8.0

ILLINOIS COMMERCE COMMISSION

DOCKET 23-____

DIRECT TESTIMONY

OF

DYLAN W. D'ASCENDIS, CRRA, CVA
SCOTTMADDEN, INC.

Submitted on behalf

of

AMEREN ILLINOIS COMPANY
d/b/a Ameren Illinois

January 20, 2023

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DYLAN W. D'ASCENDIS
SCOTTMADDEN, INC.

Submitted on Behalf Of

Ameren Illinois

I. INTRODUCTION

Q. Please state your name, affiliation, and business address.

A. My name is Dylan W. D'Ascendis. I am employed by ScottMadden, Inc. as a Partner. My business address is 3000 Atrium Way, Suite 200, Mount Laurel, NJ 08054.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this direct testimony before the Illinois Commerce Commission (Commission) on Ameren Illinois Company d/b/a Ameren Illinois (AIC or the Company).

Q. Please summarize your professional experience and educational background.

A. I have offered expert testimony on behalf of investor-owned utilities in 35 state regulatory commissions in the United States, the Federal Energy Regulatory Commission, the Alberta Utility Commission, one American Arbitration Association panel, and the Superior Court of Rhode Island on issues including, but not limited to, common equity cost rate, rate of return, valuation, capital structure, class cost of service, and rate design.

On behalf of the American Gas Association (AGA), I calculate the AGA Gas Index, which serves as the benchmark against which the performance of the American Gas Index Fund (AGIF) is measured on a monthly basis. The AGA Gas Index and AGIF are a market capitalization weighted index and mutual fund, respectively, comprised of the common stocks of the publicly traded corporate members of the AGA.

I am a member of the Society of Utility and Regulatory Financial Analysts (SURFA). In 2011, I was awarded the professional designation "Certified Rate of Return Analyst" by SURFA, which is based on education, experience, and the successful completion of a comprehensive written examination.

I am also a member of the National Association of Certified Valuation Analysts (NACVA) and was awarded the professional designation "Certified Valuation Analyst" by the NACVA in 2015.

I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I have also received a Master of Business Administration with high honors and concentrations in Finance and International Business from Rutgers University.

The details of my educational background and expert witness appearances are included in Appendix A.

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony is to present evidence on behalf of the Company and recommend an appropriate range of common equity cost rates (ROE) applicable to the Company to be used in setting rates in this proceeding. My testimony first provides a summary of financial theory and regulatory principles pertinent to the

development of the recommended cost of capital. I then present evidence and analysis on: (1) the reasonableness of the Company's requested capital structure, and (2) the appropriate range of ROEs applicable to the Company's Illinois jurisdictional rate base.

Q. Have you prepared exhibits in support of your recommendation?

A. Yes. I have prepared Ameren Exhibits 8.1 through 8.11, and were prepared by me or under my direction.

II. SUMMARY

Q. Please summarize your recommended range of ROEs.

A. My recommended range of ROEs applicable to the Company is summarized on page 1 of Ameren Exhibit 8.1. In determining my recommendation, I assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to the Company. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the *Hope*[1] and *Bluefield*[2] decisions, which I discuss further in Section III, below. A proxy group is likely to differ in risk to any single company; consequently, there should be an evaluation of relative risk between the Company and the proxy group to determine if it is appropriate to adjust the proxy group's indicated rate of return to reflect the Company's rate of return.

My recommendation results from applying and considering several cost of common equity models, specifically the Constant Growth form of the Discounted Cash Flow model (DCF), the Risk Premium Model (RPM), and the Capital Asset Pricing

[1] *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) (*Hope*).
[2] *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922) (*Bluefield*).

Model (CAPM), to the market data of the Utility Proxy Group whose selection criteria will be discussed below. In addition, I applied these same models to a Non-Price Regulated Proxy Group, which is similar in total risk to the Utility Proxy Group. In order to be conservative, I did not consider the ROE model results applied to my Non-Price Regulated Proxy Group in the determination of my recommended range. The results derived from these analyses are as follows:

Table 1: Summary of Common Equity Cost Rates[3]

	Using Projected Interest Rates	Using Current Interest Rates
Discounted Cash Flow Model	9.32%	9.32%
Risk Premium Model	11.79%	11.61%
Capital Asset Pricing Model	11.94%	11.87%
Market Models Applied to Comparable Risk, Non-Price Regulated Companies	12.42%	12.35%
Indicated Range of Common Equity Cost Rates Before Adjustments for Company-Specific Risk	10.13% - 11.13%	10.10% - 11.10%
Size Risk Adjustment	0.05%	0.05%
Credit Risk Adjustment	-0.10%	-0.10%
Flotation Costs	0.07%	0.07%
Indicated Range of Common Equity Cost Rates after Adjustment	10.14% - 11.13%	10.11% - 11.10%
Requested Cost of Common Equity	10.50%	

The indicated range of common equity cost rates applicable to the Utility Proxy Group is between 10.13% and 11.13% using projected interest rates and 10.10% and

[3] *See*, Section VI for a detailed discussion regarding the application of my cost of common equity models.

11.10% using current interest rates before any Company-specific adjustments.[4] I then adjusted the indicated common equity cost rate upward by 0.05% to reflect the Company's smaller relative size, as compared to the Utility Proxy Group.[5] The credit risk adjustment for AIC is negative 0.10%. Lastly, I adjusted the indicated common equity cost rate upward by 0.07% to reflect flotation costs. These adjustments resulted in a Company-specific indicated range of common equity cost rates between 10.14% and 11.13% using projected interest rates and 10.11% and 11.10% using current interest rates. Given the Utility Proxy Group and Company-specific ranges of common equity cost rates, the Company requests an ROE of 10.50% to set rates in this proceeding.

Q. Please summarize the Company's proposed capital structure.

A. The Company is proposing capital structures over the Multi-Year Rate Plan that include common equity ratios ranging from 53.973% to 54.031%. Those common equity ratios are consistent with the Company's historical equity ratios, the equity ratios maintained by the Utility Proxy Group and their operating subsidiary companies.

Q. How is the remainder of your Direct Testimony organized?

A. The remainder of my Direct Testimony is organized as follows:

- Section III – Provides a summary of financial theory and regulatory principles pertinent to the development of the cost of common equity;
- Section IV – Explains my selection of the Utility Proxy Group used to develop my cost of common equity analytical results;

[4] The indicated range is equal to 50 basis points above and below the midpoint of my DCF, RPM, and CAPM results. To be conservative, I do not consider the ROE model results applied to my Non-Price Regulated Proxy Group in the determination of my recommended range.
[5] *See*, Section VIII for a detailed discussion of my cost of common equity adjustments.

- Section V – Explains the reasonableness of the proposed capital structure;
- Section VI – Describes the analyses on which my cost of common equity recommendation is based;
- Section VII – Summarizes my common equity cost rate before adjustments to reflect Company-specific factors;
- Section VI – Explains my adjustments to my common equity cost rate to reflect Company-specific factors; and
- Section IX – Presents my conclusions.

III. GENERAL PRINCIPLES AND REGULATORY GUIDELINES

Q. What principles have you considered in arriving at your recommendations?

A. In unregulated industries, marketplace competition is the principal determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public, while providing safe and reliable service at all times, requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases.

The U.S. Supreme Court affirmed the fair rate of return standards in *Hope*, when it stated:

> The rate-making process under the Act, *i.e.*, the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Co.

> case that 'regulation does not insure that the business shall produce net revenues.' 315 U.S. at page 590, 62 S.Ct. at page 745. But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. Cf. Chicago & Grand Trunk R. Co. v. Wellman, 143 U.S. 339, 345, 346 12 S.Ct. 400,402. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[6]

In summary, the U.S. Supreme Court has found a return that is adequate to attract capital at reasonable terms enables the utility to provide service while maintaining its financial integrity. As discussed above, and in keeping with established regulatory standards, that return should be commensurate with the returns expected elsewhere for investments of equivalent risk. The Commission's decision in this proceeding, therefore, should provide the Company with the opportunity to earn a return that is: (1) adequate to attract capital at reasonable cost and terms; (2) sufficient to ensure their financial integrity; and (3) commensurate with returns on investments in enterprises having corresponding risks.

Lastly, the required return for a regulated public utility is established on a stand-alone basis, i.e., for the utility operating company at issue in a rate case. Parent entities, like other investors, have capital constraints and must look at the attractiveness of the expected risk-adjusted return of each investment alternative in their capital budgeting process. That is, utility holding companies that own many utility operating companies have choices as to where they will invest their capital within the holding company family.

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[6] *Hope*, 320 U.S. 591 (1944), at 603.

Therefore, the opportunity cost concept applies regardless of the source of the funding, public funding or corporate funding.

When funding is provided by a parent entity, the return still must be sufficient to provide an incentive to allocate equity capital to the subsidiary or business unit rather than other internal or external investment opportunities. That is, the regulated subsidiary must compete for capital with all the parent company's affiliates, and with other, similarly situated companies. In that regard, investors value corporate entities on a sum-of-the-parts basis and expect each division within the parent company to provide an appropriate risk-adjusted return.

It therefore is important that the authorized ROE reflects the risks and prospects of the utility's operations and supports the utility's financial integrity from a stand-alone perspective as measured by their combined business and financial risks. Consequently, the ROE authorized in this proceeding should be sufficient to support the operational (i.e., business risk) and financing (i.e., financial risk) of the Company's Illinois utility operations on a stand-alone basis.

Q. Has the Commission provided similar guidance?

A. Yes, it has. In its final order in Docket No. 16-0093 the Commission stated:

> In estimating the cost of common equity, the Commission must consider not only the outputs of the financial models, but whether the authorized ROE satisfies the standards set forth in *Bluefield Water Works & 398 Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) and *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).[7]

[7] Illinois-American Water Company, Proposed Rate Increases for Water and Sewer Service, Docket No. 16-0093, December 13, 2016, at 65.

Q. Within that broad framework, how is the cost of capital estimated in regulatory proceedings?

A. Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant, and equipment (i.e., rate base). The fair rate of return for a regulated utility is based on its weighted average cost of capital, in which, as noted earlier, the costs of the individual sources of capital are weighted by their respective book values.

The cost of capital is the return investors require to make an investment in a firm. Investors will provide funds to a firm only if the return that they *expect* is equal to, or greater than, the return that they *require* to accept the risk of providing funds to the firm.

The cost of capital (that is, the combination of the costs of debt and equity) is based on the economic principle of "opportunity costs." Investing in any asset (whether debt or equity securities) represents a forgone opportunity to invest in alternative assets. For any investment to be sensible, its expected return must be at least equal to the return expected on alternative, comparable risk investment opportunities. Because investments with like risks should offer similar returns, the opportunity cost of an investment should equal the return available on an investment of comparable risk.

Whereas the cost of debt is contractually defined and can be directly observed as the interest rate or yield on debt securities, the cost of common equity must be estimated based on market data and various financial models. Because the cost of common equity is premised on opportunity costs, the models used to determine it are typically applied to a group of "comparable" or "proxy" companies.

In the end, the estimated cost of capital should reflect the return that investors require in light of the subject company's business and financial risks, and the returns available on comparable investments.

Q. Is the authorized return set in regulatory proceedings guaranteed?

A. No, it is not. Consistent with the *Hope* and *Bluefield* standards, the rate-setting process should provide the utility a reasonable opportunity to recover its return of, and return on, its prudently incurred investments, but it does not guarantee that return. While a utility may have control over some factors that affect the ability to earn its authorized return (*e.g.*, management performance, operating and maintenance expenses, etc.), there are several factors beyond a utility's control that affect its ability to earn its authorized return. Those may include factors such as weather, the economy, and the prevalence and magnitude of regulatory lag.

A. <u>Business Risk</u>

Q. Please define business risk and explain why it is important for determining a fair rate of return.

A. The investor-required ROE reflects investors' assessment of the total investment risk of the subject firm. Total investment risk is often discussed in the context of business and financial risk.

Business risk reflects the uncertainty associated with owning a company's common stock without the company's use of debt and/or preferred stock financing. One way of considering the distinction between business and financial risk is to view the former as the uncertainty of the expected earned ROE, assuming the firm is financed with no debt.

Examples of business risks faced generally by utilities include, but are not limited to, the regulatory environment, mandatory environmental compliance requirements, customer mix and concentration of customers, service territory economic growth, market demand, risks and uncertainties of supply, operations, capital intensity, size, the degree of operating leverage, emerging technologies including distributed energy resources, the vagaries of weather, and the like, all of which have a direct bearing on earnings.

Although analysts, including rating agencies, may categorize business risks individually, as a practical matter, such risks are interrelated and not wholly distinct from one another. When determining an appropriate ROE, the relevant issue is where investors see the subject company in relation to other similarly situated utility companies (i.e., the Utility Proxy Group). To the extent investors view a company as being exposed to higher risk, the required return will increase, and vice versa.

For regulated utilities, business risks are both long-term and near-term in nature. Whereas near-term business risks are reflected in year-to-year variability in earnings and cash flow brought about by economic or regulatory factors, long-term business risks reflect the prospect of an impaired ability of investors to obtain both a fair rate of return on, and return of, their capital. Moreover, because utilities accept the obligation to provide safe, adequate and reliable service at all times (in exchange for a reasonable opportunity to earn a fair return on their investment), they generally do not have the option to delay, defer, or reject capital investments. Because those investments are capital-intensive, utilities generally do not have the option to avoid raising external funds. The obligation to serve and the corresponding need to access capital is even more acute during periods of capital market distress.

Because utilities invest in long-lived assets, long-term business risks are of paramount concern to equity investors. That is, the risk of not recovering the return on their investment extends far into the future. The timing and nature of events that may lead to losses, however, also are uncertain and, consequently, those risks and their implications for the required ROE tend to be difficult to quantify. Regulatory commissions (like investors who commit their capital) must review a variety of quantitative and qualitative data and apply their reasoned judgment to determine how long-term risks weigh in their assessment of the market-required ROE.

B. Financial Risk

Q. Please define financial risk and explain why it is important in determining a fair rate of return.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and preferred stock in the capital structure, the higher the financial risk to common equity owners (i.e., failure to receive dividends due to default or other covenants). Consequently, as the degree of financial leverage increases, the risk of financial distress (i.e., financial risk) also increases. In essence, even if two firms face the same business risks, a company with meaningfully higher levels of debt in its capital structure is likely to have a higher cost of both debt and equity. Therefore, consistent with the basic financial principle of risk and return, common equity investors require higher returns as compensation for bearing higher financial risk.

Q. Can bond and credit ratings be a proxy for a firm's combined business and financial risks to equity owners (i.e., investment risk)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (i.e., total risk) faced by bond investors.[8] Although specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar from a debtholder perspective. The caveat is that these debtholder risk measures do not translate directly to risks for common equity.

IV. AIC AND THE UTILITY PROXY GROUP

Q. Why is it necessary to develop a proxy group when estimating the ROE for the Company?

A. Because the Company is not publicly traded and does not have publicly traded equity securities, it is necessary to develop groups of publicly traded, comparable companies to serve as "proxies" for the Company. In addition to the analytical necessity of doing so, the use of proxy companies is consistent with the *Hope* and *Bluefield* comparable risk standards, as discussed above. I have selected two proxy groups that, in my view, are fundamentally risk-comparable to the Company: a Utility Proxy Group and a Non-Price Regulated Proxy Group, which is comparable in total risk to the Utility Proxy Group.[9]

Even when proxy groups are carefully selected, it is common for analytical results to vary from company to company. Despite the care taken to ensure comparability, because no two companies are identical, market expectations regarding future risks and

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[23] Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, e.g., within the A category, an S&P rating can be an A+, A, or A-. Similarly, risk distinction for Moody's ratings are distinguished by numerical rating gradations, e.g., within the A category, a Moody's rating can be A1, A2 and A3.

[9] The development of the Non-Price Regulated Proxy Group is explained in more detail in Section VI.

prospects will vary within the proxy group. It therefore is common for analytical results to reflect a seemingly wide range, even for a group of similarly situated companies. At issue is how to estimate the ROE from within that range. That determination will be best informed by employing a variety of sound analyses that necessarily must consider the sort of quantitative and qualitative information discussed throughout my Direct Testimony. Additionally, a relative risk analysis between the Company and the Utility Proxy Group must be made to determine whether or not explicit Company-specific adjustments need to be made to the Utility Proxy Group's indicated results.

My analyses are based on the Utility Proxy Group, which is comprised of U.S. electric utilities. As discussed earlier, utilities must compete for capital with other companies with commensurate risk (including non-utilities) and, to do so, must be provided the opportunity to earn a fair and reasonable return. Consequently, it is appropriate to consider the Utility Proxy Group's market data in determining the Company's ROE.

Q. Please summarize the Company's operations.

A. AIC provides electricity to approximately 1.2 million retail electric customers and natural gas distribution service to approximately 800,000 customers in central and southern Illinois.[10] The Company has long-term issuer ratings of A3 from Moody's Investor Services (Moody's) and BBB+ from Standard & Poor's (S&P).[11] The Company is not publicly-traded as it is an operating subsidiary of Ameren Corporation. Ameren Corporation is publicly-traded under ticker symbol "AEE".

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[10] *See* Ameren Corporation, SEC Form 10-K for the fiscal year ended December 31, 2021, at 98.
[11] Source: S&P Global Market Intelligence.

Q. Please explain how you chose the companies in the Utility Proxy Group.

A. Because the cost of common equity is a comparative exercise, my objective in developing a proxy group was to select companies that are comparable to the Company. Because the Company is a 100% rate-regulated electric utility, I applied the following criteria to select my Utility Proxy Group:

(i) They were included in the Eastern, Central, or Western Electric Utility Group of *Value Line Investment Survey* (Standard Edition)(*Value Line*);

(ii) They have 70% or greater of fiscal year 2021 total operating income derived from, and 70% or greater of fiscal year 2021 total assets attributable to, regulated electric operations;

(iii) At the time of preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (i.e., one publicly traded utility merging with or acquiring another) or any other major development;

(iv) They have not cut or omitted their common dividends during the five years ended 2021 or through the time of preparation of this testimony;

(v) They have *Value Line* and Bloomberg Professional Services (Bloomberg) adjusted Beta coefficients (beta);

(vi) They have positive *Value Line* five-year dividends per share (DPS) growth rate projections; and

(vii) They have *Value Line*, Zacks, Bloomberg, or Yahoo! Finance consensus five-year earnings per share (EPS) growth rate projections.

The following 13 companies met these criteria:

Table 2: Utility Proxy Group Companies

Company Name	Ticker Symbol
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power, Inc.	AEP
Duke Energy Corporation	DUK
Edison International	EIX
Entergy Corporation	ETR
Evergy, Inc.	EVRG
Eversource Energy	ES
IDACORP, Inc.	IDA
NorthWestern Corporation	NWE
OGE Energy Corporation	OGE
Portland General Electric Co.	POR
Xcel Energy, Inc.	XEL

Q. Please describe Ameren Exhibit 8.2, page 1.

A. Page 1 of Ameren Exhibit 8.2 contains comparative capitalization and financial statistics for the Utility Proxy Group for the years 2017 to 2021.

During the five-year period ending 2021, the historically achieved average earnings rate on book common equity for the group averaged 9.09%. The average common equity ratio based on total permanent capital (excluding short-term debt) was 45.68%, and the average dividend payout ratio was 64.47%.

Total debt to earnings before interest, taxes, depreciation, and amortization for the years 2017 to 2021 ranges between 4.22 times and 6.11 times, with an average of 5.11 times. Funds from operations to total debt range from 5.13% to 18.13%, with an average of 13.07%. Given those capitalization and financial statistics, I conclude the Utility Proxy Group is generally comparable to the Company.

V. CAPITAL STRUCTURE

Q. What is AIC's requested capital structure?

A. The Company's requested capital structures in each year of the Multi-Year Rate Plan as testified to by AIC witness Sagel are summarized in Table 3, below.

Table 3: Requested Capital Structures

Type of Capital	2024	2025	2026	2027
Long-Term Debt	45.459%	45.526%	45.540%	45.443%
Short-Term Debt	0.167%	0.149%	0.115%	0.222%
Preferred Stock	0.386%	0.352%	0.326%	0.304%
Common Stock	53.989%	53.973%	54.018%	54.031%

Q. Does AIC have a separate capital structure that is recognized by investors?

A. Yes. AIC is a separate corporate entity that has its own capital structure and issues its own debt. AIC's actual capital structure is reflected in registrations of its debt with the Securities Exchange Commission.

Q. What are the typical sources of capital commonly considered in establishing a utility's capital structure?

A. Common equity and long-term debt are commonly considered in establishing a utility's capital structure because they are the typical sources of capital financing a utility's rate base.

Q. Please explain.

A. Long-lived assets are typically financed with long-lived securities, so that the overall term structure of the utility's long-term liabilities (both debt and equity) closely match the life of the assets being financed. As stated by Brigham and Houston:

> In practice, firms don't finance each specific asset with a type of capital that has a maturity equal to the asset's life. However, academic studies do show that most firms tend to finance short-term assets from short-term sources and long-term assets from long-term sources.[12]

Whereas short-term debt has a maturity of one year or less, long-term debt may have maturities of 30 years or longer. Although there are practical financing constraints, such as the need to "stagger" long-term debt maturities, the general objective is to extend the average life of long-term debt. Still, long-term debt has a finite life, which is likely to be less than the life of the assets included in rate base. Common equity, on the other hand, is outstanding into perpetuity. Thus, common equity more accurately matches the life of the going concern of the utility, which is also assumed to operate in perpetuity. Consequently, it is both typical and important for utilities to have significant proportions of common equity in their capital structures.

Q. Why is it important that the Company's recommended capital structures be authorized in this proceeding?

A. As a preliminary matter, the Company's recommended capital structures are within a reasonable range from the perspective of the Utility Proxy Group companies.[13] The use of an operating subsidiary's actual capital structure is consistent with the Federal Energy Regulatory Commission's (FERC) precedent, under which they use the applicant's capital structure, where possible.[14] In particular, the FERC will use the utility operating company's capital structure if it meets three criteria: (1) it issues its own debt

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[12] Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management, Concise 4th Ed., Thomson South-Western, 2004, at 574.
[13] *See* Ameren Exhibit 8.2.
[14] *See, Transcontinental Gas Pipe Line Corp,* 80 FERC ¶ 61,157, 61,657 (1997) (Opinion No. 414).

without guarantees; (2) it has its own bond rating; and (3) it has a capital structure within the range of capital structures approved by the commission.[15] The Company meets all of these criteria.

In order to provide safe, reliable, and affordable service to its customers, AIC must meet the needs and serve the interests of its various stakeholders, including customers, shareholders, and bondholders. The interests of these stakeholder groups are aligned with maintaining a healthy balance sheet, strong credit ratings, and a supportive regulatory environment, so that the Company has access to capital on reasonable terms in order to make necessary investments.

Safe and reliable service cannot be maintained at a reasonable cost if utilities do not have the financial flexibility and strength to access competitive financing markets on reasonable terms. As Company Witness Sagel explains, an appropriate capital structure is important not only to ensure long-term financial integrity, it also is critical to enabling access to capital during constrained markets, or when near-term liquidity is needed to fund extraordinary requirements. In that important respect, the capital structure, and the financial strength it engenders, must support both normal circumstances and periods of market uncertainty. The authorization of a capital structure that understates the Company's actual common equity will weaken the financial condition of its operations and adversely impact the Company's ability to address expenses and investments, to the detriment of customers and shareholders. Safe and reliable service for customers cannot be sustained over the long term if the interests of shareholders and bondholders are minimized such that the public interest is not optimized.

[15] 148 FERC ¶ 61,049 Docket No. EL14-12-000, at 190.

Q. How do the Company's recommended common equity ratios compare with the common equity ratios maintained by the Utility Proxy Group?

A. The Company's requested ratemaking common equity ratios are reasonable and consistent with the range of common equity ratios maintained by the Utility Proxy Group. As shown on pages 1 and 2 of Ameren Exhibit 8.2, common equity ratios of the Utility Proxy Group companies range from 30.78% to 57.15% for fiscal year 2021.

I also considered *Value Line* projected capital structures for the utilities for 2025-2027. That analysis shows a range of projected common equity ratios between 32.00% and 51.00%.[16]

In addition to comparing the Company's recommended common equity ratios with common equity ratios currently and expected to be maintained by the Utility Proxy Group, I also compared the Company's recommended common equity ratios with the equity ratios maintained by the operating subsidiaries of the Utility Proxy Group companies. As shown on page 3 of Ameren Exhibit 8.2, common equity ratios of the operating utility subsidiaries of the Utility Proxy Group range from 40.96% to 58.26% for fiscal year 2021.

Q. Are AIC's equity ratios over the Multi-Year Rate Plan appropriate for ratemaking purposes?

A. Yes, they are. The Company's recommended equity ratios are appropriate for ratemaking purposes in the current proceeding because it issues its own debt without guarantees, it has its own credit rating, and its capital structure is within the range of the

[16] *See*, pages 2 through 14 of Ameren Exhibit 8.3.

common equity ratios currently maintained by the Utility Proxy Group and their operating subsidiaries.

VI. COMMON EQUITY COST RATE MODELS

Q. Is it important that cost of common equity models be market-based?

A. Yes. As discussed previously, regulated public utilities, like the Company, must compete for equity in capital markets along with all other companies with commensurate risk, including non-utilities. The cost of common equity is thus determined based on equity market expectations for the returns of those companies. If an individual investor is choosing to invest their capital among companies with comparable risk, they will choose the company providing a higher return over a company providing a lower return.

Q. Are the cost of common equity models you use market-based models?

A. Yes. The DCF model is market-based in that market prices are used in developing the dividend yield component of the model. The RPM and CAPM are also market-based in that the bond/issuer ratings and expected bond yields/risk-free rate used in the application of the RPM and CAPM reflect the market's assessment of bond/credit risk. In addition, the use of beta to determine the equity risk premium also reflects the market's assessment of market/systematic risk, as betas are derived from regression analyses of market prices. Moreover, market prices are used in the development of the monthly returns and equity risk premiums used in the Predictive Risk Premium Model (PRPM). Selection criteria for the Non-Price Regulated Proxy Group are based on regression analyses of market prices and reflect the market's assessment of total risk.

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

A. As discussed earlier, I have relied on the DCF model, the RPM, and the CAPM, which I applied to the Utility Proxy Group described above. I also applied these same models to a Non-Price Regulated Proxy Group described later in this section.

I rely on these models because reasonable investors use a variety of tools and do not rely exclusively on a single source of information or single model. Moreover, the models on which I rely focus on different aspects of return requirements, and provide different insights to investors' views of risk and return. The DCF model, for example, estimates the investor-required return assuming a constant expected dividend yield and growth rate in perpetuity, while Risk Premium-based methods (i.e., the RPM and CAPM approaches), provide the ability to reflect investors' views of risk, future market returns, and the relationship between interest rates and the cost of common equity. Just as the use of market data for the Utility Proxy Group adds the reliability necessary to inform expert judgment in arriving at a recommended common equity cost rate, the use of multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. <u>The Discounted Cash Flow Model</u>

Q. Please describe the DCF model generally.

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate, which is derived from the cash flows received from dividends and market price appreciation.

Mathematically, the expected dividend yield on market price plus a growth rate equals the capitalization rate; i.e., the total common equity return rate expected by investors, as shown in Equation [1] below:

$$K_e = (D_0\,(1+g))/P + g$$

where:

K_e = the required Return on Common Equity;

D_0 = the annualized Dividend Per Share;

P = the current stock price; and

g = the growth rate.

Q. Which version of the DCF model did you use?

A. I used the single-stage Constant Growth DCF model.

Q. Please describe the dividend yield you used in applying the Constant Growth DCF model.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of November 30, 2022, divided by the average closing market price for the 60 trading days ended November 30, 2022.[17]

Q. Please explain your adjustment to the dividend yield.

A. Because dividends are paid periodically (*e.g.* quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

[17] *See*, Column 1, page 1 of Ameren Exhibit 8.3.

DCF theory calls for using the full growth rate, or D_1, in calculating the model's dividend yield component. Since the companies in the Utility Proxy Group increase their quarterly dividends at various times during the year, a conservative assumption is to reflect one-half the annual dividend growth rate rather than the full growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next 12-month period, this adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1, page 1 of Ameren Exhibit 8.3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 5.

Q. Please explain the basis for the growth rates you apply in your Constant Growth DCF model.

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services such as *Value Line*, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively manage the effects of changing laws and regulations, and ever-changing economic and market conditions. For these reasons, I used analysts' five-year forecasts of EPS growth in my DCF analysis.

Over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, using projected earnings growth rates in a DCF analysis provides a better match between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. Please summarize the Constant Growth DCF model results.

A. As shown on page 1 of Ameren Exhibit 8.3, the application of the Constant Growth DCF model to the Utility Proxy Group results in a wide range of indicated ROEs from 6.72% to 12.42%. The mean of those results is 9.21%, the median result is 9.43%, and the average of the two is 9.32%. In arriving at a conclusion of the indicated common equity cost rate for the Utility Proxy Group implied by the Constant Growth DCF model, I relied on an average of the mean and the median results (i.e., 9.32%) of the DCF. By doing so, I have considered the DCF results for each company without giving undue weight to outliers on either the high or the low side.

B. <u>The Risk Premium Model</u>

Q. Please describe the theoretical basis of the RPM.

A. The RPM is based on the fundamental financial principle of risk and return; namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common stocks than from bonds to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity returns cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for

the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings upon liquidation.

Q. Please explain how you derived your indicated cost of common equity based on the RPM.

A. To derive my indicated cost of common equity under the RPM, I used two risk premium methods. The first method was the PRPM and the second method was a risk premium model using a total market approach. The PRPM estimates the risk-return relationship directly, while the total market approach indirectly derives a risk premium by using known metrics as a proxy for risk.

i) Predictive Risk Premium Model

Q. Please explain the PRPM.

A. The PRPM, published in the *Journal of Regulatory Economics*,[18] was developed from the work of Robert F. Engle, who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility" or ARCH.[19] Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that volatility of prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums. That is, historical volatility can be used to predict future volatility, which then can be translated to a predicted equity risk premium.

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[18] Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. *A New Approach for Estimating the Equity Risk Premium for Public Utilities*, The Journal of Regulatory Economics (December 2011), 40:261-278.

[19] Autoregressive conditional heteroscedasticity; *See also*, www.nobelprize.org.

A generalized form of the ARCH methodology (GARCH) has been well tested by academia since Engle's, *et al*. research was originally published in 1982, 40 years ago. The PRPM is in the public domain, having been published six times in academically peer-reviewed journals: Journal of Economics and Business (June 2011 and April 2015),[20] The Journal of Regulatory Economics (December 2011),[21] The Electricity Journal (May 2013 and March 2020),[22] and Energy Policy (April 2019).[23] Notably, none of these articles have been rebutted in the academic literature.

The PRPM is also cited in the following textbooks on cost of capital by authors unaffiliated with the authors of the academic articles cited above:

- Shannon Pratt and Roger Grabowski, Cost of Capital: Applications and Examples, (Fifth Edition), Wiley & Sons, 2015;
- Shannon Pratt and Roger Grabowski, The Lawyer's Guide to Cost of Capital: Understanding Risk and Return for Valuing Businesses and Other Investments, ABA Publishing, 2015; and
- Roger A. Morin, Modern Regulatory Finance, PUR Books, 2021.

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[20] *See,* Eugene A. Pilotte, and Richard A. Michelfelder, *Treasury Bond Risk and Return, the Implications for the Hedging of Consumption and Lessons for Asset Pricing*, Journal of Economics and Business, June 2011, 582-604. *See also,* Richard A. Michelfelder, *Empirical Analysis of the Generalized Consumption Asset Pricing Model: Estimating the Cost of Capital*, Journal of Economics and Business, April 2015, 37-50.

[21] *See,* Pauline M. Ahern, Frank J. Hanley, and Richard A. Michelfelder, *New Approach to Estimating the Equity Risk Premium for Public Utilities*, The Journal of Regulatory Economics, December 2011, at 40:261-278.

[22] *See,* Richard A. Michelfelder, Pauline M. Ahern, Dylan W. D'Ascendis, and Frank J. Hanley, *Comparative Evaluation of the Predictive Risk Premium Model, the Discounted Cash Flow Model and the Capital Asset Pricing Model for Estimating the Cost of Common Equity,* The Electricity Journal, April 2013, at 84-89; *see also,* Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling, Risk Impacts and the Cost of Capital*, The Electricity Journal, January 2020.

[23] *See,* Richard A. Michelfelder, Pauline M. Ahern, and Dylan W. D'Ascendis, *Decoupling Impact and Public Utility Conservation Investment*, Energy Policy, April 2019, 311-319.

Q. How does the PRPM estimate the investor-required return?

A. The PRPM estimates the risk-return relationship directly, as the predicted equity risk premium is generated by predicting volatility or risk. I use the well-established GARCH methodology (noted above) to estimate the PRPM model using a standard commercial and relatively inexpensive statistical package, Eviews,©[24] to develop a means by which to estimate a predicted equity risk premium which, when added to a relevant bond yield, results in an indicated cost of common equity. The PRPM is not based on an estimate of investor behavior, but rather on an evaluation of the results of that behavior (i.e., the variance of historical equity risk premiums).

Q. Please explain the application of the PRPM.

The inputs to the model are the historical returns on the common shares of each Utility Proxy Group company minus the historical monthly yield on long-term U.S. Treasury securities through November 2022. Using the GARCH methodology, I calculated each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software.

When the GARCH model is applied to the historical return data, it produces a predicted GARCH variance series[25] and a GARCH coefficient.[26] Multiplying the predicted monthly variance by the GARCH coefficient and then annualizing it[27] produces the predicted annual equity risk premium. I then added the forecasted and current 30-

[24] In addition to Eviews,® the GARCH methodology can be applied and the PRPM derived using other standard statistical software packages such as SAS, RATS, S-Plus and JMulti, which are not cost-prohibitive.
[25] Illustrated on Columns 1 and 2, page 2 of Ameren Exhibit 8.4.
[26] Illustrated on Column 4, page 2 of Ameren Exhibit 8.4.
[27] Annualized Return = (1 + Monthly Return) ^12 - 1

year U.S. Treasury bond yield to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity.

Q. Please describe your selection of a risk-free rate of return.

A. As shown in Ameren Exhibits 8.4 and 8.5, the risk-free rate adopted for application of the RPM and CAPM is 4.03%. This risk-free rate is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the fourth calendar quarter of 2023, and long-term projections for the years 2024 to 2028 and 2029 to 2033. I also present my RPM and CAPM analyses using a current risk-free rate of 3.87%, which is the three-month average of the 30-year Treasury bond yield ending November 2022.

Q. Why do you use the projected 30-year Treasury yield in your analyses?

A. The yield on long-term U.S. Treasury bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on Moody's A2-rated public utility bonds; the long-term investment horizon inherent in utilities' common stocks; and the long-term life of the jurisdictional rate base to which the allowed fair rate of return (i.e., cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

More specifically, the term of the risk-free rate used for cost of capital purposes should match the life (or duration) of the underlying investment (i.e., perpetuity). As noted by Morningstar:

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued. When valuing a business that is being

> treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[28]

Morin also confirms this when he states:

> [b]ecause common stock is a long-term investment and because the cash flows to investors in the form of dividends last indefinitely, the yield on very long-term government bonds, namely, the yield on 30-year Treasury bonds, is the best measure of the risk-free rate for use in the CAPM (footnote omitted)… The expected common stock return is based on long-term cash flows, regardless of an individual's holding time period.[29]

Pratt and Grabowski recommend a similar approach to selecting the risk-free rate: "[i]n theory, when determining the risk-free rate and the matching ERP you should be matching the risk-free security and the ERP with the period in which the investment cash flows are expected."[30]

As a practical matter, equity securities represent a perpetual claim on cash flows; 30-year Treasury bonds are the longest-maturity securities available to approximate that perpetual claim. The average life of AIC's utility plant is approximately 41 years based on the composite depreciation rate of the components of its utility plant.[31] Thus, the use of a 30-year Treasury bond yield is an appropriate risk-free rate as it reflects the life of the assets it finances.

Q. We do you include current interest rates in your analyses?

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[28] Morningstar, Inc., 2013 Ibbotson Stocks, Bonds, Bills and Inflation Valuation Yearbook, at 44.
[29] Roger A. Morin, Modern Regulatory Finance, Public Utilities Reports, Inc., 2021, at 169. (Morin)
[30] Shannon Pratt and Roger Grabowski, Cost of Capital: Applications and Examples, 3rd Ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2008), at 92. "ERP" is the Equity Risk Premium.
[31] Average depreciation 2.45%. 1 / 2.45% = 40.76 years.

A. Even though I do not agree with using current interest rates in a rate of return analysis, I recognize that the Commission has typically stated its preference for the use of current, and not projected, interest rates.[32] That said, the Commission has also accepted the use of projected interest rates, noting:

> The unusual circumstances regarding the uncertainty of economic recovery following the COVID-19 recession warrant the adjustment of the risk-free rate used in Staff's CAPM analysis from the spot rate utilized by Staff to the forecasted rate provided by the Company in NS Exhibit 12.3. Although the Commission has typically relied on a current spot rate as a proxy for the risk-free rate in the CAPM model, the Commission concludes that the forecasted 30-year Treasury bond yield is more appropriate in this proceeding.[33]

Q. Why don't you agree with the use of current interest rates in the risk premium-based models?

A. Because both ratemaking and the cost of capital are prospective or forward-looking, the cost of capital, including the cost rate of common equity, is prospective or forward-looking in that it reflects investors' expectations of future capital markets, including an expectation of interest rate levels, as well as future risks. Ratemaking is also forward-looking in that the rates set will be in effect for a period in the future.

Q. What are the results of applying the PRPM to the Utility Proxy Group?

A. As shown on page 2 of Ameren Exhibit 8.4, the mean PRPM indicated common equity cost rate for the Utility Proxy Group is 12.06%, the median is 12.05%, and the average of the two is 12.06%.[34] Consistent with my reliance on the average of the

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[32] North Shore Gas Company, Proposed Increase in Rates for gas distribution service, Illinois Commerce Commission, Docket No. 20-0810, at 86.

[33] North Shore Gas Company, Proposed Increase in Rates for gas distribution service, Illinois Commerce Commission, Docket No. 20-0810, at 86.

[34] Using current interest rates, the mean, median, and average of mean and median results are 11.90%, 11.89%, and 11.90%, respectively.

median and mean results of the DCF models, I relied on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 12.06%.

ii) Total Market Approach Risk Premium Model

Q. Please explain the total market approach RPM.

A. The total market approach RPM adds a prospective public utility bond yield to an average of: (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, (2) an equity risk premium based on the S&P Utilities Index, and (3) an equity risk premium based on authorized ROEs for electric utilities.

Q. Please explain how you determined the expected bond yield, applicable to the Utility Proxy Group.

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital, including the common equity cost rate, are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. Because I am unaware of any publication that provides forecasted public utility bond yields, I relied on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the first calendar quarter of 2024, and *Blue Chip's* long-term projections for 2024 to 2028, and 2029 to 2033. As shown on line 1, page 3 of Ameren Exhibit 8.4, the average expected yield on Moody's Aaa-rated corporate bonds is 5.24%.

Because that 5.24% estimate represents a corporate bond yield and not a utility-specific bond yield, I adjusted the expected Aaa-rated corporate bond yield to an equivalent A2-rated public utility bond yield. That resulted in an upward adjustment of

0.78%, which represents a recent spread between Aaa-rated corporate bonds and A2-rated public utility bonds.[35] Adding that recent 0.78% spread to the expected Aaa-rated corporate bond yield of 5.24% results in an expected A2-rated public utility bond yield of 6.02%.

I then reviewed the average credit rating for the Utility Proxy Group from Moody's to determine if an adjustment to the estimated A2-rated public utility bond was necessary. Since the Utility Proxy Group's average Moody's long-term issuer rating is Baa1, another adjustment to the expected A2-rated public utility bond is needed to reflect the difference in bond ratings. An upward adjustment of 0.21%, which represents two-thirds of a recent spread between A2-rated and Baa2-rated public utility bond yields, is necessary to make the A2 prospective bond yield applicable to a Baa1-rated public utility bond.[36] Adding the 0.21% to the 6.02% prospective A2-rated public utility bond yield results in a 6.23% expected bond yield applicable to the Utility Proxy Group.

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[35] As shown on line 2 and explained in note 2, page 3 of Ameren Exhibit 8.4.

[36] As shown on line 4 and explained in note 3, page 3 of Ameren Exhibit 8.4. Moody's does not provide public utility bond yields for Baa1-rated bonds. As such, it was necessary to estimate the difference between A2-rated and Baa1-rated public utility bonds. Because there are three steps between Baa2 and A2 (Baa2 to Baa1, Baa1 to A3, and A3 to A2) I assumed an adjustment of two-thirds of the difference between the A2-rated and Baa2-rated public utility bond yield was appropriate.

Table 4: Summary of the Calculation of the Utility Proxy Group Projected Bond Yield[37]

Prospective Yield on Moody's Aaa-Rated Corporate Bonds (*Blue Chip)*	5.24%
Adjustment to Reflect Yield Spread Between Moody's Aaa-Rated Corporate Bonds and Moody's A2-Rated Utility Bonds	0.78%
Adjustment to Reflect the Utility Proxy Group's Average Moody's Bond Rating of Baa1	0.21%
Prospective Bond Yield Applicable to the Utility Proxy Group	6.23%

To develop the total market approach RPM estimate of the appropriate ROE, this prospective bond yield is then added to the average of the three different equity risk premiums, which I now discuss, in turn.

a. Beta-Derived Equity Risk Premium

Q. Please explain how the beta-derived equity risk premium is determined.

A. The components of the beta-derived risk premium model are: (1) an expected market equity risk premium over corporate bonds, and (2) beta. The derivation of the beta-derived equity risk premium that I applied to the Utility Proxy Group is shown on lines 1 through 9, page 8 of Ameren Exhibit 8.4. The total beta-derived equity risk premium I applied is based on an average of three historical market data-based equity risk premiums, two *Value Line*-based equity risk premiums and a Bloomberg-based equity risk premium. Each of these is described below.

[37] As shown on page 3 of Ameren Exhibit 8.4.

Q. How did you derive a market equity risk premium based on long-term historical data?

A. To derive an historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the Stocks, Bonds, Bills, and Inflation (SBBI) Yearbook 2022 (SBBI - 2022)[38] less the average historical yield on Moody's Aaa/Aa2-rated corporate bonds for the period 1928 to 2021. Using holding period returns over a very long time is appropriate because it is consistent with the long-term investment horizon presumed by investing in a going concern, i.e., a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 12.11% and the long-term arithmetic mean monthly yield on Moody's Aaa/Aa2-rated corporate bonds was 5.98%.[39] As shown on line 1, page 8 of Ameren Exhibit 8.4, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 6.13%.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa-rated corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI - 2022.[40] Using the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums,

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[38] *See*, SBBI-2022 Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2021.
[39] As explained in note 1, page 9 of Ameren Exhibit 8.4.
[40] *See*, SBBI - 2022, at 201.

they would have no insight into the potential variance of future returns, because the geometric mean relates to the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

Q. Please explain the derivation of the regression-based market equity risk premium.

A. To derive the regression-based market equity risk premium of 7.02% shown on line 2, page 8 of Ameren Exhibit 8.4, I used the same monthly annualized total returns on large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa2-rated corporate bonds as mentioned above. I modeled the relationship between interest rates and the market equity risk premium using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa2-rated corporate bonds as the independent variable. I then used a linear Ordinary Least Squares (OLS) regression, in which the market equity risk premium is expressed as a function of the Moody's Aaa/Aa2-rated corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

Q. Please explain the derivation of the PRPM equity risk premium.

A. I used the same PRPM approach described above for the PRPM equity risk premium. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Moody's Aaa/Aa2-rated corporate bonds during the period from January 1928 through November 2022.[41] Using the previously

[41] Data from January 1928 to December 2021 is from SBBI - 2022. Data from January 2022 to October 2022 is from Bloomberg.

discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted a market equity risk premium of 9.84%.[42]

Q. Please explain the derivation of a projected equity risk premium based on *Value Line* data for your RPM analysis.

A. As noted above, because both ratemaking and the cost of capital are prospective, a prospective market equity risk premium is needed. The derivation of the forecasted or prospective market equity risk premium can be found in note 4, page 9 of Ameren Exhibit 8.4. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the 13 weeks ended November 30, 2022, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line* (Standard Edition).[43]

The average median expected price appreciation is 72%, which translates to a 14.52% annual appreciation, and, when added to the average of *Value Line's* median expected dividend yields of 2.22%, equates to a forecasted annual total return rate on the market of 16.74%. The forecasted Moody's Aaa-rated corporate bond yield of 5.24% is deducted from the total market return of 16.74%, resulting in an equity risk premium of 11.50%, as shown on line 4, page 8 of Ameren Exhibit 8.4.

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[42] Shown on line 3, page 8 of Ameren Exhibit 8.4.
[43] As explained in detail in note 1, page 2 of Ameren Exhibit 8.4.

Q. Please explain the derivation of an equity risk premium based on the S&P 500 companies.

A. Using data from *Value Line*, I calculated an expected total return on the S&P 500 companies using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 14.58%. Subtracting the prospective yield on Moody's Aaa-rated corporate bonds of 5.24% results in an 9.34% projected equity risk premium.

Q. Please explain the derivation of an equity risk premium based on Bloomberg data.

A. Using data from Bloomberg, I calculated an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total return for the S&P 500 is 12.02%. Subtracting the prospective yield on Moody's Aaa-rated corporate bonds of 5.24% results in a 6.78% projected equity risk premium.

Q. Do you calculate your projected market returns using the S&P 500 companies consistent with the process outlined by Commission Staff in their white paper "Forward-looking Market Risk Premiums (1992-2020) and Macroeconomic Factors: Inflation, Real GDP, Stock Market Volatility and Term Spread" (ICC White Paper)?

A. Yes. In the calculation of the projected market return using the S&P 500 companies, I eliminated companies that did not pay dividends or did not have an EPS growth rate published as prescribed by the ICC White Paper. However, instead of using Yahoo! Finance and Zack's Investment Research, I used *Value Line* and Bloomberg data, as that data is more readily available to me via data download.

Q. What is your conclusion of a beta-derived equity risk premium for use in your RPM analysis?

A. I gave equal weight to all six equity risk premiums based on each source – historical, *Value Line*, and Bloomberg – in arriving at a 8.53% equity risk premium.

Table 5: Summary of the Calculation of the Equity Risk Premium Using Total Market Returns[44]

Historical Spread Between Total Returns of Large Stocks and Aaa and Aa2-Rated Corporate Bond Yields (1928 – 2021)	6.13%
Regression Analysis on Historical Data	7.02%
PRPM Analysis on Historical Data	9.84%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected Aaa Corporate Bond Yields	11.50%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected Aaa Corporate Bond Yields	9.34%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected Aaa Corporate Bond Yields	6.78%
Average	8.44%

After calculating the average market equity risk premium of 8.44%, I adjusted it by beta to account for the risk of the Utility Proxy Group. As discussed below, beta is a meaningful measure of prospective relative risk to the market as a whole, and is a logical way to allocate a company's, or proxy group's, share of the market's total equity risk premium relative to corporate bond yields. As shown on page 1 of Ameren Exhibit 8.5, the average of the mean and median beta for the Utility Proxy Group is 0.79. Multiplying

[44] As shown on page 8 of Ameren Exhibit 8.4.

the 0.79 average beta by the market equity risk premium of 8.44% results in a beta-adjusted equity risk premium for the Utility Proxy Group of 6.67%.

b. S&P Utility Index-Derived Equity Risk Premium

Q. How did you derive the equity risk premium based on the S&P Utility Index and Moody's A2-rated public utility bonds?

A. I estimated three equity risk premiums based on S&P Utility Index holding period returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derived a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.74% and monthly Moody's A2-rated public utility bond yields of 6.46% from 1928 to 2021 to arrive at an equity risk premium of 4.28%.[45] I then used the same historical data to derive an equity risk premium of 4.69% based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involved applying the PRPM using the historical monthly equity risk premiums from January 1928 to November 2022 to arrive at a PRPM-derived equity risk premium of 5.58% for the S&P Utility Index.

I then derived expected total returns on the S&P Utilities Index of 9.51% and 10.51% using data from *Value Line* and Bloomberg, respectively, and subtracted the prospective Moody's A2-rated public utility bond yield of 6.02%[46], which resulted in equity risk premiums of 3.49% and 4.49%, respectively. As with the market equity risk

[45] As shown on line 1, page 12 of Ameren Exhibit 8.4.
[46] Derived on line 3, page 3 of Ameren Exhibit 8.4.

premiums, I averaged each risk premium based on each source (i.e., historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 4.50%.

Table 6: Summary of the Calculation of the Equity Risk Premium Using S&P Utility Index Holding Returns[47]

Historical Spread Between Total Returns of the S&P Utilities Index and A2-Rated Utility Bond Yields (1928 – 2021)	4.28%
Regression Analysis on Historical Data	4.69%
PRPM Analysis on Historical Data	5.58%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P Utilities Index less Projected A2 Utility Bond Yields	3.49%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P Utilities Index less Projected A2 Utility Bond Yields	4.49%
Average	4.50%

c. Authorized Return-Derived Equity Risk Premium

Q. How did you derive an equity risk premium of 4.71% based on authorized ROEs for electric utilities?

A. The equity risk premium of 4.71% shown on line 3, page 7 of Ameren Exhibit 8.4 is the result of a regression analysis based on regulatory awarded ROEs related to the yields on Moody's A2-rated public utility bonds. That analysis is shown on page 13 of Ameren Exhibit 8.4. Page 13 of Ameren Exhibit 8.4 contains the graphical results of a regression analysis of 1,201 rate cases for electric utilities which were fully litigated during the period from January 1, 1980 through November 30, 2022. It shows the implicit equity risk premium relative to the yields on A2-rated public utility bonds immediately prior to the issuance of each regulatory decision. That is, the analysis

[47] As shown on page 12 of Ameren Exhibit 8.4.

considers the relationship between authorized returns and prevailing public utility bond yields at the time of the decision.

It is readily discernible that there is an inverse relationship between the yield on A2-rated public utility bonds and equity risk premiums. In other words, as interest rates decline, the equity risk premium rises and vice versa, a result consistent with financial literature on the subject.[48] I used the regression results to estimate the equity risk premium applicable to the projected yield on Moody's A2-rated public utility bonds. Given the expected A2-rated utility bond yield of 6.02%, it can be calculated that the indicated equity risk premium applicable to that bond yield is 4.71%, which is shown on page 13 of Ameren Exhibit 8.4.

Q. What is your conclusion of an equity risk premium for use in your total market approach RPM analysis?

A. The equity risk premium I applied to the Utility Proxy Group is 5.29%, which is the average of the beta-adjusted equity risk premium for the Utility Proxy Group, the S&P Utilities Index, and the authorized return utility equity risk premiums of 6.67%, 4.50%, and 4.71%, respectively.[49]

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[48] *See, e.g.*, Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance, Vol. 11, No. 1, 2001, at 11-12; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at 33-45.

[49] As shown on page 7 of Ameren Exhibit 8.4.

Q. What is the indicated RPM common equity cost rate based on the total market approach?

A. As shown on line 8, page 3 of Ameren Exhibit 8.4, and shown on Table 7, below, I calculated a common equity cost rate of 11.52% for the Utility Proxy Group based on the total market approach RPM.

Table 7: Summary of the Total Market Return Risk Premium Model[50]

Prospective Moody's A2-Rated Utility Bond Applicable to the Utility Proxy Group	6.23%
Prospective Equity Risk Premium	5.29%
Indicated Cost of Common Equity	11.52%

Q. What are the results of your application of the PRPM and the total market approach RPM?

A. As shown on page 1 of Ameren Exhibit 8.4, the indicated RPM-derived common equity cost rate is 11.79%, which gives equal weight to the PRPM (12.06%) and the adjusted-market approach results (11.52%).

C. The Capital Asset Pricing Model

Q. Please explain the theoretical basis of the CAPM.

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by beta (β). A beta that is less than 1.0 indicates lower variability than the market as a whole, while a beta that is greater than 1.0 indicates greater variability than the market.

[50] As shown on page 3 of Ameren Exhibit 8.4.

The CAPM assumes that all non-market or unsystematic risk can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors only require compensation for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security relative to the total market as measured by beta. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta (R_m - R_f)$$

Where: R_s = Return rate on the common stock;

R_f = Risk-free rate of return;

R_m = Return rate on the market as a whole; and

β = Adjusted beta (volatility of the security relative to the market as a whole).

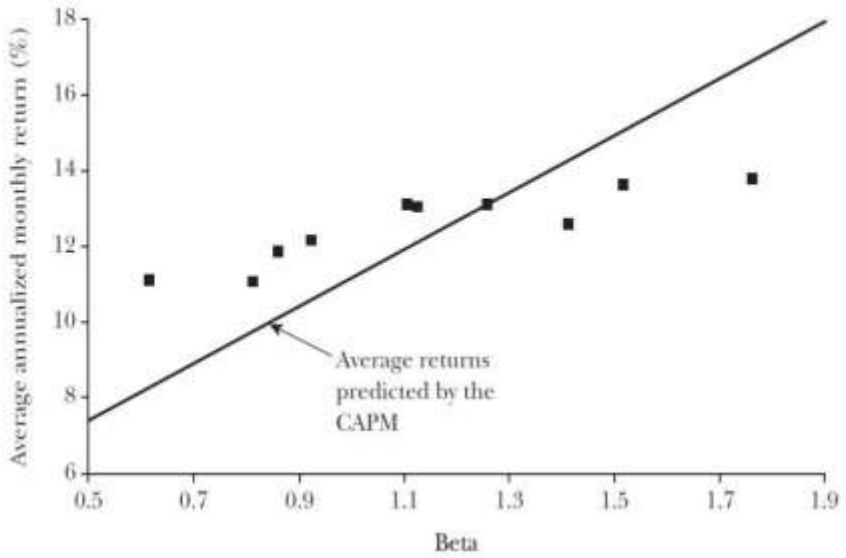
Numerous tests of the traditional CAPM have measured the extent to which security returns and beta are related as predicted by the CAPM, confirming its validity. The empirical CAPM (ECAPM) reflects the reality that while the results of these tests support the notion that the beta is related to security returns, the empirical Security Market Line (SML) described by the CAPM formula is not as steeply sloped as the predicted SML.[51]

[51] Morin, at 205-209.

In their work on the CAPM, Fama and French clearly state regarding Figure 2, below, that "[t]he returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low."[52]

Figure 2 http://pubs.aeaweb.org/doi/pdfplus/10.1257/0895330042162430

Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928–2003



In addition, Morin observes that while the results of these tests support the notion that beta is related to security returns, the empirical SML described by the CAPM formula is not as steeply sloped as the predicted SML. Morin states:

> With few exceptions, the empirical studies agree that … low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted.[53]

* * *

[52] Eugene F. Fama and Kenneth R. French, *The Capital Asset Pricing Model: Theory and Evidence*, Journal of Economic Perspectives, Vol. 18, No. 3, Summer 2004 at 33 (Fama & French).
[53] Morin, at 207.

> Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:

$$K = R_F + x(R_M - R_F) + (1-x)\ \beta(R_M - R_F)$$

> where x is a fraction to be determined empirically. The value of x that best explains the observed relationship [is] Return = 0.0829 + 0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\ \beta(R_M - R_F)$$ [54]

Fama and French provide similar support for the ECAPM when they state:

> The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too 'flat.'… The regressions consistently find that the intercept is greater than the average risk-free rate… and the coefficient on beta is less than the average excess market return… This is true in the early tests… as well as in more recent cross-section regressions tests, like Fama and French (1992).[55]

Finally, Fama and French further note:

> Confirming earlier evidence, the relation between beta and average return for the ten portfolios is much flatter than the Sharpe-Linter CAPM predicts. The returns on low beta portfolios are too high, and the returns on the high beta portfolios are too low. For example, the predicted return on the portfolio with the lowest beta is 8.3 percent per year; the actual return as 11.1 percent. The predicted return on the portfolio with the t beta is 16.8 percent per year; the actual is 13.7 percent.[56]

Clearly, the justification from Morin, Fama, and French, along with their reviews of other academic research on the CAPM, validate the use of the ECAPM. In view of

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[54] Morin, at 221.
[55] Fama & French, at 32.
[56] Fama & French, at 33.

theory and practical research, I have applied both the traditional CAPM and the ECAPM to the companies in the Utility Proxy Group and averaged the results.

Q. What betas did you use in your CAPM analysis?

A. For the beta in my CAPM analysis, I considered two sources: *Value Line* and Bloomberg. While both of those services adjust their calculated (or "raw") beta to reflect the tendency of beta to regress to the market mean of 1.00, *Value Line* calculates betas over a five-year period, while Bloomberg calculates them over a two-year period.

Q. Please describe your selection of a risk-free rate of return.

A. As discussed previously, the risk-free rate adopted for the CAPM is 4.03%. This risk-free rate is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the first calendar quarter of 2024, and long-term projections for the years 2024 to 2028 and 2029 to 2033. I also present my CAPM analysis using a current risk-free rate of 3.87%, which is the three-month average 30-year Treasury bond yield ending November 2022.

Q. Please explain the estimation of the expected risk premium for the market used in your CAPM analyses.

A. The basis of the market risk premium is explained in detail in note 1 on page 2 of Ameren Exhibit 8.5. As discussed above, the market risk premium is derived from an average of three historical data-based market risk premiums, two *Value Line* data-based market risk premiums, and one Bloomberg data-based market risk premium.

The long-term income return on U.S. Government securities of 5.02% was deducted from the SBBI - 2022 monthly historical total market return of 12.37%, which

results in an historical market equity risk premium of 7.35%.[57] I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government securities from SBBI -2022. That regression analysis yielded a market equity risk premium of 8.57%. The PRPM market equity risk premium is 10.94%, and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through November 2022.

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 4.03%, discussed above, from the *Value Line* projected total annual market return of 16.74%, resulting in a forecasted total market equity risk premium of 12.71%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 4.03% from the projected total return of the S&P 500 of 14.58%. The resulting market equity risk premium is 10.55%.

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 4.03% from the projected total return of the S&P 500 of 12.02%. The resulting market equity risk premium is 7.99%. These six measures, when averaged, result in an average total market equity risk premium of 9.69%.

[57] SBBI - 2022, at Appendix A-1 (1) through A-1 (3) and Appendix A-7 (19) through A-7 (21).

Table 8: Summary of the Calculation of the Market Risk Premium for Use in the CAPM[58]

Historical Spread Between Total Returns of Large Stocks and Long-Term Government Bond Yields (1926 – 2021)	7.35%
Regression Analysis on Historical Data	8.57%
PRPM Analysis on Historical Data	10.94%
Prospective Equity Risk Premium using Total Market Returns from *Value Line* Summary & Index less Projected 30-Year Treasury Bond Yields	12.71%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from *Value Line* for the S&P 500 less Projected 30-Year Treasury Bond Yields	10.55%
Prospective Equity Risk Premium using Measures of Capital Appreciation and Income Returns from Bloomberg Professional Services for the S&P 500 less Projected 30-Year Treasury Bond Yields	7.99%
Average	9.69%

Q. How does your recommended MRP compare with the MRP indicated by the ICC White Paper noted above?

A. The average of the *Value Line* and Bloomberg projected market returns is 13.30%. Subtracting the November 30, 2022 30-year Treasury bond yield of 3.80% results in an indicated MRP of 9.50%, which is comparable, but slightly below my recommended MRP of 9.69%.

Q. What are the results of your application of the traditional and Empirical CAPM to the Utility Proxy Group?

A. As shown on page 1 of Ameren Exhibit 8.5, the mean result of my CAPM/ECAPM analyses is 11.94%, the median is 11.94%, and the average of the two is

[58] As shown on page 2 of Ameren Exhibit 8.5.

11.94%. Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 11.94%.

D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

Q. Why do you also consider a proxy group of domestic, non-price regulated companies?

A. Although I am not an attorney, my interpretation of the *Hope* and *Bluefield* cases is that they did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute for marketplace competition, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group, since all of these companies compete for capital in the exact same markets.

Q. How did you select non-price regulated companies that are comparable in total risk to the Utility Proxy Group?

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on the beta and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (i.e., five years). These selection criteria resulted in a proxy group of 40 domestic, non-price regulated firms comparable in total risk to the Utility Proxy

Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in selecting the domestic, non-price regulated firms was:

(i) They must be covered by *Value Line* (Standard Edition);

(ii) They must be domestic, non-price regulated companies, i.e., not utilities;

(iii) Their unadjusted betas must lie within plus or minus two standard deviations of the average unadjusted betas of the Utility Proxy Group; and

(iv) The residual standard errors of the *Value Line* regressions which gave rise to the unadjusted beta must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

As discussed above, betas measure market, or systematic, risk, which is not diversifiable. The residual standard errors of the regressions measure each firm's company-specific, diversifiable risk. Companies that have similar betas <u>and</u> similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. Have you prepared a schedule which shows the data from which you selected the 40 domestic, non-price regulated companies that are comparable in total risk to the Utility Proxy Group?

A. Yes, the basis of my selection and both proxy groups' regression statistics are shown in Ameren Exhibit 8.6.

Q. Is the use of unadjusted betas and standard errors of the regression supported by academic and financial literature?

A. Yes, it is. Business and financial risks may vary between companies and proxy groups, but if the collective average betas and standard errors of the regression of the

group are similar, then the total, or aggregate, non-diversifiable market risks and diversifiable risks are similar, as noted in "Comparable Earnings: New Life for an Old Precept" provided in Ameren Exhibit 8.7.[59] Thus, because the non-price regulated companies are selected based on analyses of market data, they are comparable in total risk (even though individual risks may vary) to the Utility Proxy Group. This is demonstrated clearly on page 273 of Jack C. Francis' Investments: Analysis and Management (page 3 of Ameren Exhibit 8.8), which shows that total risk can be "partitioned into its systematic and unsystematic components." Essentially, companies that have similar betas and standard errors of regression have similar total investment risk.

Q. Have you prepared an additional analysis to determine whether your Utility Proxy Group and Non-Price Regulated Proxy Group are of comparable risk?

A. Yes, I have. I compared the average and median *Value Line* Safety Ranking[60] for the Utility Proxy Group and Non-Price Regulated Proxy Group, as shown on Table 9, below:

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[59] Frank J. Hanley, Pauline M. Ahern, *Comparable Earnings: New Life for an Old Precept*, Financial Quarterly Review, Summer 1994.

[60] *Value Line* also ranks stocks for Safety by analyzing the total risk of a stock compared to the approximately 1,700 stocks in the *Value Line* universe. Each of the stocks tracked in the *Value Line Investment Survey* is ranked in relationship to each other, from 1 (the highest rank) to 5 (the lowest rank). Safety is a quality rank, not a performance rank, and stocks ranked 1 and 2 are most suitable for conservative investors; those ranked 4 and 5 will be more volatile. Volatility means prices can move dramatically and often unpredictably, either down or up. The major influences on a stock's Safety rank are the company's financial strength, as measured by balance sheet and financial ratios, and the stability of its price over the past five years.

Table 9: Comparison of Safety Rankings of Mr. D'Ascendis' Utility Proxy Group and Non-Price Regulated Proxy Group

Group	Average Safety Ranking	Median Safety Ranking
Utility Proxy Group	1.69	2.00
Non-Price Regulated Proxy Group	1.80	2.00

As noted above, the Safety Rankings of the Utility Proxy Group and the Non-Price Regulated Proxy Group are comparable, indicating comparable total risk. This, in addition to all of the above, should lead the Commission to consider the results of my Non-Price Regulated Proxy Group in its determination of AIC's ROE in this proceeding.

Q. Did you calculate common equity cost rates using the DCF model, RPM, and CAPM for the Non-Price Regulated Proxy Group?

A. Yes. Because the DCF model, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and application of each model. One exception is in the application of the RPM, where I did not use public utility-specific equity risk premiums, nor did I apply the PRPM to the individual non-price regulated companies.

Page 2 of Ameren Exhibit 8.9 applies the Constant Growth model to the Non-Price Regulated Proxy Group. As shown, the indicated common equity cost rate is 11.58%.

Pages 3 through 5 of Ameren Exhibit 8.9 contain the data and calculations that support the 13.17% RPM common equity cost rate. As shown on line 1, page 3 of Ameren Exhibit 8.9, the consensus prospective yield on Moody's Baa2-rated corporate bonds for the six quarters ending in the first quarter of 2024, and for the years 2024 to

2028 and 2029 to 2033, is 6.25%.[61] Since the Non-Price Regulated Proxy Group has an average Moody's long-term issuer rating of Baa1, a downward adjustment of 0.25% to the projected Baa2-rated corporate bond yield is necessary to reflect the difference in ratings which results in a projected Baa1-rated corporate bond yield of 6.00%.

When the beta-adjusted risk premium of 7.17%[62] relative to the Non-Price Regulated Proxy Group is added to the prospective Baa1-rated corporate bond yield of 6.00%, the indicated RPM common equity cost rate is 13.17%.

Page 6 of Ameren Exhibit 8.9 contains the inputs and calculations that support my indicated CAPM/ECAPM common equity cost rate of 12.44%.

Q. How is the cost rate of common equity based on the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group?

A. As shown on page 1 of Ameren Exhibit 8.9, the results of the common equity models applied to the Non-Price Regulated Proxy Group – which is comparable in total risk to the Utility Proxy Group – are as follows: 11.58% (DCF), 13.17% (RPM), and 12.44% (CAPM). The average of the mean and median of these models is 12.42%, which I used as the indicated common equity cost rates for the Non-Price Regulated Proxy Group. To be conservative, I do not consider the results of this analysis directly in my determination of the reasonable range of ROEs attributable to the Utility Proxy Group.

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[61] *Blue Chip*, December 1, 2022, at 2 and 14.
[62] Derived on page 5 of Ameren Exhibit 8.7.

VII. CONCLUSION OF COMMON EQUITY COST ANALYTICAL RESULTS BEFORE ADJUSTMENTS

Q. Based on your analyses, what is the indicated common equity cost rate before adjustments?

A. By applying multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated range of common equity cost rates attributable to the Utility Proxy Group before any relative risk adjustments is between 10.13% and 11.13% using projected risk-free rates and 10.10% to 11.10% using current interest rates. I used multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because each of these models is theoretically sound and available to investors, and because no single model is so inherently precise that it can be relied on to the exclusion of other theoretically sound models. Using multiple models adds reliability to the estimated common equity cost rate, with the prudence of using multiple cost of common equity models supported in both the financial literature and regulatory precedent.

VIII. ADJUSTMENTS TO THE COMMON EQUITY COST RATE

A. Size Adjustment

Q. Does the Company's smaller size relative to the Utility Proxy Group companies increase its business risk?

A. Yes. As a preliminary matter, because I have developed my cost of common equity recommendation for the Company's Illinois operations based on market data applied to the Utility Proxy Group of risk-comparable companies, in order to assess the Company's risk associated with its relative small size of its Illinois operations, it is

necessary to compare the Company's Illinois-jurisdictional size relative to the Utility Proxy Group. The Company's smaller size relative to the Utility Proxy Group companies indicates greater relative business risk for the Company because, all else being equal, size has a material bearing on risk.

Size affects business risk because smaller companies generally are less able to cope with significant events that affect sales, revenues and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a bigger company with a larger, more diverse, customer base. This is true for utilities, as well as for non-regulated companies.

As further evidence that smaller firms are riskier, investors generally demand greater returns from smaller firms to compensate for less marketability and liquidity of their securities. Kroll's Cost of Capital Navigator: U.S. Cost of Capital Module (Kroll) discusses the nature of the small-size phenomenon, providing an indication of the magnitude of the size premium based on several measures of size. In discussing "Size as a Predictor of Equity Returns," Kroll states:

> The size effect is based on the empirical observation that companies of smaller size are associated with greater risk and, therefore, have greater cost of capital [sic]. The "size" of a company is one of the most important risk elements to consider when developing cost of equity capital estimates for use in valuing a business simply because size has been shown to be a *predictor* of equity returns. In other words, there is a significant (negative) relationship between size and historical equity returns - as size *decreases*, returns tend to *increase*, and vice versa. (footnote omitted) (emphasis in original)[63]

[63] Kroll, Cost of Capital Navigator: U.S. Cost of Capital Module, Size as a Predictor of Equity Returns, at 1.

Furthermore, in "The Capital Asset Pricing Model: Theory and Evidence," Fama and French note size is indeed a risk factor which must be reflected when estimating the cost of common equity. On page 14, they note:

> . . . the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns not captured in the market return and are priced separately from market betas.[64]

Based on this evidence, Fama and French proposed their three-factor model which includes a size variable in recognition of the effect size has on the cost of common equity.

Also, it is a basic financial principle that the use of funds invested, and not the source of funds, is what gives rise to the risk of any investment.[65] Eugene Brigham, a well-known authority, states:

> A number of researchers have observed that portfolios of small-firms (sic) have earned consistently higher average returns than those of large-firm stocks; this is called the "small-firm effect." On the surface, it would seem to be advantageous to the small firms to provide average returns in a stock market that are higher than those of larger firms. In reality, it is bad news for the small firm; **what the small-firm effect means is that the capital market demands higher returns on stocks of small firms than on otherwise similar stocks of the large firms**. (emphasis added)[66]

Consistent with the financial principle of risk and return discussed above, increased relative risk due to small size must be considered in the allowed rate of ROE. Therefore, the Commission's authorization of a cost rate of common equity in this proceeding must appropriately reflect the unique risks of the Company, including its

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[64] Fama & French, at 25-43.
[65] Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance (McGraw-Hill Book Company, 1996), at 204-205, 229.
[66] Eugene F. Brigham, Fundamentals of Financial Management, Fifth Edition (The Dryden Press, 1989), at 623.

small relative size to the Utility Proxy Group, which is justified and supported above by evidence in the financial literature.

Q. Earlier you explained that credit ratings can act as a proxy for a firm's combined business and financial risks to equity owners. Do rating agencies account for company size in their bond ratings?

A. No. Neither S&P nor Moody's have minimum company size requirements for any given rating level. This means, all else equal, a relative size analysis must be conducted for equity investments in companies with similar bond ratings.

Q. Is there a way to quantify a relative risk adjustment due to the Company's small size when compared to the utility proxy group?

A. Yes. The Company has greater relative risk than the average utility in the Utility Proxy Group because of its smaller size, as measured by an estimated market capitalization of common equity for the Company's Illinois operations.

Table 10: Size as Measured by Market Capitalization for AIC's Electric Operations and the Utility Proxy Group

	Market Capitalization* ($ Millions)	**Times Greater than the Company**
AIC IL Jurisdictional	$5,664.318	
Utility Proxy Group	$23,017.764	4.1x
*From page 1 of Ameren Exhibit 8.10.		

The Company's estimated market capitalization for its Illinois operations was $5,664.32 million as of November 30, 2022, compared with the market capitalization of the average company in the Utility Proxy Group of $23,017.76 million as of November

30, 2022. The average company in the Utility Proxy Group has a market capitalization 4.1 times the size of the Company's estimated Illinois-based market capitalization.

As a result, it is necessary to upwardly adjust the indicated range of common equity cost rates attributable to the Utility Proxy Group to reflect the Company's greater risk due to their smaller relative size. The determination is based on the size premiums for portfolios of New York Stock Exchange, American Stock Exchange, and NASDAQ listed companies ranked by deciles for the 1926 to 2021 period.[67] The average size premium for the Utility Proxy Group with a market capitalization of $23,017.76 million falls in the 2nd decile, while the Company's estimated market capitalization of $5,664.32 million places it in the 4th decile. The size premium spread between the 2nd decile and the 4th decile is 0.26%.[68] Even though a 0.26% upward size adjustment is indicated, I applied a size premium of 0.05% to the Company's indicated common equity cost rate in order to be conservative.

Q. Since the Company is part of a larger company, why is the size of Ameren Corporation not more appropriate to use when determining the size adjustment?

A. The return derived in this proceeding will not apply to Ameren Corporation's operations as a whole, but only to the Company's Illinois operations. Ameren Corporation is the sum of its constituent parts, including those constituent parts' ROEs. Potential investors in Ameren Corporation are aware that it is a combination of operations in each state, and that each state's operations experience the operating risks specific to their jurisdiction. The market's expectation of Ameren Corporation's return is

[67] Source: Kroll, Cost of Capital Navigator.
[68] Source: Kroll, Cost of Capital Navigator. *See also*, Ameren Exhibit 8.10.

commensurate with the realities of the Company's composite operations in each of the states in which it operates.

B. <u>Credit Risk Adjustment</u>

Q. Please discuss your proposed credit risk adjustment.

A. AIC's long-term issuer ratings are A3 and BBB+ from Moody's and S&P, respectively. The average long-term issuer ratings from Moody's and S&P for the Utility Proxy Group are Baa1 and BBB+, respectively. AIC's long-term issuer rating from Moody's is one step above the Utility Proxy Group average, implying a lower level of risk. Hence, a downward credit risk adjustment is necessary to reflect the higher bond rating of AIC relative to the average bond rating of the Utility Proxy Group.

An indication of the magnitude of the necessary downward adjustment to reflect the lower credit risk inherent in AIC's bond rating relative to the Utility Proxy Group average rating is one-third of a recent three-month average spread between Moody's A2 and Baa2-rated public utility bond yields of 0.31%, shown on page 4 of Ameren Exhibit 8.4, or 0.10%.

C. <u>Flotation Costs</u>

Q. What are flotation costs?

A. Flotation costs are those costs associated with the sale of new issuances of common stock. They include market pressure and the mandatory unavoidable costs of issuance (*e.g.*, underwriting fees and out-of-pocket costs for printing, legal, registration, etc.). For every dollar raised through debt or equity offerings, the Company receives less than one full dollar in financing.

Q. Do the common equity cost rate models you have used already reflect investors' anticipation of flotation costs?

A. No. All of these models assume no transaction costs. The literature is quite clear that these costs are not reflected in the market prices paid for common stocks. For example, Brigham and Daves confirm this and provide the methodology utilized to calculate the flotation adjustment.[69] In addition, as noted above, Morin confirms the need for such an adjustment even when no new equity issuance is imminent.[70] Consequently, it is proper to include a flotation cost adjustment when using cost of common equity models to estimate the common equity cost rate.

Q. How did you calculate the flotation cost allowance?

A. I modified the DCF calculation to provide a dividend yield that would reimburse investors for issuance costs in accordance with the method cited in literature by Brigham and Daves, as well as by Morin. The flotation cost adjustment recognizes the actual costs of issuing equity that were incurred by Ameren Corporation. Based on the issuance costs shown on page 1 of Ameren Exhibit 8.11, an adjustment of 0.07% is required to reflect the flotation costs applicable to the Utility Proxy Group.

Q. What is the range of indicated cost of common equity after your Company-specific adjustments?

A. Applying the 0.05% size adjustment, -0.10% credit risk adjustment, and the 0.07% flotation cost adjustment to the indicated ranges of common equity cost rates

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[69] Eugene F. Brigham and Phillip R. Daves, Intermediate Financial Management, 9th Edition, Thomson/Southwestern, at p. 342.
[70] Morin, at pp. 337-339.

between 10.13% and 11.13% (projected interest rates) and 10.10% and 11.10% (current interest rates) results in a Company-specific ranges of common equity rates between 10.14% and 11.13% (projected interest rates) and 10.11% and 11.10% (current interest rates).

IX. CONCLUSION

Q. What is the Company's requested ROE given your recommended ranges of ROEs applicable to the Company?

A. Given the discussion above and the results from the analyses, the Company requests an ROE of 10.50%, which is appropriate for the Company at this time.

Q. In your opinion, is the Company's proposed ROE of 10.50% fair and reasonable to AIC and its customers?

A. Yes, it is.

Q. In your opinion, is AIC's proposed capital structure fair and reasonable?

A. Yes, it is.

Q. Does this conclude your Direct Testimony?

A. Yes, it does

scottmadden
MANAGEMENT CONSULTANTS

Summary

Dylan D'Ascendis is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). He joined ScottMadden in 2016 and has become a leading expert witness with respect to cost of capital and capital structure. Mr. D'Ascendis has served as a consultant for investor-owned and municipal utilities and authorities for 14 years. He has testified as an expert witness on over 125 occasions regarding rate of return, cost of service, rate design, and valuation before more than 35 regulatory jurisdictions in the United States and Canada, an American Arbitration Association panel, and the Superior Court of Rhode Island. Mr. D'Ascendis also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured. Mr. D'Ascendis holds a B.A. in economic history from the University of Pennsylvania and an M.B.A. with concentrations in finance and international business from Rutgers University. He lives in New Jersey and works out of ScottMadden's Westborough, Massachusetts office.

Areas of Specialization

Regulation and Rates
Rate of Return
Valuation
Mutual Fund Benchmarking
Capital Market Risk
Regulatory Strategy
Cost of Service

Recent Expert Testimony Submission/Appearance

Regulatory Commission of Alaska – Capital Structure
Federal Energy Regulatory Commission – Rate of Return
Public Utility Commission of Texas – Return on Equity
Hawaii Public Utilities Commission – Cost of Service / Rate Design
Pennsylvania Public Utility Commission - Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Articles and Speeches

- Co-Author of: "Decoupling, Risk Impacts and the Cost of Capital", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. The Electricity Journal, March, 2020
- Co-Author of: "Decoupling Impact and Public Utility Conservation Investment", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. Energy Policy Journal, 130 (2019), 311-319
- "Establishing Alternative Proxy Groups", before the Society of Utility and Regulatory Financial Analysts: 51st Financial Forum, April 4, 2019, New Orleans, LA
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN

Sponsor	Date	Case/Applicant	Docket No.	Subject
Regulatory Commission of Alaska				
ENSTAR Natural Gas Company	08/22	ENSTAR Natural Gas Company	Docket No. TA334-4	Rate of Return
Cook Inlet Natural Gas Storage Alaska, LLC	07/21	Cook Inlet Natural Gas Storage Alaska, LLC	Docket No. TA45-733	Capital Structure
Alaska Power Company	09/20	Alaska Power Company; Goat Lake Hydro, Inc.; BBL Hydro, Inc.	Tariff Nos. TA886-2; TA6-521; TA4-573	Capital Structure
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Alberta Utilities Commission				
AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	01/20	AltaLink, L.P., and EPCOR Distribution & Transmission, Inc.	2021 Generic Cost of Capital, Proceeding ID. 24110	Rate of Return
Arizona Corporation Commission				
EPCOR Water Arizona, Inc.	08/22	EPCOR Water Arizona, Inc.	Docket No. WS-01303A-22-0236	Rate of Return
EPCOR Water Arizona, Inc.	06/20	EPCOR Water Arizona, Inc.	Docket No. WS-01303A-20-0177	Rate of Return
Arizona Water Company	12/19	Arizona Water Company – Western Group	Docket No. W-01445A-19-0278	Rate of Return
Arizona Water Company	08/18	Arizona Water Company – Northern Group	Docket No. W-01445A-18-0164	Rate of Return
Arkansas Public Service Commission				
Southwestern Electric Power Co.	07/21	Southwestern Electric Power Co.	Docket No. 21-070-U	Return on Equity
CenterPoint Energy Resources Corp.	05/21	CenterPoint Arkansas Gas	Docket No. 21-004-U	Return on Equity
Colorado Public Utilities Commission				
Atmos Energy Corporation	08/22	Atmos Energy Corporation	Docket No. 22AL-0348G	Rate of Return
Summit Utilities, Inc.	04/18	Colorado Natural Gas Company	Docket No. 18AL-0305G	Rate of Return
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Rate of Return
Delaware Public Service Commission				
Delmarva Power & Light Co.	01/22	Delmarva Power & Light Co.	Docket No. 22-002 (Gas)	Return on Equity
Delmarva Power & Light Co.	11/20	Delmarva Power & Light Co.	Docket No. 20-0149 (Electric)	Return on Equity
Delmarva Power & Light Co.	10/20	Delmarva Power & Light Co.	Docket No. 20-0150 (Gas)	Return on Equity
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Public Service Commission of the District of Columbia				
Washington Gas Light Company	04/22	Washington Gas Light Company	Formal Case No. 1169	Rate of Return
Washington Gas Light Company	09/20	Washington Gas Light Company	Formal Case No. 1162	Rate of Return
Federal Energy Regulatory Commission				
LS Power Grid California, LLC	10/20	LS Power Grid California, LLC	Docket No. ER21-195-000	Rate of Return
Florida Public Service Commission				
Tampa Electric Company	04/21	Tampa Electric Company	Docket No. 20210034-EI	Return on Equity
Peoples Gas System	09/20	Peoples Gas System	Docket No. 20200051-GU	Rate of Return
Utilities, Inc. of Florida	06/20	Utilities, Inc. of Florida	Docket No. 20200139-WS	Rate of Return
Hawaii Public Utilities Commission				
Launiupoko Irrigation Company, Inc.	12/20	Launiupoko Irrigation Company, Inc.	Docket No. 2020-0217 / Transferred to 2020-0089	Capital Structure

Sponsor	Date	Case/Applicant	Docket No.	Subject
Lanai Water Company, Inc.	12/19	Lanai Water Company, Inc.	Docket No. 2019-0386	Cost of Service / Rate Design
Manele Water Resources, LLC	08/19	Manele Water Resources, LLC	Docket No. 2019-0311	Cost of Service / Rate Design
Kaupulehu Water Company	02/18	Kaupulehu Water Company	Docket No. 2016-0363	Rate of Return
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Utility Services of Illinois, Inc.	02/21	Utility Services of Illinois, Inc.	Docket No. 21-0198	Rate of Return
Ameren Illinois Company d/b/a Ameren Illinois	07/20	Ameren Illinois Company d/b/a Ameren Illinois	Docket No. 20-0308	Return on Equity
Utility Services of Illinois, Inc.	11/17	Utility Services of Illinois, Inc.	Docket No. 17-1106	Cost of Service / Rate Design
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Kansas Corporation Commission				
Atmos Energy Corporation	07/19	Atmos Energy Corporation	19-ATMG-525-RTS	Rate of Return
Kentucky Public Service Commission				
Water Service Corporation of KY	06/22	Water Service Corporation of KY	2022-00147	Rate of Return
Atmos Energy Corporation	07/21	Atmos Energy Corporation	2021-00304	PRP Rider Rate
Atmos Energy Corporation	06/21	Atmos Energy Corporation	2021-00214	Rate of Return
Duke Energy Kentucky, Inc.	06/21	Duke Energy Kentucky, Inc.	2021-00190	Return on Equity
Bluegrass Water Utility Operating Company	10/20	Bluegrass Water Utility Operating Company	2020-00290	Return on Equity
Louisiana Public Service Commission				
Utilities, Inc. of Louisiana	05/21	Utilities, Inc. of Louisiana	Docket No. U-36003	Rate of Return
Southwestern Electric Power Company	12/20	Southwestern Electric Power Company	Docket No. U-35441	Return on Equity
Atmos Energy	04/20	Atmos Energy	Docket No. U-35535	Rate of Return
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Maine Public Utilities Commission				
Summit Natural Gas of Maine, Inc.	03/22	Summit Natural Gas of Maine, Inc.	Docket No. 2022-00025	Rate of Return
The Maine Water Company	09/21	The Maine Water Company	Docket No. 2021-00053	Rate of Return
Maryland Public Service Commission				
Washington Gas Light Company	08/20	Washington Gas Light Company	Case No. 9651	Rate of Return
FirstEnergy, Inc.	08/18	Potomac Edison Company	Case No. 9490	Rate of Return
Massachusetts Department of Public Utilities				
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Elec.)	D.P.U. 19-130	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
Unitil Corporation	12/19	Fitchburg Gas & Electric Co. (Gas)	D.P.U. 19-131	Rate of Return
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Minnesota Public Utilities Commission				
Northern States Power Company	11/01	Northern States Power Company	Docket No. G002/GR-21-678	Return on Equity
Northern States Power Company	10/21	Northern States Power Company	Docket No. E002/GR-21-630	Return on Equity
Northern States Power Company	11/20	Northern States Power Company	Docket No. E002/GR-20-723	Return on Equity
Mississippi Public Service Commission				
Great River Utility Operating Co.	07/22	Great River Utility Operating Co.	Docket No. 2022-UN-86	Rate of Return
Atmos Energy	03/19	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Atmos Energy	07/18	Atmos Energy	Docket No. 2015-UN-049	Capital Structure
Missouri Public Service Commission				
Spire Missouri, Inc.	12/20	Spire Missouri, Inc.	Case No. GR-2021-0108	Return on Equity
Indian Hills Utility Operating Company, Inc.	10/17	Indian Hills Utility Operating Company, Inc.	Case No. SR-2017-0259	Rate of Return
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Case No. SR-2016-0202	Rate of Return
Public Utilities Commission of Nevada				
Southwest Gas Corporation	09/21	Southwest Gas Corporation	Docket No. 21-09001	Return on Equity
Southwest Gas Corporation	08/20	Southwest Gas Corporation	Docket No. 20-02023	Return on Equity
New Hampshire Public Utilities Commission				
Aquarion Water Company of New Hampshire, Inc.	12/20	Aquarion Water Company of New Hampshire, Inc.	Docket No. DW 20-184	Rate of Return
New Jersey Board of Public Utilities				
Middlesex Water Company	05/21	Middlesex Water Company	Docket No. WR21050813	Rate of Return
Atlantic City Electric Company	12/20	Atlantic City Electric Company	Docket No. ER20120746	Return on Equity
FirstEnergy	02/20	Jersey Central Power & Light Co.	Docket No. ER20020146	Rate of Return
Aqua New Jersey, Inc.	12/18	Aqua New Jersey, Inc.	Docket No. WR18121351	Rate of Return
Middlesex Water Company	10/17	Middlesex Water Company	Docket No. WR17101049	Rate of Return
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
New Mexico Public Regulation Commission				
Southwestern Public Service Co.	01/21	Southwestern Public Service Co.	Case No. 20-00238-UT	Return on Equity
North Carolina Utilities Commission				
Carolina Water Service, Inc.	07/22	Carolina Water Service, Inc.	Docket No. W-354 Sub 400	Rate of Return
Aqua North Carolina, Inc.	06/22	Aqua North Carolina, Inc.	Docket No. W-218 Sub 573	Rate of Return
Carolina Water Service, Inc.	07/21	Carolina Water Service, Inc.	Docket No. W-354 Sub 384	Rate of Return
Piedmont Natural Gas Co., Inc.	03/21	Piedmont Natural Gas Co., Inc.	Docket No. G-9, Sub 781	Return on Equity
Duke Energy Carolinas, LLC	07/20	Duke Energy Carolinas, LLC	Docket No. E-7, Sub 1214	Return on Equity
Duke Energy Progress, LLC	07/20	Duke Energy Progress, LLC	Docket No. E-2, Sub 1219	Return on Equity
Aqua North Carolina, Inc.	12/19	Aqua North Carolina, Inc.	Docket No. W-218 Sub 526	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
Carolina Water Service, Inc.	06/19	Carolina Water Service, Inc.	Docket No. W-354 Sub 364	Rate of Return
Carolina Water Service, Inc.	09/18	Carolina Water Service, Inc.	Docket No. W-354 Sub 360	Rate of Return
Aqua North Carolina, Inc.	07/18	Aqua North Carolina, Inc.	Docket No. W-218 Sub 497	Rate of Return
North Dakota Public Service Commission				
Northern States Power Company	09/21	Northern States Power Company	Case No. PU-21-381	Rate of Return
Northern States Power Company	11/20	Northern States Power Company	Case No. PU-20-441	Rate of Return
Public Utilities Commission of Ohio				
Duke Energy Ohio, Inc.	10/21	Duke Energy Ohio, Inc.	Case No. 21-887-EL-AIR	Return on Equity
Aqua Ohio, Inc.	07/21	Aqua Ohio, Inc.	Case No. 21-0595-WW-AIR	Rate of Return
Aqua Ohio, Inc.	05/16	Aqua Ohio, Inc.	Case No. 16-0907-WW-AIR	Rate of Return
Pennsylvania Public Utility Commission				
Borough of Ambler	06/22	Borough of Ambler – Bureau of Water	Docket No. R-2022-3031704	Rate of Return
Citizens' Electric Company of Lewisburg	05/22	C&T Enterprises	Docket No. R-2022-3032369	Rate of Return
Valley Energy Company	05/22	C&T Enterprises	Docket No. R-2022-3032300	Rate of Return
Community Utilities of Pennsylvania, Inc.	04/21	Community Utilities of Pennsylvania, Inc.	Docket No. R-2021-3025207	Rate of Return
Vicinity Energy Philadelphia, Inc.	04/21	Vicinity Energy Philadelphia, Inc.	Docket No. R-2021-3024060	Rate of Return
Delaware County Regional Water Control Authority	02/20	Delaware County Regional Water Control Authority	Docket No. A-2019-3015173	Valuation
Valley Energy, Inc.	07/19	C&T Enterprises	Docket No. R-2019-3008209	Rate of Return
Wellsboro Electric Company	07/19	C&T Enterprises	Docket No. R-2019-3008208	Rate of Return
Citizens' Electric Company of Lewisburg	07/19	C&T Enterprises	Docket No. R-2019-3008212	Rate of Return
Steelton Borough Authority	01/19	Steelton Borough Authority	Docket No. A-2019-3006880	Valuation
Mahoning Township, PA	08/18	Mahoning Township, PA	Docket No. A-2018-3003519	Valuation
SUEZ Water Pennsylvania Inc.	04/18	SUEZ Water Pennsylvania Inc.	Docket No. R-2018-000834	Rate of Return
Columbia Water Company	09/17	Columbia Water Company	Docket No. R-2017-2598203	Rate of Return
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate
South Carolina Public Service Commission				
Blue Granite Water Co.	12/19	Blue Granite Water Company	Docket No. 2019-292-WS	Rate of Return
Carolina Water Service, Inc.	02/18	Carolina Water Service, Inc.	Docket No. 2017-292-WS	Rate of Return
Carolina Water Service, Inc.	06/15	Carolina Water Service, Inc.	Docket No. 2015-199-WS	Rate of Return
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return

Sponsor	Date	Case/Applicant	Docket No.	Subject
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure
South Dakota Public Service Commission				
Northern States Power Company	06/22	Northern States Power Company	Docket No. EL22-017	Rate of Return
Tennessee Public Utility Commission				
Piedmont Natural Gas Company	07/20	Piedmont Natural Gas Company	Docket No. 20-00086	Return on Equity
Public Utility Commission of Texas				
Oncor Electric Delivery Co. LLC	05/22	Oncor Electric Delivery Co. LLC	Docket No. 53601	Return on Equity
Southwestern Public Service Co.	02/21	Southwestern Public Service Co.	Docket No. 51802	Return on Equity
Southwestern Electric Power Co.	10/20	Southwestern Electric Power Co.	Docket No. 51415	Rate of Return
Virginia State Corporation Commission				
Washington Gas Light Company	06/22	Washington Gas Light Company	PUR-2022-00054	Return on Equity
Virginia Natural Gas, Inc.	04/21	Virginia Natural Gas, Inc.	PUR-2020-00095	Return on Equity
Massanutten Public Service Corporation	12/20	Massanutten Public Service Corporation	PUE-2020-00039	Return on Equity
Aqua Virginia, Inc.	07/20	Aqua Virginia, Inc.	PUR-2020-00106	Rate of Return
WGL Holdings, Inc.	07/18	Washington Gas Light Company	PUR-2018-00080	Rate of Return
Atmos Energy Corporation	05/18	Atmos Energy Corporation	PUR-2018-00014	Rate of Return
Aqua Virginia, Inc.	07/17	Aqua Virginia, Inc.	PUR-2017-00082	Rate of Return
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design
Public Service Commission of West Virginia				
Monongahela Power Company and The Potomac Edison Company	12/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0857-E-CN (ELG)	Return on Equity
Monongahela Power Company and The Potomac Edison Company	11/21	Monongahela Power Company and The Potomac Edison Company	Case No. 21-0813-E-P (Solar)	Return on Equity