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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. GR-2024-0369

DIRECT TESTIMONY

OF

ANN E. BULKLEY

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
September, 2024

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DIRECT TESTIMONY

OF

ANN E. BULKLEY

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I. Introduction

Q: Please state your name, occupation and business address.

A: My name is Ann E. Bulkley. I am a Principal with The Brattle Group ("Brattle"). My business address is One Beacon Street, Suite 2600, Boston, Massachusetts 02108.

Q: On whose behalf are you submitting this Prepared Direct Testimony?

A: I am submitting this testimony before the Missouri Public Service Commission ("Commission") on behalf of Ameren Missouri (the "Company"), a wholly-owned subsidiary of Ameren Corporation ("Ameren").

Q: Please describe your background and professional experience in the energy and utility industries.

A: I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking

purposes. A summary of my professional and educational background is presented in Schedule AEB-D1.

Q: What is the purpose of your Prepared Direct Testimony?

A: The purpose of my testimony is to present evidence and provide a recommendation regarding the appropriate return on equity ("ROE") for Ameren Missouri's natural gas operations to be used for ratemaking purposes. My analyses and recommendations are supported by the data presented in Schedule AEB-D2, Attachments 1 through 12, which were prepared by me or under my direction.[1]

Q: How is the remainder of your Prepared Direct Testimony organized?

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

- Section II provides a summary of my analyses and conclusions.
- Section III reviews the regulatory guidelines pertinent to the development of the cost of capital.
- Section IV discusses current and projected capital market conditions and the effect of those conditions on the Company's cost of equity.
- Section V explains my selection of the proxy group of natural gas distribution utilities.
- Section VI describes my analyses and the analytical basis for the recommendation of the appropriate ROE for the Company.

[1] My testimony and supporting analyses rely, in part, on information obtained through a subscription with S&P Capital IQ Pro, and consequently, that information has been designated as confidential in accordance with licensing requirements of the provider.

- Section VII provides a discussion of specific regulatory, business, and financial risks that have a direct bearing on the ROE to be authorized for the Company in this case.
- Section VIII presents my conclusions and recommendations for the market cost of equity.

II. Summary of Analyses and Conclusions

Q: What are the key factors considered in your analyses and upon which your recommended cost of equity for the Company is based?

A: In developing my recommended ROE for the Company, I considered the following:

- The United States Supreme Court decisions in *Hope* and *Bluefield*[2] established the standards for determining a fair and reasonable authorized ROE for public utilities, including consistency of the allowed return with the returns of other businesses having similar risk, adequacy of the return to provide access to capital and support credit quality, and the requirement that the result lead to just and reasonable rates.
- The effect of current and projected capital market conditions on investors' return requirements.
- The results of several analytical approaches that provide estimates of the Company's cost of equity. Because the Company's authorized ROE should be a forward-looking estimate over the period during which the rates will be in effect, these analyses rely on forward-looking inputs and assumptions (*e.g.*, projected analyst growth rates in the DCF model, forecasted risk-free rate and market risk premium in the CAPM analysis). The results of several

[2] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*"); *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*").

analytical approaches that provide estimates of the Company's cost of equity, including the constant growth DCF model, the traditional and empirical forms of the CAPM, and the Bond Yield Plus Risk Premium ("BYRP") approach.

- The Company's regulatory, business, and financial risks relative to the proxy group of comparable companies, and the implications of those risks.

Q: How did you develop your recommended cost of equity for the Company?

A: I relied on the results of several analytical approaches to estimate the cost of equity for Ameren Missouri's natural gas operations. To develop my ROE recommendation, I first developed a proxy group that consists of natural gas utility companies that face risks generally comparable to those faced by Ameren Missouri. To that natural gas company proxy group, I applied the constant growth discounted cash flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Empirical Capital Asset Pricing Model ("ECAPM"), and the BYRP approach. As discussed in more detail herein, it is appropriate to rely on multiple cost of equity estimation methodologies because market conditions affect the assumptions used in each model differently. Therefore, the use of multiple cost of equity estimation models is beneficial to provide benchmarks and a range of results to consider.

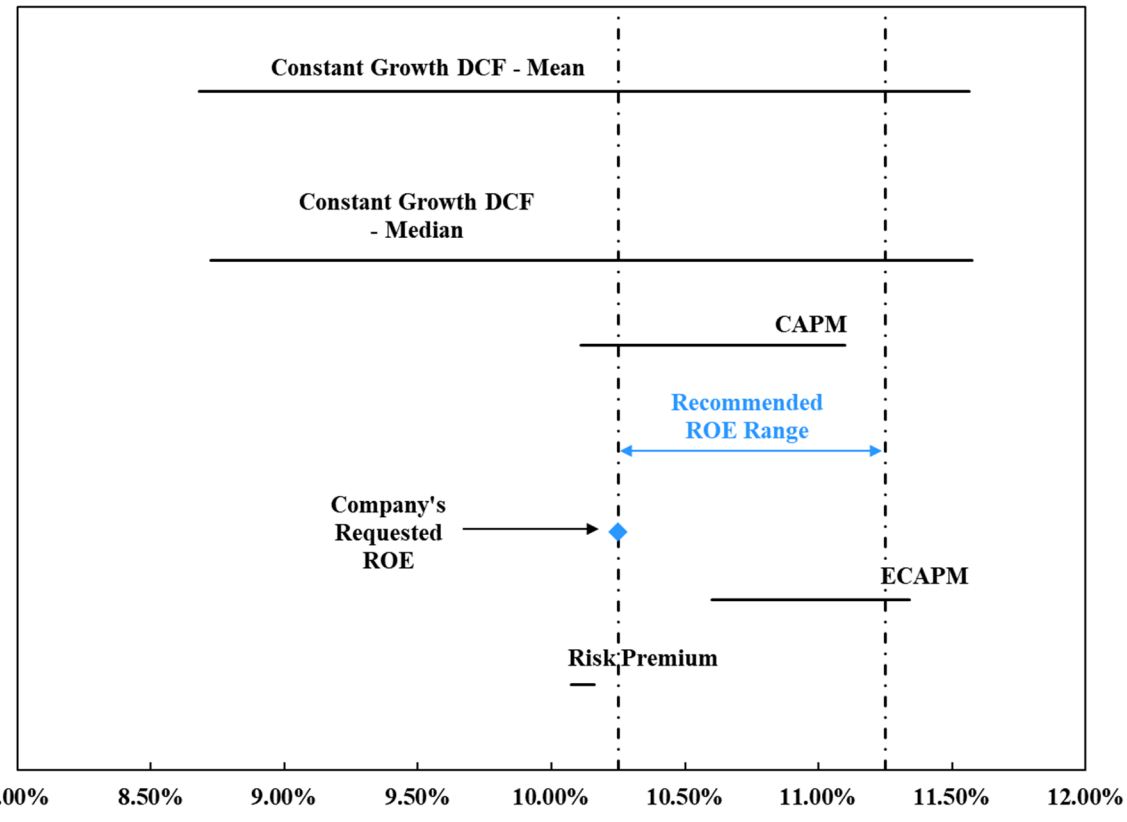
My recommendations also consider company-specific business and financial risk factors to estimate the investor-required cost of equity for the Company. Although the companies in my proxy group are generally comparable to Ameren Missouri's natural gas operations, each company is unique, with no two having exactly the same risk profiles. Accordingly, while I did not make any specific adjustments to my

cost of equity estimates for any of these factors, I considered the Company's business and financial risk in the aggregate in comparison to that of the proxy group companies when determining where the Company's ROE to be authorized in this proceeding should fall within the reasonable range of analytical results to account for any residual differences in risk.

Q: What are the results of your cost of equity estimation models?

A: Figure 1 summarizes the range of results of my cost of equity analyses for the Company.

FIGURE 1: SUMMARY OF COST OF EQUITY ANALYTICAL RESULTS



As shown in Figure 1, the range of results produced by the cost of equity estimation models is wide. While it is common to consider multiple models to estimate the cost of equity, it is particularly important when the range of results varies considerably across methodologies. As a result, my ROE recommendation considers the range of results of analyses, as well as the company-specific risk factors and current and prospective capital market conditions expected during the time when rates set in this case would be in effect.

Q: What is your recommended ROE for Ameren Missouri?

A: Based on the analytical results presented in Figure 1, the current and projected capital market conditions, and the level of regulatory, business, and financial risk faced by Ameren Missouri's natural gas operations relative to the proxy group, I conclude that a ROE in the range of 10.25 to 11.25 percent is reasonable. Considering these factors, I conclude that the Company's requested ROE in this proceeding of 10.25 percent is reasonable, if not conservative.

III. Regulatory Guidelines

Q: Please describe the guiding principles used in establishing the cost of capital for a regulated utility.

A: The United States Supreme Court's *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's allowed ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses having similar or comparable risks; (2) adequacy of the return

to support credit quality and access to capital; and (3) that the result, as opposed to the methodology employed, is the controlling factor in arriving at just and reasonable rates.[3]

Q: Is fixing a fair rate of return just about protecting the utility's interests?

A: No. As the court noted in *Bluefield*, a proper rate of return not only assures "confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit [but also] enable[s the utility] to raise the money necessary for the proper discharge of its public duties."[4] As the Court went on to explain in *Hope*, "[t]he rate-making process … involves balancing of the investor and consumer interests."[5]

Q: Has the Commission provided similar guidance in establishing the appropriate return on common equity?

A: Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases and acknowledges that utility investors are entitled to a fair and reasonable return. This position was set forth by the Commission as follows:

> The standard for rates is "just and reasonable," a standard founded on constitutional provisions, as the United States Supreme Court has explained. But the Commission must also consider the customers. Balancing the interests of investor and consumer is not reducible to a single formula, and making pragmatic adjustments is part of the Commission's duty. Thus, the law requires a just and reasonable

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[3] *Hope*, 320 U.S. 591 (1944); *Bluefield*, 262 U.S. 679 (1923).

[4] *Bluefield*, 262 U.S. 679, 67 L Ed 1176 (1923).

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

> end, but does not specify a means. The Commission is charged approving rate schedules that are as "just and reasonable" to consumers as they are to the utility.[6]

Based on these standards, the authorized ROE should provide the Company with a fair and reasonable return and should provide access to capital on reasonable terms in a variety of market conditions.

Q: Why is it important for a utility to be allowed the opportunity to earn an ROE that is adequate to attract capital at reasonable terms?

A: A return that is adequate to attract capital at reasonable terms will enable the Company to continue to provide safe, reliable natural gas service while maintaining its financial integrity. That return should be commensurate with returns required by investors elsewhere in the market for investments of comparable risk. If it is lower, debt and equity investors will seek alternative investment opportunities for which the expected return reflects the perceived risks, thereby impairing the Company's ability to attract capital at reasonable cost. To the extent the Company is provided a reasonable opportunity to earn a market-based cost of capital, neither customers nor shareholders are disadvantaged.

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[6] In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service, File No. ER-2014-0370, Report and Order, September 15, 2015, at 11.

Q: Is a utility's ability to attract capital also affected by the ROEs that are authorized for other utilities?

A: Yes. Utilities compete directly for capital with other investments of similar risk, which include other natural gas and electric utilities. Therefore, the ROE authorized for a utility sends an important signal to investors regarding whether there is regulatory support for financial integrity, dividends, growth, and fair compensation for business and financial risk. The cost of capital represents an opportunity cost to investors. If higher returns are available for other investments of comparable risk, investors have an incentive to direct their capital to those investments. Thus, an authorized ROE significantly below authorized ROEs for other natural gas utilities can inhibit the utility's ability to attract capital for investment in Missouri.

Q: Are the authorized ROE and capital structure important to credit rating agencies?

A: Yes. The credit rating agencies consider the authorized ROE and equity ratio for regulated utilities to be very important for two reasons: (1) they help determine the cash flows and credit metrics of the regulated utility; and (2) they provide an indication of the degree of regulatory support for credit quality in the jurisdiction. The credit rating agencies are particularly focused on these metrics and have instituted negative ratings actions in reaction to regulatory commission decisions authorizing a cost of equity that is deemed to increase risk by reducing future cash flow.

Q: Does the fact that the Company is owned by Ameren, a publicly-traded company, affect your analysis?

A: No, it does not. In this proceeding, consistent with stand-alone ratemaking principles, it is appropriate to establish the cost of equity for Ameren Missouri, not its publicly-traded parent, Ameren. It is appropriate to establish a return on equity and capital structure that provide Ameren Missouri the ability to attract capital on reasonable terms.

Q: What are your conclusions regarding regulatory guidelines?

A: The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, a utility must have the opportunity to recover the return of, and the market-required return on, its invested capital. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital at reasonable terms under a variety of economic and financial market conditions. Doing so balances the long-term interests of the utility and its customers.

The financial community carefully monitors the current and expected financial condition of utility companies and the regulatory frameworks in which they operate. In that respect, the regulatory framework is one of the most important factors in both debt and equity investors' assessments of risk. The Commission's order in this proceeding, therefore, should establish rates that provide the Company with a reasonable opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms under a variety of economic and financial market conditions; (2)

sufficient to ensure good financial management and firm integrity; and (3) commensurate with returns on investments in enterprises with similar risk. Providing Ameren Missouri the opportunity to earn its market-based cost of equity supports the financial integrity of the Company, which is in the interest of both customers and shareholders.

IV. Capital Market Conditions

Q: Why is it important to consider capital market conditions in the estimation of the investor-required return on equity?

A: The models rely on market data that are either specific to the proxy group, in the case of the DCF model, or to the expectations of market risk, in the case of the risk premium models. Therefore, results of the models can be affected by prevailing market conditions at the time the analysis is performed. Because the ROE that is established in a rate review is intended to be forward-looking, the analyst must use current and projected market data, specifically stock prices, dividends, growth rates and interest rates, in the models to estimate the required return for the subject company.

As discussed in the remainder of this section, analysts and regulatory commissions recognize that current market conditions affect the results of the cost of equity estimation models. As a result, it is important to consider the effect of the market conditions on these models when determining an appropriate range for the ROE, and the ROE to be used for ratemaking purposes for a future period. If investors do not expect current market conditions to be sustained in the future, it is possible that

the cost of equity estimation models will not provide an accurate estimate of investors' required return during that rate period. Therefore, it is important to consider projected market data to estimate the return for that forward-looking period.

Q: Do changes in capital market conditions since the Company's last rate proceeding indicate an increase in the cost of equity?

A: Yes. A significant increase in long-term bond yields since the Company's last rate proceeding demonstrate an increase in the cost of equity since that time. Specifically, as shown in Figure 2, short-term and long-term interest rates are both higher currently than at the time of Company's previous rate case. While inflation has declined from its peak, it remains above the level at the time of the last rate proceeding and the Federal Reserve's target of 2 percent.

FIGURE 2: CHANGE IN MARKET CONDITIONS SINCE COMPANY'S LAST RATE CASE[7]

Docket	Date	Federal Funds Rate	30-Day Avg 30 Year Treasury Bond Yield	Core Inflation Rate
C-GR-2021-0241	12/22/2021	4.33%	1.88%	5.50%
Current	8/31/2024	5.33%	4.23%	3.28%
	Change Since Dec-21:	*1.00%*	*2.36%*	*-2.23%*

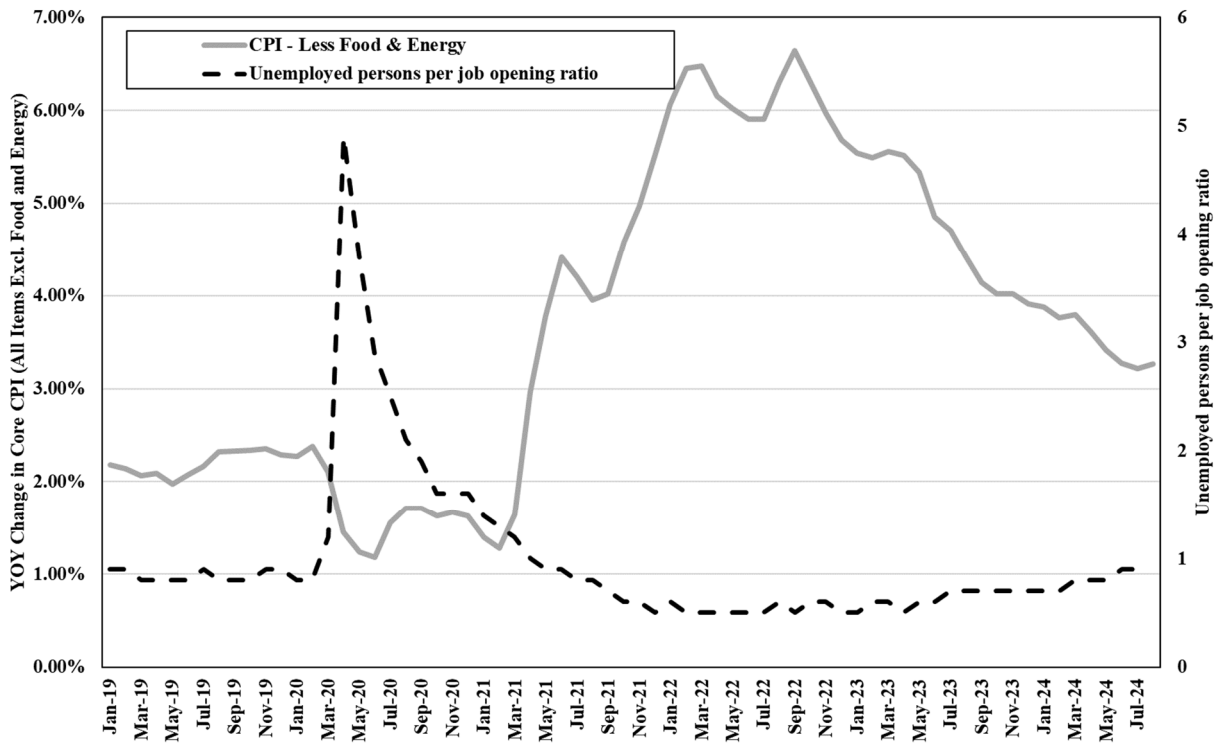
Q: What has the level of inflation been over the past few years?

A: As shown in Figure 3, core inflation increased steadily beginning in early 2021, rising from 1.41 percent in January 2021 to a high of 6.64 percent in September 2022, which was the largest 12-month increase since 1982. Since that time, while core inflation has declined in response to the Federal Reserve's monetary policy, it continues to remain above the Federal Reserve's target level of 2.0 percent.

In addition, I also considered the ratio of unemployed persons per job opening, which is currently 0.9 and has been consistently below 1.0 since 2021, despite the Federal Reserve's accelerated policy normalization. This metric shows the strength in the labor market that has occurred over the over the past two years. Given the Federal Reserve's dual mandate of maximum employment and price stability, the strength in the labor market allowed the federal reserve to focus on the priority of reducing inflation and pursue the necessary restrictive monetary policy to need to reduce inflation.

[7] St. Louis Federal Reserve Bank; Bureau of Labor Statistics.

FIGURE 3: CORE INFLATION AND UNEMPLOYED PERSONS-TO-JOB OPENINGS, JANUARY 2019 TO AUGUST 2024[8]



Q: What policy actions did the Federal Reserve enact to respond to increased inflation?

A: The dramatic increase in inflation prompted the Federal Reserve to pursue an aggressive normalization of monetary policy, removing the accommodative policy programs used to mitigate the economic effects of COVID-19. Between the March 2022 Federal Open Market Committee ("FOMC") meeting and the July 2023 FOMC meeting, the Federal Reserve increased the target federal funds rate through a series of increases from a range of 0.00 – 0.25 percent to a range of 5.25 percent to 5.50 percent. As discussed below, in light of the progress on reducing inflation

[8] Bureau of Labor Statistics.

and the balancing of the dual mandate, the Federal Reserve lowered the federal funds rate by 50 basis points at its September 2023 meeting to a range of 4.75 percent to 5.00 percent.

Q: Did the yields on long-term government bonds increase in response to inflation and the Federal Reserve's normalization of monetary policy?

A: Yes. As the Federal Reserve substantially increased the federal funds rate in response to increased levels of inflation that persisted for longer than originally projected, longer term interest rates increased. As shown in Figure 4, since the Federal Reserve's December 2021 meeting, the yield on 10-year Treasury bonds has increased by nearly 250 basis point, increasing from 1.47 percent on December 15, 2021 to 3.91 percent at the end of August 2024.

FIGURE 4: 10-YEAR TREASURY BOND YIELD—JANAURY 2021 THROUGH AUGUST 2024

Q: What is the expected path of the monetary policy over the near-term?

A: While over the past two years the risks associated with inflation have far exceeded the risks associated with the labor market, Chairman Powell's current view is that the risks associated with both inflation and the labor market have become more balanced given the effectiveness of restrictive monetary policy in combatting inflation. The Federal Reserve cut the interest rate by 50 basis points and Chairman Powell noted "with an appropriate recalibration of our policy stance, strength in the labor market can be maintained in a context of moderate growth and inflation moving sustainably down to 2 percent."[9] This will help to achieve the Federal Reserve's dual mandate of maximum employment and price stability with the 50 basis points cut in interest rate. Chairman Powell also noted that while there was a 50 basis point

[9] Transcript of Chair Powell's Press Conference, September 18, 2024.

reduction in the fed funds rate in the September FOMC meeting they "are not on any preset course" and will "continue to make our decisions meeting to meeting."[10] Chairman Powell noted the timing and pace of any further rate reductions will depend on "incoming data, the evolving outlook and the balance of risks."[11]

Q: What are the expectations for the yields on long-term government bonds?

A: Economists consider the expected policy of the Federal Reserve in the development of their forecasts of long-term government bond yields. Currently, economists are projecting that long-term government bond yields will remain elevated. For example, the most recent consensus estimates published in the *Blue Chip Financial Forecasts* for the average yield on the 30-year Treasury bond is 4.12 percent through 4Q/2025 and 4.30 percent over the longer term through 2030, meaning long-term interest rates are expected to remain elevated during the period that the Company's rates will be in effect.[12]

Q: What are your conclusions regarding the effect of current market conditions on the cost of equity for the Company?

A: Due to their effect on the estimated cost of equity, it is important that current and projected market conditions be considered in setting the forward-looking ROE in this proceeding. As shown in Figure 2, long-term interest rates are higher as compared

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[10] *Id.*

[11] *Id.*

[12] *Blue Chip Financial Forecasts*, Vol. 43, No. 9, August 30, 2024, at 2; and *Blue Chip Financial Forecasts*, Vol. 43, No. 6, May 31, 2024, at 14.

to the Company's last rate proceeding. Given the aforementioned factors, the cost of equity is directionally higher than at the time that the Commission authorized the ROE in the Company's 2021 rate proceeding.

V. Proxy Group Selection

Q: Please provide a brief profile of the Company.

A: Ameren Missouri (also known as Union Electric Company) is a wholly-owned subsidiary of Ameren Corporation, and provides both electric and natural gas utility services in Missouri. For purposes of this proceeding, the Company supplies natural gas service to approximately 135,000 customers in more than 90 communities in southeast, central and eastern Missouri.[13] As of December 31, 2023, the Company's net gas utility plant in Missouri was approximately $451.68 million.[14] Ameren Missouri's issuer/corporate credit ratings are shown in Figure 5:

FIGURE 5: LONG-TERM CORPORATE/ISSUER CREDIT RATINGS

Rating Agency	Rating
Standard & Poor's ("S&P") (Outlook)	BBB+ (Stable)[15]
Moody's Ratings ("Moody's") (Outlook)	Baa1+ (Stable)[16]

[13] Company website, AMS_395853_2024_Missouri_Fact_Sheet.indd (ameren.com).
[14] Ameren Missouri, LDC Annual Report to the MPSC, April 09, 2023, at pp. 5-6.
[15] S&P Global Ratings as of March 20, 2024.
[16] Moody's Ratings, Credit Opinion, Union Electric Company, May 13, 2024.

Q: Have you developed a proxy group for estimating the cost of equity for the Company in this proceeding?

A: Yes. In this proceeding, I am estimating the cost of equity for the Company, which is a rate-regulated subsidiary of Ameren, and is not itself publicly-traded. Since the cost of equity is a market-based concept, and the Company's operations do not make up the entirety of a publicly-traded entity, it is necessary to establish a group of companies that is both publicly-traded and comparable to the Company in certain fundamental business and financial respects to serve as its "proxy" for purposes of the cost of equity estimation process. Even if Ameren Missouri were a publicly-traded entity, it is possible that transitory events could bias its respective market value over a given period. A significant benefit of using a proxy group is that it moderates the effects of unusual events that may be associated with any one company. The proxy companies used in my analyses all possess a set of operating and financial risk characteristics that are substantially comparable to Ameren Missouri, and, therefore, provide a reasonable basis for estimating the cost of equity.

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

A: I began with the group of U.S. utilities that *Value Line Investment Survey* ("*Value Line*") classifies as Natural Gas Distribution Utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends because such companies can be analyzed using the constant growth DCF model;

- have positive long-term earnings growth forecasts from at least two equity analysts;
- have investment grade long-term issuer ratings from both S&P and Moody's;
- derive more than 70 percent of their total operating income from regulated operations;
- derive more than 60 percent of their total regulated operating income from regulated natural gas operations; and
- were not party to a merger or transformative transaction during the analytical period considered.

Q: What is the composition of your proxy group?

A: The screening criteria discussed above is shown in Schedule AEB-D2, Attachment 2 and resulted in a proxy group consisting of the companies shown in Figure 6.

FIGURE 6: NATURAL GAS PROXY GROUP

Company	Ticker
Atmos Energy Corporation	ATO
NiSource, Inc.	NI
Northwest Natural Gas Company	NWN
One Gas, Inc.	OGS
Southwest Gas Corporation	SWX
Spire, Inc.	SR

VI. Cost Of Equity Estimation

Q: Please briefly discuss the ROE in the context of the regulated rate of return.

A: The overall rate of return for a regulated utility is based on its weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the cost of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be estimated based on observable market data.

Q: How is the required cost of equity determined?

A: The required cost of equity is estimated by using analytical techniques that rely on market-based data to quantify investor expectations regarding equity returns, adjusted for certain incremental costs and risks. Informed judgment is then applied to determine where the Company's cost of equity falls within the range of results produced by multiple analytical techniques. The key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' views of the financial markets in general, as well as the subject company in the context of the proxy group, in particular.

Q: What methods did you use to determine the Company's cost of equity?

A: I considered the results of the constant growth DCF model, the CAPM, the ECAPM, and the BYRP analysis. As discussed in more detail below, a reasonable cost of equity estimate appropriately considers alternative methodologies, observable market data, and the reasonableness of their individual and collective results.

VI.A. Importance of Multiple Analytical Approaches

Q: Why is it important to use more than one analytical approach to estimate the cost of equity?

A: Because the cost of equity is not directly observable, it must be estimated based on both quantitative and qualitative information. When faced with the task of estimating the cost of equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. As a practical matter, all the models available for estimating the cost of equity are subject to limiting assumptions or other methodological constraints. Consequently, many well-regarded finance texts recommend using multiple approaches when estimating the cost of equity. For example, Copeland, Koller, and Murrin[17] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[18] recommend the CAPM, DCF, and BYRP approaches.

Further, the recent changes in market conditions discussed previously highlight the benefit of using multiple models since each model relies on different assumptions, certain of which better reflect current and projected market conditions at different times. For example, the CAPM and ECAPM analyses rely directly on interest rates as an assumption in the models and therefore may more directly reflect the market conditions expected when the Company's rates are in effect. Accordingly, it is

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[17] Tom Copeland, Tim Koller and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

[18] Eugene Brigham, Louis Gapenski, *Financial Management: Theory and Practice*, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

important to use multiple analytical approaches to ensure that the cost of equity results reflect market conditions that are expected during the period that the Company's rates will be in effect.

VI.B. Constant Growth DCF Model

Q: Please describe the DCF approach.

A: The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

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

Where P_0 represents the current stock price, D1…D∞ are all expected future dividends, and *k* is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the following form:

$$k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

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

Q: What assumptions are required in the constant growth DCF model?

A: The constant growth DCF model requires the following assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a price-to-earnings ("P/E") ratio; and (4) a discount rate greater than the expected growth rate. To the extent any of these assumptions is violated, considered judgment and/or specific adjustments should be applied to the results.

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

A: The dividend yield in my constant growth DCF model was based on the proxy companies' current annual dividend and average closing stock prices over the most recent 30, 90, and 180 trading days as of August 31, 2024.

Q: Why did you use three averaging periods for stock prices?

A: In my constant growth DCF model, I use an average of recent trading days to calculate the price term (P_0) in the DCF model to ensure that the cost of equity is not skewed by anomalous events that may affect stock prices on any given trading day. The averaging period should also be reasonably representative of expected capital market conditions over the long-term.

Q: Did you make any adjustments to the dividend yield to account for periodic growth in dividends?

A: Yes. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be

evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-half of the expected annual dividend growth rate for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected first year dividend yield is, on average, representative of the coming twelve month period, and does not overstate the aggregated dividends to be paid during that time.

Q: Why is it important to select appropriate measures of long-term growth in applying the DCF model?

A: In its constant growth form, the DCF model (*i.e.*, Equation [2]) assumes a single long-term growth rate in perpetuity. To reduce the long-term growth rate to a single measure, one must assume that the dividend payout ratio remains constant and that earnings per share ("EPS"), dividends per share, and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Therefore, it is important to incorporate a variety of sources of long-term earnings growth rates into the constant growth DCF model.

Q: What sources of long-term growth rates did you rely on in your constant growth DCF model?

A: My constant growth DCF model incorporated three sources of long-term growth rates: (1) consensus long-term earnings growth estimates from *Zacks Investment Research* ("*Zacks*"); (2) consensus long-term earnings growth estimates from

Thomson First Call (provided by *Yahoo! Finance*); and (3) long-term earnings growth estimates from *Value Line*.

Q: Why are EPS growth rates the appropriate growth rates to be relied on in the DCF model?

A: Earnings are the fundamental driver of a company's ability to pay dividends; therefore, projected EPS growth is the appropriate measure of a company's long-term growth. In contrast, changes in a company's dividend payments are based on management decisions related to cash management and other factors. For example, a company may decide to retain earnings rather than pay out a portion of those earnings to shareholders through dividends. Therefore, dividend growth rates are less likely than earnings growth rates to accurately reflect investor perceptions of a company's growth prospects.

Q: How did you calculate the expected dividend yield?

A: I have adjusted the dividend yield to reflect the growth rate that is used in that particular scenario. This ensures that the growth rate used in the dividend yield calculation and the growth rate used as the "g" term of the DCF model are internally consistent.

Q: How did you calculate a range of results for the constant growth DCF model?

A: I calculated the low-end result for the constant growth DCF model using the minimum growth rate of the three sources (*i.e.*, the lowest of the *Zacks*, Yahoo! Finance, and *Value Line* projected EPS growth rates) for each of the proxy group

companies. I used a similar approach to calculate a high-end result, using the maximum growth rate of the three sources for each proxy group company. Lastly, I also calculated results using the average EPS growth rate from all three sources for each proxy group company.

Q: Please summarize the results of your Constant Growth DCF analyses?

A: Figure 7 (see also Schedule AEB-D2, Attachment 3) summarizes the results of my DCF analyses.

FIGURE 7: SUMMARY OF DISCOUNTED CASH FLOW RESULTS

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
30-Day Avg. Stock Price	8.52%	9.89%	11.40%
90-Day Avg. Stock Price	8.69%	10.07%	11.58%
180-Day Avg. Stock Price	8.84%	10.22%	11.72%
Average	8.68%	10.06%	11.57%
30-Day Avg. Stock Price	8.53%	9.89%	11.38%
90-Day Avg. Stock Price	8.77%	10.07%	11.62%
180-Day Avg. Stock Price	8.88%	10.21%	11.73%
Average	8.73%	10.06%	11.58%

VI.C. Capital Asset Pricing Model

Q: Please briefly describe the CAPM.

A: The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium to compensate investors for the non-diversifiable, systematic risk of that security. Systematic risk is the risk inherent in the entire market or market segment, which cannot be diversified

using a portfolio of assets. Unsystematic risk is the risk of a specific company that can, theoretically, be mitigated through portfolio diversification.

The CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

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

Where:

K_e = the required market ROE;

β = beta coefficient of an individual security;

r_f = the risk-free ROR; and

r_m = the required return on the market as a whole.

In this specification, the term (rm – rf) represents the market risk premium. According to the theory underlying the CAPM, because unsystematic risk can be diversified away, investors should only be concerned with systematic or non-diversifiable risk. Systematic risk is measured by beta, which is a measure of the volatility of a security as compared to the market as a whole. Beta is defined as:

$$\beta = \frac{Covariance\ (r_e, r_m)}{Variance\ (r_m)} \qquad [4]$$

Variance (r_m) represents the variance of the market return, which is a measure of the uncertainty of the general market. *Covariance* (r_e, r_m) represents the covariance between the return on a specific security and the general market, which reflects the extent to which the return on that security will respond to a given change in the general market return. Thus, beta represents the risk of the security relative to the general market.

Q: What risk-free rate do you use in your CAPM analysis?

A: I rely on three sources for my estimate of the risk-free rate: (1) the current 30-day average yield on 30-year U.S. Treasury bonds, which is 4.23 percent;[19] (2) the projected 30-year U.S. Treasury bond yield for the fourth quarter of 2024 through the fourth quarter of 2025 (*i.e.*, 4.12 percent);[20] and (3) the projected 30-year U.S. Treasury bond yield for 2026 through 2030 (*i.e.*, 4.30 percent).[21]

Q: What beta coefficients did you use in your CAPM analysis?

A: As shown in Schedule AEB-D2, Attachment 4, I use the average beta coefficients for the proxy group companies as reported by *Bloomberg* and *Value Line*. The beta coefficients reported by *Bloomberg* are based on ten years of weekly returns relative to the S&P 500 Index. The beta coefficients reported by *Value Line* are based on five years of weekly returns relative to the New York Stock Exchange Composite Index. As shown in Schedule AEB-D2, Attachment 5, I also consider an additional CAPM analysis that relies on the long-term average utility beta coefficient for the companies in the proxy group, which is calculated as an average of the beta coefficients reported by *Value Line* from 2013 through 2023.

Q: How do you estimate the market risk premium in the CAPM?

A: I estimate the market risk premium as the difference between the implied expected equity market return and the risk-free rate. The expected market return on the S&P

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[19] *Bloomberg Professional*, as of August 31, 2024.

[20] *Blue Chip Financial Forecasts*, Vol. 43, No. 9, August 30, 2024, at 2.

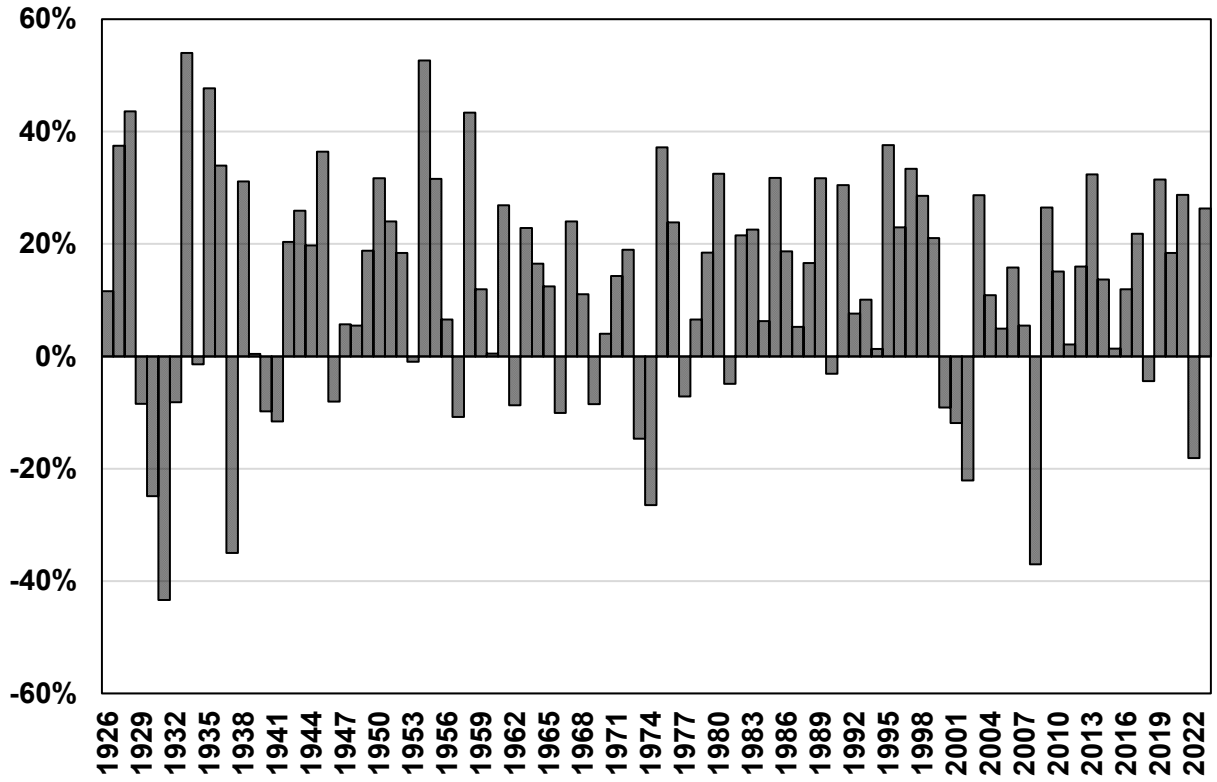
[21] *Blue Chip Financial Forecasts*, Vol. 43, No. 6, May 31, 2024, at 14.

500 Index is calculated using the constant growth DCF model discussed earlier in my testimony as applied to the companies in the S&P 500 Index. As shown in Schedule AEB-D2, Attachment 6, based on an estimated market capitalization-weighted dividend yield of 1.54 percent and a weighted long-term growth rate of 10.45 percent, the estimated required market return for the S&P 500 Index as of August 31, 2024 is 12.07 percent. As shown on Schedule AEB-D2, Attachment 4, based on the three risk-free rates considered, the market risk premium ranges from 7.77 percent to 7.95 percent.

Q: How does the current expected market return compare to observed historical returns?

A: Given the range of annual equity returns that have been observed over the past century as shown in Figure 8, a current expected equity return of 12.07 percent is not unreasonable. In 52 out of the past 98 years (or roughly 53 percent of observations), the realized equity return was at least 12.07 percent or greater.

FIGURE 8: REALIZED U.S. EQUITY MARKET RETURNS (1926-2023)[22]



Q: Did you consider another form of the CAPM in your analysis?

A: Yes. I have also considered the results of an ECAPM in estimating the cost of equity for the Company.[23] The ECAPM calculates the product of the adjusted beta coefficient and the market risk premium and applies a weight of 75.00 percent to that result. The model then applies a 25.00 percent weight to the market risk premium, without any effect from the beta coefficient. The results of the two calculations are summed, along with the risk-free rate, to produce the ECAPM result, as noted in Equation [5] below:

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[22] Depicts total annual returns on large company stocks, as reported in the 2022 *Kroll* SBBI Yearbook for 1926-2023 and from S&P Capital IQ Professional for 2023.

[23] *See e.g.*, Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [5]$$

Where:

k_e = the required market ROE

β = Adjusted beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

The ECAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted betas in the traditional CAPM, but rather it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, meaning that the CAPM underestimates the "alpha," or the constant return term.[24]

Consistent with my CAPM, my application of the ECAPM uses the forward-looking market risk premium estimates, the three yields on 30-year Treasury securities noted earlier as the risk-free rate, and the current *Bloomberg*, current *Value Line*, and long-term *Value Line* beta coefficients.

Q: What are the results of your CAPM analyses?

A: As shown in Figure 9 (see also Schedule AEB-D2, Attachment 4), my traditional CAPM analysis produces a range of returns from 10.11 percent to 11.10 percent for

[24] *Id.,* at 191.

the proxy group. The ECAPM analysis results range from 10.60 percent to 11.34 percent for the proxy group.

FIGURE 9: SUMMARY OF CAPM / ECAPM RESULTS

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current *Value Line* Beta	11.09%	11.08%	11.10%
Current Bloomberg Beta	10.18%	10.16%	10.20%
Long-term Avg. *Value Line* Beta	10.14%	10.11%	10.15%
ECAPM:			
Current *Value Line* Beta	11.34%	11.32%	11.34%
Current Bloomberg Beta	10.66%	10.64%	10.67%
Long-term Avg. *Value Line* Beta	10.62%	10.60%	10.63%

VI.D. Bond Yield Plus Risk Premium Analysis

Q: Please describe the BYRP analysis?

A: In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with equity ownership and therefore require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders have greater risk than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches, therefore, estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. In my analysis, I used actual authorized returns for natural gas utility companies as the historical measure of the cost of equity to determine the risk premium.

Q: What is the fundamental relationship between the equity risk premium and interest rates?

A: It is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates (*i.e.*, as interest rates increase, the equity risk premium decreases, and vice versa). Consequently, it is important to develop an analysis that: (1) reflects the inverse relationship between interest rates and the equity risk premium; and (2) relies on recent and expected market conditions. The analysis provided in Schedule AEB-D2, Attachment 7 establishes that relationship using a regression of the risk premium as a function of Treasury bond yields. When the authorized ROEs serve as the measure of required equity returns and the long-term Treasury bond yield is defined as the relevant measure of interest rates, the risk premium is the difference between those two points.[25]

Q: Is the Bond Yield Plus Risk Premium analysis relevant to investors?

A: Yes. Investors are aware of authorized ROEs in other jurisdictions and they consider those awards as a benchmark for a reasonable level of equity returns for utilities of comparable risk operating in other jurisdictions. Because my BYRP analysis is based on authorized ROEs for utility companies relative to corresponding

[25] Berry, S. Keith. "Interest Rate Risk and Utility Risk Premia during 1982-93." Managerial and Decision Economics, Vol. 19, No. 2, March, 1998 (the author used a similar methodology, including using authorized ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates). *See also* Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return," *Financial Management*, Spring 1986, at 66.

Treasury yields, it provides relevant information to assess the return expectations of investors in the current interest rate environment.

Q: Did you conduct an analysis of the relationship between equity risk premia and interest rates?

A: Yes. As shown in Figure 10, from 1980 through August 2024, there was a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T) \qquad [6]$$

Where:

RP = Risk Premium (difference between allowed ROEs and the yield on 30-year U.S. Treasury bonds)

a = intercept term

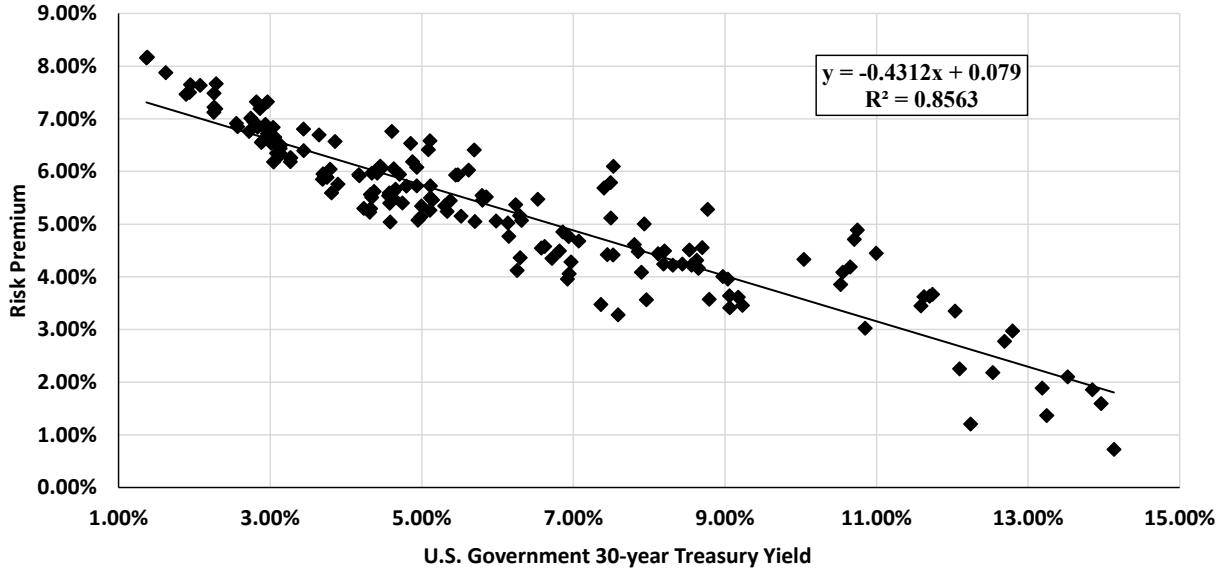
b = slope term

T = 30-year U.S. Treasury bond yield

Data regarding authorized ROEs were derived from all natural gas utility rate cases from 1980 through August 2024 as reported by Regulatory Research Associates ("RRA").[26] This equation's coefficients were statistically significant at the 99.00 percent level.

[26] The data was screened to eliminate limited issue rider cases, transmission-only cases, and cases that were silent with respect to the authorized ROE.

FIGURE 10: RELATIONSHIP OF RISK PREMIA AND INTEREST RATES



Q: What are the results of your BYRP analysis?

A: The results of my BYRP analysis are shown in Figure 11 (and on Schedule AEB-D2, Attachment 7).

FIGURE 11: RISK PREMIUM RESULTS

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
Bond Yield Risk Premium:	10.31%	10.25%	10.35%

Q: How do the results of the BYRP analyses inform your recommended ROE for Ameren Missouri?

A: I have considered the results of the BYRP analysis in setting my recommended ROE for Ameren Missouri. The results of my BYRP analysis support my conclusion that the Company's proposed ROE of 10.25 percent is conservative. Also, as noted

previously, investors consider the ROE award of a company when assessing the risk of that company as compared to utilities of comparable risk operating in other jurisdictions.

VII. REGULATORY AND BUSINESS RISKS

Q: Taken alone, do the results of the cost of equity analyses provide an appropriate estimate of the cost of equity for the Company?

A: No. These results provide only a range of the appropriate estimate of the Company's cost of equity. There are several additional factors that must be taken into consideration when determining where the Company's cost of equity falls within the range of results. These factors, which are discussed below, should be considered with respect to their overall effect on the Company's risk profile relative to the proxy group.

VII.A. Small Size Risk

Q: Please explain the risk associated with small size.

A: Both the financial and academic communities have long accepted the proposition that the cost of equity for small firms is subject to a "size effect." While empirical evidence of the size effect often is based on studies of industries other than regulated utilities, utility analysts also have noted the risk associated with small market capitalizations. Specifically, an analyst for Ibbotson Associates noted:

> For small utilities, investors face additional obstacles, such as a smaller customer base, limited financial resources, and a lack of

diversification across customers, energy sources, and geography. These obstacles imply a higher investor return.[27]

Q: How does the smaller size of a utility affect its business risk?

A: In general, smaller companies are less able to withstand adverse events that affect their revenues and expenses. The impact of weather variability, the loss of large customers to bypass opportunities, or the destruction of demand as a result of general macroeconomic conditions or fuel price volatility will have a proportionately greater impact on the earnings and cash flow volatility of smaller utilities. Similarly, capital expenditures for non-revenue producing investments, such as system maintenance and replacements, will put proportionately greater pressure on customer costs, potentially leading to customer attrition or demand reduction. Taken together, these risks affect the return required by investors for smaller companies.

Q: How does Ameren Missouri's natural gas business in Missouri compare in size to the proxy group companies?

A: Ameren Missouri's natural gas operations in Missouri are substantially smaller than the mean for the proxy group companies in terms of market capitalization. While Ameren Missouri is not publicly-traded on a stand-alone basis, as shown on Schedule AEB-D2, Attachment 8, Ameren Missouri's common equity, based on its proposed equity ratio and test year rate base,[28] is substantially smaller than the median market capitalization of the proxy group companies.

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[27] Michael Annin, "Equity and the Small-Stock Effect," Public Utilities Fortnightly, October 15, 1995.

[28] Company provided data.

Q: How did you estimate the size premium for Ameren Missouri?

A: Given this relative size information, it is possible to estimate the impact of size on the cost of equity for the Company using *Kroll* Cost of Capital Navigator data that estimates the stock risk premia based on the size of a company's market capitalization.[29] The median market capitalization of the proxy group is approximately $4.53 billion, which corresponds to the fifth decile of *Kroll's* market capitalization data.[30] Based on *Kroll's* analysis, that decile corresponds to a size premium of 0.95 percent (*i.e.*, 95 basis points). In comparison, the implied market capitalization of Ameren Missouri's natural gas operations of approximately $254.5 million falls within the ninth decile, which corresponds to a size premium of 1.99 percent (*i.e.*, 199 basis points). The difference between the size premium for the Company and the size premium for the proxy group is 104 basis points (*i.e.*, 1.99 percent minus 0.95 percent).

Q: Are utility companies included in the size premium study conducted by *Kroll*?

A: As shown in Exhibit 7.2 of *Kroll's* 2019 Valuation Handbook, OGE Energy Corp. had the largest market capitalization of the companies contained in the fourth decile, which indicates that *Kroll* has included utility companies in its size risk premium study.[31]

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[29] *Kroll* Cost of Capital Navigator – Size Premium; annual data as of December 31, 2023.

[30] *Id*.

[31] *Kroll* (formerly Duff & Phelps), Valuation Handbook: Guide to Cost of Capital, 2019, Exhibit 7.2.

Q: Is the size premium applicable to companies in regulated industries such as natural gas utilities?

A: Yes. Chrétien and Coggins (2011) studied the CAPM and its ability to estimate the risk premium for the utility industry, and in particular subgroups of utilities. One of the subgroups was a group of natural gas distribution companies that contained many of the same natural gas distribution companies included in my proxy group.[32] The authors considered the CAPM, the Fama-French three-factor model, and a model similar to the ECAPM that I have considered. In the article, the Fama-French three-factor model explicitly included an adjustment to the CAPM for risk associated with size. As Chrétien and Coggins show, the beta coefficient on the size variable for the U.S. natural gas utility group was positive and statistically significant indicating that small size risk was relevant for regulated natural gas utilities.[33]

Additionally, Zepp (2003) provided the results of two studies that showed evidence of the required risk premium for small water utilities. The first study, which was conducted by the Staff of the California Public Utilities Commission, computed proxies for beta risk using accounting data from 1981 through 1991 for 58 water utilities and concluded that smaller water utilities had greater risk and required higher returns on equity than larger water utilities.[34] The second study examined the

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[32] The U.S. natural gas utility group included: AGL Resources Inc., Atmos Energy Corp., Laclede Group, New Jersey Resources Corp., Northwest Natural Gas Co., Piedmont Natural Gas Co., South Jersey Industries, Southwest Gas Corp. and WGL Holdings Inc.

[33] Stéphane Chrétien and Frank Coggins, "Cost Of Equity For Energy Utilities: Beyond The CAPM," *Energy Studies Review*, Vol. 18, No. 2, 2011, at 31.

[34] Thomas M. Zepp, Utility Stocks and the Size Effect—Revisited 578-582 (The Quarterly Review of Economics and Finance, Vol. 43, No. 3, 2003).

differences in required returns over the period of 1987 through 1997 for two large and two small water utilities in California. As Zepp (2003) showed, the required return for the two small water utilities calculated using the DCF model was on average 99 basis points higher than the two larger water utilities.[35]

Q: Have regulators in other jurisdictions made a specific risk adjustment to the ROE results based on a company's small size?

A: Yes, they have. In Order No. 15, the Regulatory Commission of Alaska ("RCA") concluded that Alaska Electric Light and Power Company ("AEL&P") was riskier than the proxy group companies due to small size as well as other business risks. The RCA did "not believe that adopting the upper end of the range of ROE analyses in this case, without an explicit adjustment, would adequately compensate AEL&P for its greater risk." [36] Thus, the RCA awarded AEL&P an ROE of 12.875 percent which was 108 basis points above the highest return on equity estimate from any model presented in the case.[37] Similarly, in Order No. 19, the RCA noted that small size as well as other business risks such as structural regulatory lag, weather risk, alternative rate mechanisms, gas supply risk, geographic isolation and economic

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[35] *Id*.

[36] Docket No. U-10-29, In the Matter of the Revenue Requirement and Cost of Service Study Designated as TA381-1 Filed by Alaska Electric Light and Power Company, Order entered September 2, 2011 (Order No. 15), at 37.

[37] *Id.*, at 32 and 37.

conditions increased the risk of ENSTAR Natural Gas Company.[38] Ultimately, the RCA concluded that:

> Although we agree that the risk factors identified by ENSTAR increase its risk, we do not attempt to quantify the amount of that increase. Rather, we take the factors into consideration when evaluating the remainder of the record and the recommendations presented by the parties. After applying our reasoned judgment to the record, we find that 11.875% represents a fair ROE for ENSTAR.[39]

Additionally, the Minnesota Public Utilities Commission ("Minnesota PUC") authorized an ROE for Otter Tail Power Company ("Otter Tail") above the mean DCF results as a result of multiple factors, including Otter Tail's small size. The Minnesota PUC stated:

> The record in this case establishes a compelling basis for selecting an ROE above the mean average within the DCF range, given Otter Tail's unique characteristics and circumstances relative to other utilities in the proxy group. These factors include the company's relatively smaller size, geographically diffuse customer base, and the scope of the Company's planned infrastructure investments.[40]

Finally, in Opinion Nos. 569 and 569-A, the Federal Energy Regulatory Commission ("FERC") adopted a size premium adjustment in its CAPM estimates for electric utilities. In those decisions, the FERC noted that "the size adjustment was

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[38] Docket No. U-16-066, In the Matter of the Tariff Revision Designated as TA285-4 Filed by ENSTAR Natural Gas Company, A Division of SEMCO Energy, Inc., Order entered September 22, 2017 (Order No. 19), at 50-52.

[39] *Id*.

[40] Order in Docket No. E017/GR-15-1033, In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota (August 16, 2016), at 55.

necessary to correct for the CAPM's inability to fully account for the impact of firm size when determining the cost of equity."[41]

Q: How have you considered the smaller size of Ameren Missouri in your recommendation?

A: While I have estimated the effect of Ameren Missouri's small size on the ROE, I am not proposing a specific adjustment for this risk factor. Rather, I believe it is important to consider the small size of Ameren Missouri's natural gas operations in Missouri in the determination of where, within the range of analytical results, the Company's required ROE falls. Therefore, the additional risk associated with small size indicates that the Company's ROE should be established above the mean results for the proxy group companies.

VII.B. Capital Expenditures

Q: Please summarize the Company's capital expenditure requirements for its natural gas operations.

A: The Company's current projections of capital expenditures for its natural gas utility operations for 2025 through 2029 total approximately $319 million.[42] Based on the Company's natural gas net utility plant of approximately $452 million as of December

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[41] *Ass'n. of Businesses Advocating Tariff Equity, et. al., v. Midcontinent Indep. Sys. Operator, Inc., et. al.*, 171 FERC ¶ 61,154 (2020), at ¶ 75. The U.S. Court of Appeals vacated the FERC Order No. 569 decisions that related to its risk premium model and remanded the case to FERC to reopen the proceedings. However, in its decision, the Court did not reject FERC's inclusion of the size premium to estimate the CAPM. (*See*, United States Court of Appeals Case No. 16-1325, Decision No. 16-1325, August 9, 2022 at 20).

[42] Data provided by Ameren Missouri for planned capital expenditures for the years 2024-2028.

31, 2023,[43] the $319 million of anticipated capital expenditures represent approximately 71 percent of Ameren Missouri's net utility plant as of December 31, 2023.

Q: How is the Company's risk profile affected by its substantial capital expenditure requirements?

A: As with any utility faced with substantial capital expenditure requirements, the Company's risk profile may be adversely affected in two significant and related ways: (1) the heightened level of investment increases the risk of under-recovery or delayed recovery of the invested capital; and (2) an inadequate return would put downward pressure on key credit metrics.

Q: Do credit rating agencies recognize the risks associated with elevated levels of capital expenditures?

A: Yes. From a credit perspective, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. To that point, S&P explains the importance of regulatory support for a significant amount of capital projects:

> When applicable, a jurisdiction's willingness to support large capital projects with cash during construction is an important aspect of our analysis. This is especially true when the project represents a major addition to rate base and entails long lead times and technological risks that make it susceptible to construction delays. Broad support for all capital spending is the most credit-sustaining.

[43] Ameren Missouri, LDC Annual Report to the MPSC, April 09, 2023, at 5-6.

> Support for only specific types of capital spending, such as specific environmental projects or system integrity plans, is less so, but still favorable for creditors. Allowance of a cash return on construction work-in-progress or similar ratemaking methods historically were extraordinary measures for use in unusual circumstances, but when construction costs are rising, cash flow support could be crucial to maintain credit quality through the spending program. Even more favorable are those jurisdictions that present an opportunity for a higher return on capital projects as an incentive to investors.[44]

Recently, S&P evaluated the capital expenditure trends in the utility sector, noting that the balance between operating with negative discretionary cash flow from operations offset by reliable access to capital markets for financing may be tested through ever-increasing capital expenditure requirements as a result of the transformation of the energy sector through the focus on low/no carbon generation, electrification, and the replacement of aging infrastructure:

> Some companies have been unable to support financial metrics consistent with former ratings as their discretionary cash flow deteriorated. This trend was a significant contributor to the sector seeing the median rating decline to 'BBB+' from 'A-' for the first time in 2022. What is less clear is whether or not management teams will take steps to forestall another step down in credit quality as high capital outlays persist. So far in 2023, we have not seen evidence that equity issuance is keeping pace with debt issuance to fill ever-deepening discretionary cash flow shortfalls, but time will tell.
>
> …..
>
> Despite the improvement in the economic outlook, we expect inflation, high interest rates, higher capital spending, and the strategic decision by many companies to operate with only minimal financial cushion from their downgrade thresholds to continue to pressure the industry's credit quality. We are cautious about the

[44] S&P Global Ratings, “Assessing U.S. Investor-Owned Utility Regulatory Environments,” August 10, 2016, at 7.

> durability of the current stable ratings outlook given persistently high capital spending that now supports a trend of deterioration in discretionary cash flow. Without a commensurate focus on balance sheet preservation through equity support of discretionary cash flow deficits, limited financial cushions could give rise to another round of negative rating actions. The question then comes back to management priorities and financial policy decisions, or utilities may be faced with another step down in the median ratings. [45]

Therefore, to the extent that Ameren Missouri's rates do not continue to permit the recovery its capital investments on a regular basis, the Company would face increased recovery risk and thus increased pressure on its credit metrics.

Q: Have you compared Ameren Missouri's capital investment to the proxy group companies?

A: Yes. As shown on Schedule AEB-D2, Attachment 9, I have calculated the ratio of expected capital expenditures to net utility plant for Ameren Missouri and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period from 2025 through 2029 by its total net utility plant as of December 31, 2023. As shown, Ameren Missouri's ratio of capital expenditures as a percentage of net utility plant is 1.06 times the median for the proxy group companies.

[45] S&P Global Ratings, "Record CapEx Fuels Growth Along With Credit Risk For North American Investor-Owned Utilities," September 12, 2023, at 5, 7-8.

Q: Does Ameren Missouri have cost recovery mechanisms in place to recover the some of the costs associated with its capital expenditures plan between rate reviews?

A: No. Ameren Missouri does not currently have a capital tracking mechanism to recover capital investment costs between rate reviews. Therefore, Ameren Missouri depends entirely on rate review filings for capital cost recovery. However, significant capital programs like Ameren Missouri's generally receive cost recovery through infrastructure and capital trackers. As shown in Schedule AEB-D2 Attachment 10, there are a number of cost recovery mechanisms in place for the operating subsidiaries of the proxy group companies, including forecasted test years, revenue decoupling, formula-based rates, straight-fixed variable rate design, and capital cost recovery mechanisms and/or the opportunity for construction work in progress ("CWIP") in rate base. Approximately 70.8 percent of the operating subsidiaries of the proxy group companies recover costs through some form of capital tracking mechanism. Ameren Missouri does not have many of these mechanisms, and Missouri law prohibits CWIP in rate base.[46] Further, while Ameren Missouri is limited from earning a return on CWIP by Missouri statutes, which can reduce regulatory lag, the opportunity to earn a return on CWIP is available for 66.7 percent of the operating subsidiaries of the proxy group companies.

[46] S&P Capital IQ Pro, Commission Profiles, Missouri.

Q: What are your conclusions regarding the effect of the Company's capital spending requirements on its risk profile and cost of capital?

A: The Company's capital expenditure requirements are significant and will continue at least through 2029. Considering a number of the operating subsidiaries of the proxy group have a capital tracking mechanism and/or are able to include CWIP in rate base, in comparison, the Company lacks a comprehensive forward-looking mechanism or set of mechanisms, such as including CWIP in rate base, that would remedy the regulatory lag it faces. As a result, the Company has relatively greater risk of timely cost recovery and earnings potential as compared to the proxy group companies.

VII.C. Regulatory Risk

Q: How does the regulatory environment affect investors' risk assessments?

A: The ratemaking process is premised on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility service, the subject utility must have the opportunity to recover the return of, and the market-required return on, invested capital. Regulatory authorities recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms; doing so balances the long-term interests of investors and customers. The Company is no exception. Ameren Missouri must finance its operations and requires the opportunity to earn a reasonable return on its invested capital to maintain its financial profile. In that respect, the regulatory

environment is one of the most important factors considered in both debt and equity investors' risk assessments.

From the perspective of debt investors, the authorized return should enable the Company to generate the cash flow needed to meet its near-term financial obligations, make the capital investments needed to maintain and expand its system, and maintain the necessary levels of liquidity to fund unexpected events. This financial liquidity must be derived not only from internally generated funds, but also by efficient access to capital markets. Moreover, because fixed income investors have many investment alternatives, even within a given market sector, the Company's financial profile must be adequate on a relative basis to ensure its ability to attract capital under a variety of economic and financial market conditions.

Equity investors, on the other hand, require that the authorized return be adequate to provide a risk-comparable return on the equity portion of the Company's capital investments. Because equity investors are the residual claimants on the Company's cash flows (which is to say that the equity return is subordinate to debt repayment), they are particularly concerned with the strength of regulatory support and its effect on future earnings and cash flows.

Q: How do credit rating agencies consider regulatory risk in establishing a company's credit rating?

A: Both S&P and Moody's consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors: (1) regulatory framework; (2) the ability to recover costs and earn returns; (3)

diversification; and (4) financial strength, liquidity, and key financial metrics. Of these criteria, regulatory framework, and the ability to recover costs and earn returns are each given a broad rating factor of 25.00 percent. Therefore, Moody's assigns regulatory risk a 50.00 percent weighting in the overall assessment of business and financial risk for regulated utilities.[47]

S&P also identifies the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "[o]ne significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[48] S&P identifies four specific factors that it uses to assess the credit implications of the regulatory jurisdictions of investor-owned regulated utilities: (1) regulatory stability; (2) tariff-setting procedures and design; (3) financial stability; and (4) regulatory independence and insulation.[49]

Q: How does the regulatory environment in which a utility operates affect its access to and cost of capital?

A: The regulatory environment can significantly affect both the access to and cost of capital in several ways. First, the proportion and cost of debt capital available to utility companies are influenced by the rating agencies' assessment of the regulatory environment. As noted by Moody's, "[f]or rate regulated utilities, which typically

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[47] Moody's Investors Service, Inc., Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 4.

[48] Standard & Poor's Global Ratings. Ratings Direct. "Assessing U.S. Investor-Owned Utility Regulatory Environments." August 10, 2016, at 2.

[49] *Id*.

operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[50] Moody's further highlights the relevance of a stable and predictable regulatory environment to a utility's credit quality, noting: "[b]roadly speaking, the Regulatory Framework is the foundation for how all the decisions that affect utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[51]

Q: Have you evaluated the regulatory framework in Missouri relative to the jurisdictions in which the operating companies of the proxy group members operate?

A: Yes. I have evaluated the regulatory framework in Missouri on three factors that are important in terms of providing a regulated utility an opportunity to earn its authorized ROE. These are: (1) test year convention (*i.e.*, forecast vs. historical test year); (2) use of revenue decoupling mechanisms or other tools to mitigate volumetric risk; and (3) prevalence of capital cost recovery between rate reviews.

Q: What are the results of your analysis?

A: The results of my regulatory risk assessment are summarized as follows, and the details are shown in Schedule AEB-D2, Attachment 10. Specifically:

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[50] Moody's Investors Service, Inc., Rating Methodology: Regulated Electric and Gas Utilities, June 23, 2017, at 6.

[51] *Id.*

Test Year Convention: Ameren Missouri uses a historical test year with limited "known and measurable" changes through a true-up period. By contrast, 50.0 percent of the operating companies of the proxy group provide service in jurisdictions that use a fully or partially forecasted test year. All else equal, the use of a historical test year tends to increase regulatory lag, increasing regulatory risk.

Volumetric Risk: Ameren Missouri does have some protection against volumetric risk in Missouri through the Delivery Charge Adjustment ("DCA")[52] which is a partial revenue decoupling mechanism for the Company's residential and general service rate classes. Similarly, approximately 91.7 percent of the operating companies in the proxy group also have some form of protection against volumetric risk through either revenue decoupling, formula-based rates and/or straight-fixed variable rate design.

Capital Cost Recovery: As noted previously, Ameren Missouri does not have a capital tracking mechanism to recover capital investment costs between rate reviews. However, approximately 70.8 percent of the operating companies held by the proxy group have some form of capital cost recovery mechanism in place while 66.7 percent of the operating companies held by the proxy group are allowed to include CWIP in rate base. The inclusion of CWIP in rate base reduces regulatory lag associated with new construction, which can be very important particularly when a company is undertaking a large capital investment plan.

Q: Have you developed any additional analyses to evaluate the regulatory environment in Missouri as compared to the jurisdictions in which the companies in your proxy group operate?

A: Yes. I have conducted two additional analyses to compare the regulatory framework of Missouri to the jurisdictions in which the companies in the proxy group operate. Specifically, I considered two different rankings: (1) RRA's ranking of regulatory jurisdictions; and (2) S&P's ranking of the credit supportiveness of regulatory jurisdictions.

[52] The DCA is also known as the Weather Normalization Adjustment ("WNA") Rider.

Q: Please explain how RRA evaluates the regulatory environment in each jurisdiction.

A: RRA evaluates the regulatory environment from an investor perspective, considering the relative regulatory risk associated with ownership of securities issued by the companies that are regulated in each jurisdiction. RRA considers several factors that affect the regulatory process including gubernatorial, legislative and court activity, rate review decisions and other regulatory decisions, and information obtained through contact with commissioners, staff, company and government outreach.

Q: How do you used the RRA ratings to compare the regulatory jurisdictions of the proxy companies with the Company's regulatory jurisdiction?

A: RRA assigns a ranking for each regulatory jurisdiction as "Above Average," "Average" or "Below Average," and then within each of those categories, a numeric ranking from 1 to 3. Thus, there are a total of nine RRA rankings, with the rankings for each jurisdiction ranging from "Above Average/1," which is considered the most supportive, to "Below Average/3," which is the least supportive. I applied a numeric ranking system to the RRA rankings with "Above Average/1" assigned the highest ranking (*i.e.*, a "1") and "Below Average/3" assigned the lowest ranking (*i.e.*, a "9"). As shown on Schedule AEB-D2, Attachment 11, the Missouri jurisdictional ranking is "Average/3" (*i.e.*, a "6"), which is below the proxy group average ranking of between "Average/1" and "Average/2" (*i.e.*, a "4.82").

Q: How did you conduct your analysis of the S&P credit supportiveness?

A: For credit supportiveness, S&P classifies each regulatory jurisdiction into five categories that range from "Most Credit Supportive" down to "Credit Supportive." My analysis of the credit supportiveness of the regulatory jurisdictions in which the proxy companies operate as compared to the Company's regulatory jurisdiction was similar to the analysis of the RRA overall regulatory ranking discussed above. Specifically, I assigned a numerical ranking to each category, from Most Credit Supportive (*i.e.*, a "1") to Credit Supportive (*i.e.*, a "5"). As shown on Schedule AEB-D2, Attachment 12, similar to the RRA regulatory rankings discussed above, the Missouri jurisdictional classification of "Very Credit Supportive" (*i.e.*, a "3") is below the proxy group average ranking of 2.45, which would be classified between "Highly Credit Supportive" and "Very Credit Supportive" (*i.e.*, a "2.45").

Q: Do investors consider the relative returns awarded in jurisdictions across the U.S.?

A: Yes, they do. In fact, in a prior article from *Barron's*, an equity analyst from KeyBanc Capital Markets, Inc. recommended buying shares in Duke Energy as opposed to Consolidated Edison for reasons including that the regulatory outcomes in the jurisdictions where Duke Energy operates were more favorable:

> The regulatory environment is favorable in Duke's major markets: the Carolinas, Florida, and Indiana. "There's not so much of the utility bashing that goes on down there as it is in New York routinely," says KeyBanc's Karp. "So they have more constructive outcomes. They

have better returns." A starting point of below-average customer bills helps. So does healthy population growth. New York has neither.[53]

Q: Do credit rating agencies consider the authorized ROE in the overall risk assessment of a utility?

A: Yes, they do. To the extent that the returns in a jurisdiction are lower than the returns that have been authorized more broadly, credit rating agencies will consider this in the overall risk assessment of the regulatory jurisdiction in which the company operates. It is important to consider credit ratings because they affect the overall cost of borrowing, and they act as a signal to equity investors about the risk of investing in the equity of a company. Therefore, lower credit ratings can affect both the cost of debt and equity.

Q: What are your conclusions regarding the perceived risks related to the Missouri regulatory environment?

A: As discussed throughout this section of my testimony, both Moody's and S&P have identified the supportiveness of the regulatory environment as an important consideration in developing their overall credit ratings for regulated utilities. Considering the regulatory adjustment mechanisms, many of the companies in the proxy group have cost recovery mechanisms that are more robust than those implemented by Ameren Missouri. Additionally, the RRA jurisdictional ranking and the S&P credit supportiveness ranking for Missouri indicates greater risk than the average for the proxy group. Therefore, the average ROE for the proxy group would

[53] Jack Hough, "3 Electric Utility Stocks to Give Your Portfolio a Jolt," *Barron's*, July 26, 2021.

understate the return on equity that an investor would require in Missouri because the risks of timely and full cost recovery are greater for Ameren Missouri in Missouri than for the proxy group. For that reason, I conclude that the authorized ROE for Ameren Missouri should be higher than the proxy group average.

VIII. Conclusions and Recommendations

Q: What is your conclusion regarding a fair ROE for Ameren Missouri?

A: Figure 12 provides a summary of my analytical results for the proxy group. Based on these results, a reasonable range for the Company's ROE is from 10.25 percent to 11.25 percent. Considering the qualitative analyses presented in my direct testimony, and the Company's specific risk factors, I conclude that the Company's requested ROE of 10.25 percent is reasonable, if not conservative.

FIGURE 12: SUMMARY OF ANALYTICAL RESULTS

Constant Growth DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
30-Day Avg. Stock Price	8.52%	9.89%	11.40%
90-Day Avg. Stock Price	8.69%	10.07%	11.58%
180-Day Avg. Stock Price	8.84%	10.22%	11.72%
Average	8.68%	10.06%	11.57%
30-Day Avg. Stock Price	8.53%	9.89%	11.38%
90-Day Avg. Stock Price	8.77%	10.07%	11.62%
180-Day Avg. Stock Price	8.88%	10.21%	11.73%
Average	8.73%	10.06%	11.58%

CAPM / ECAPM / BYRP

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current *Value Line* Beta	11.09%	11.08%	11.10%
Current Bloomberg Beta	10.18%	10.16%	10.20%
Long-term Avg. *Value Line* Beta	10.14%	10.11%	10.15%
ECAPM:			
Current *Value Line* Beta	11.34%	11.32%	11.34%
Current Bloomberg Beta	10.66%	10.64%	10.67%
Long-term Avg. *Value Line* Beta	10.62%	10.60%	10.63%
Bond Yield Risk Premium:	10.31%	10.25%	10.35%

Q: Does this conclude your Prepared Direct Testimony?

A: Yes.

Ann E. Bulkley

PRINCIPAL

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With more than 25 years of experience in the energy industry, Ms. Bulkley specializes in regulatory economics for the electric and natural gas and water utility sectors, including valuation of regulated and unregulated utility assets, cost of capital, and capital structure issues.

Ms. Bulkley has extensive state and federal regulatory experience, and she has provided expert testimony on the cost of capital in nearly 100 regulatory proceedings before 32 state regulatory commissions and the Federal Energy Regulatory Commission (FERC).

In addition to her regulatory experience, Ms. Bulkley has provided valuation and appraisal services for a variety of purposes, including the sale or acquisition of utility assets, regulated ratemaking, ad valorem tax disputes, and other litigation purposes. In addition, she has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring, and regulatory and litigation support.

Ms. Bulkley is a Certified General Appraiser licensed in the Commonwealth of Massachusetts and the State of New Hampshire.

Prior to joining Brattle, Ms. Bulkley was a Senior Vice President at an economic consultancy and held senior positions at several other consulting firms.

AREAS OF EXPERTISE

- Regulatory Economics, Finance & Rates
- Regulatory Investigations & Enforcement
- Tax Controversy & Transfer Pricing
- Electricity Litigation & Regulatory Disputes
- M&A Litigation

EDUCATION

- **Boston University**
  MA in Economics
- **Simmons College**
  BA in Economics and Finance

PROFESSIONAL EXPERIENCE

- **The Brattle Group (2022–Present)**
  Principal
- **Concentric Energy Advisors, Inc. (2002–2021)**
  Senior Vice President
  Vice President
  Assistant Vice President
  Project Manager
- **Navigant Consulting, Inc. (1997–2002)**
  Project Manager
- **Reed Consulting Group (1995-1997)**
  Consultant- Project Manager
- **Cahners Publishing Company (1995)**
  Economist

SELECTED CONSULTING EXPERIENCE & EXPERT TESTIMONY

REGULATORY ANALYSIS AND RATEMAKING

Have provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking, with specific services including:

- Cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies
- Development of merchant function exit strategies

- Analysis and program development to address residual energy supply and/or provider of last resort obligations
- Stranded costs assessment and recovery
  Performance-based ratemaking analysis and design
- Many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation)

COST OF CAPITAL

Have provided expert testimony on the cost of capital and capital structure in nearly 100 regulatory proceedings before state and federal regulatory commissions in the United States.

RATEMAKING

Have assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Along with analyzing and evaluating rate application, attended hearings and conducted investigation of rate application for regulatory staff and prepared, supported, and defended recommendations for revenue requirements and rates for the company. Additionally, developed rates for gas utility for transportation program and ancillary services.

VALUATION

Have provided valuation services to utility clients, unregulated generators, and private equity clients for a variety of purposes, including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal Practice.

Representative projects/clients have included:

- Prepared appraisals of electric utility transmission and distribution assets for ad valorem tax purposes.
- Prepared appraisals of hydroelectric generating facilities for ad valorem tax purposes.
- Conducted appraisals of fossil fuel generating facilities for ad valorem tax purposes.
- Conducted appraisals of generating assets for the purposes of unwinding sale-leaseback agreements.
- For a confidential utility client, prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.

- Conducted a strategic review of the acquisition of nuclear generation assets. Review included the evaluation of the operating costs of the facilities and the long-term liabilities associated with the assets including the decommissioning of the assets.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis, and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, and a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approached. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Conducted a valuation of regulated utility assets for the fair value rate base estimate used in electric rate proceedings in Indiana.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Prepared feasibility reports analyzing the expected net benefits resulting from municipal ownership of investor-owned utility operations.
- Prepared independent analyses of proposal for the proposed government condemnation of the investor-owned utilities in Maine and the formation of a public power district.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

STRATEGIC AND FINANCIAL ADVISORY SERVICES

Have assisted several clients across North America with analytically-based strategic planning, due diligence, and financial advisory services.

Representative projects include:

- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.

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BULKLEY TESTIMONY LISTING

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
Southwest Gas Corporation	02/24	Southwest Gas Corporation	Docket No. G-01551A-23-0341	Return on Equity
UNS Electric	11/22	UNS Electric	Docket No. E-04204A-15-0251	Return on Equity
Tucson Electric Power Company	6/22	Tucson Electric Power Company	Docket No. G-01933A-22-0107	Return on Equity
Southwest Gas Corporation	12/21	Southwest Gas Corporation	Docket No. G-01551A-21-0368	Return on Equity
Arizona Public Service Company	10/19	Arizona Public Service Company	Docket No. E-01345A-19-0236	Return on Equity
Tucson Electric Power Company	04/19	Tucson Electric Power Company	Docket No. E-01933A-19-0028	Return on Equity
Tucson Electric Power Company	11/15	Tucson Electric Power Company	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
Arkansas Public Service Commission				
Oklahoma Gas and Electric Co	10/21	Oklahoma Gas and Electric Co	Docket No. D-18-046-FR	Return on Equity
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
California Public Utilities Commission				
PacifiCorp, d/b/a Pacific Power	5/22	PacifiCorp, d/b/a Pacific Power	Docket No. A-22-05-006	Return on Equity
San Jose Water Company	05/21	San Jose Water Company	A2105004	Return on Equity
Colorado Public Utilities Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Company of Colorado	01/24	Public Service Company of Colorado	Docket No. 24AL-___G	Return on Equity
Public Service Company of Colorado	11/22	Public Service Company of Colorado	Docket No. 22AL-0530E	Return on Equity
Public Service Company of Colorado	01/22	Public Service Company of Colorado	Docket No. 22AL-0046G	Return on Equity
Public Service Company of Colorado	07/21	Public Service Company of Colorado	21AL-0317E	Return on Equity
Public Service Company of Colorado	02/20	Public Service Company of Colorado	20AL-0049G	Return on Equity
Public Service Company of Colorado	05/19	Public Service Company of Colorado	19AL-0268E	Return on Equity
Public Service Company of Colorado	01/19	Public Service Company of Colorado	19AL-0063ST	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Connecticut Public Utilities Regulatory Authority				
The Southern Connecticut Gas Company	11/23	The Southern Connecticut Gas Company	Docket No. 23-11-02	Return on Equity
Connecticut Natural Gas Corporation	11/23	Connecticut Natural Gas Corporation	Docket No. 23-11-02	Return on Equity
Connecticut Water Company	10/23	Connecticut Water Company	Docket No. 23-08-32	Return on Equity
United Illuminating	09/22	United Illuminating	Docket No. 22-08-08	Return on Equity
United Illuminating	05/21	United Illuminating	Docket No. 17-12-03RE11	Return on Equity
Connecticut Water Company	01/21	Connecticut Water Company	Docket No. 20-12-30	Return on Equity
Connecticut Natural Gas Corporation	06/18	Connecticut Natural Gas Corporation	Docket No. 18-05-16	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Yankee Gas Services Co. d/b/a Eversource Energy	06/18	Yankee Gas Services Co. d/b/a Eversource Energy	Docket No. 18-05-10	Return on Equity
The Southern Connecticut Gas Company	06/17	The Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Sea Robin Pipeline	12/22	Sea Robin Pipeline	Docket No. RP22-___	Return on Equity
Northern Natural Gas Company	07/22	Northern Natural Gas Company	Docket No. RP22-___	Return on Equity
Transwestern Pipeline Company, LLC	07/22	Transwestern Pipeline Company, LLC	Docket No. RP22-___	Return on Equity
Florida Gas Transmission	02/21	Florida Gas Transmission	Docket No. RP21-441	Return on Equity
TransCanyon	01/21	TransCanyon	Docket No. ER21-1065	Return on Equity
Duke Energy	12/20	Duke Energy	Docket No. EL21-9-000	Return on Equity
Wisconsin Electric Power Company	08/20	Wisconsin Electric Power Company	Docket No. EL20-57-000	Return on Equity
Panhandle Eastern Pipe Line Company, LP	10/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-78-000 RP19-78-001	Return on Equity
Panhandle Eastern Pipe Line Company, LP	08/19	Panhandle Eastern Pipe Line Company, LP	Docket Nos. RP19-1523	Return on Equity
Sea Robin Pipeline Company LLC	11/18	Sea Robin Pipeline Company LLC	Docket# RP19-352-000	Return on Equity
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity
Idaho Public Utilities Commission				
PacifiCorp d/b/a Rocky Mountain Power	05/24	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-24-04	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-24-04	Return on Equity

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SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Intermountain Gas Co	12/22	Intermountain Gas Co	C-INT-G-22-07	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/21	PacifiCorp d/b/a Rocky Mountain Power	Case No. PAC-E-21-07	Return on Equity
Illinois Commerce Commission				
Illinois American Water	01/24	Illinois American Water	Docket No. 24-0097	Return on Equity
Peoples Gas Light & Coke Company	01/23	Peoples Gas Light & Coke Company	D-23-0069	Return on Equity
North Shore Gas Company	01/23	North Shore Gas Company	D-23-0068	Return on Equity
Illinois American Water	02/22	Illinois American Water	Docket No. 22-0210	Return on Equity
North Shore Gas Company	02/21	North Shore Gas Company	No. 20-0810	Return on Equity
Indiana Utility Regulatory Commission				
Ohio Valley Gas Corporation and Ohio Valley Gas, Inc.	02/24	Ohio Valley Gas Corporation and Ohio Valley Gas, Inc.	Cause No. 46011	Return on Equity
Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	12/23	Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	IURC Cause No. 45990	Return on Equity
Indiana Michigan Power Co.	08/23	Indiana Michigan Power Co.	IURC Cause No. 45933	Return on Equity
Indiana American Water Company	03/23	Indiana and Michigan American Water Company	IURC Cause No. 45870	Return on Equity
Indiana Michigan Power Co.	07/21	Indiana Michigan Power Co.	IURC Cause No. 45576	Return on Equity
Indiana Gas Company Inc.	12/20	Indiana Gas Company Inc.	IURC Cause No. 45468	Return on Equity
Southern Indiana Gas and Electric Company	10/20	Southern Indiana Gas and Electric Company	IURC Cause No. 45447	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indiana and Michigan American Water Company	09/18	Indiana and Michigan American Water Company	IURC Cause No. 45142	Return on Equity
Indianapolis Power and Light Company	12/17	Indianapolis Power and Light Company	Cause No. 45029	Fair Value
Northern Indiana Public Service Company	09/17	Northern Indiana Public Service Company	Cause No. 44988	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No. 44688	Fair Value
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
Northern Indiana Fuel and Light Company, Inc.	09/10	Northern Indiana Fuel and Light Company, Inc.	Cause No. 43943	Fair Value
Iowa Department of Commerce Utilities Board				
Iowa-American Water Company	04/24	Iowa-American Water Company	Docket No. RPU-2024-000_	Return on Equity
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-___	Return on Equity
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	Docket No. 23-EKCE-775-RTS	Return on Equity
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Kentucky Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Kentucky American Water Company	06/23	Kentucky American Water Company	Docket No. 2023-____	Return on Equity
Kentucky American Water Company	11/18	Kentucky American Water Company	Docket No. 2018-00358	Return on Equity
Maine Public Utilities Commission				
Central Maine Power	08/22	Central Maine Power	Docket No. 2022-00152	Return on Equity
Central Maine Power	10/18	Central Maine Power	Docket No. 2018-194	Return on Equity
Maryland Public Service Commission				
Maryland American Water Company	06/18	Maryland American Water Company	Case No. 9487	Return on Equity
Massachusetts Appellate Tax Board				
Hopkinton LNG Corporation	03/20	Hopkinton LNG Corporation	Docket No.	Valuation of LNG Facility
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	11/23	Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	DPU 23-150	Return on Equity
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Upper Michigan Energy Resources Corporation	05/24	Upper Michigan Energy Resources Corporation	Case No. U-21541	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Michigan Gas Utilities Corporation	03/24	Michigan Gas Utilities Corporation	Case No. U-21540	Return on Equity
Indiana Michigan Power Co.	09/23	Indiana Michigan Power Co.	Case No. U-21461	Return on Equity
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
ALLETE, Inc. d/b/a Minnesota Power	11/23	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-23-155	Return on Equity
CenterPoint Energy Resources	11/23	CenterPoint Energy Resources	D-G-008/GR-23-173	Return on Equity
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR-22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				
Ameren Missouri	06/24	Ameren Missouri	File No. ER-2024-0319	Return on Equity
Evergy Missouri West	02/24	Evergy Missouri West	File No. ER-2024-0189	Return on Equity
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	01/22	Evergy Missouri West	File No. ER-2022-0130	Return on Equity
Evergy Missouri Metro	01/22	Evergy Missouri Metro	File No. ER-2022-0129	Return on Equity
Ameren Missouri	03/21	Ameren Missouri	Docket No. ER-2021-0240 Docket No. GR-2021-0241	Return on Equity
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
Montana Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Montana-Dakota Utilities Co.	11/22	Montana-Dakota Utilities Co.	D2022.11.099	Return on Equity
Montana-Dakota Utilities Co.	06/20	Montana-Dakota Utilities Co.	D2020.06.076	Return on Equity
Montana-Dakota Utilities Co.	09/18	Montana-Dakota Utilities Co.	D2018.9.60	Return on Equity
Public Utilities Commission of Nevada				
Sierra Pacific Power Company d/b/a NV Energy	02/24	Sierra Pacific Power Company d/b/a NV Energy	24-02026	Return on Equity
Nevada Power Company d/b/a NV Energy	06/23	Nevada Power Company d/b/a NV Energy	23-06007	Return on Equity
Nevada Power Company d/b/a NV Energy	03/23	Nevada Power Company d/b/a NV Energy	22-03028	Merger benefits
New Hampshire - Board of Tax and Land Appeals				
Liberty Utilities (EnergyNorth Natural Gas)	07/23	Liberty Utilities (EnergyNorth Natural Gas)	Docket No. DG 23-067	Return on Equity
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
New Jersey American Water Company, Inc.	02/24	New Jersey American Water Company, Inc.	WR2401056	Return on Equity
Elizabethtown Gas Company	2/24	Elizabethtown Gas Company	GR24020158	Return on Equity
Public Service Electric and Gas Company	12/23	Public Service Electric and Gas Company	ER23120924 GR23120925	Return on Equity
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
New York State Department of Public Service				
Liberty Utilities (New York Water)	5/23	Liberty Utilities (New York Water)	Case 23-W-0235	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/22	New York State Electric and Gas Company Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/19	New York State Electric and Gas Company Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity
Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	04/19	Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	19-G-0309 19-G-0310	Return on Equity
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Electric 17-E-0459 Gas 17-G-0460	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. 17-E-0238 17-G-0239	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/15	New York State Electric and Gas Company Rochester Gas and Electric	Case No. 15-E-0283 Case No. 15-G-0284 Case No. 15-E-0285 Case No. 15-G-0286	Return on Equity
North Dakota Public Service Commission				
Otter Tail Power Company	11/23	Otter Tail Power Company	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	11/23	Montana-Dakota Utilities Co.	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Oklahoma Gas & Electric	12/23	Oklahoma Gas & Electric	Cause No. PUD2023-000087	Return on Equity
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Oregon Public Service Commission				
PacifiCorp d/b/a Pacific Power & Light	02/24	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-433	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	11/23	Pennsylvania-American Water Company	Docket No. R-2023-3043189 (water) Docket No. R-2023-3043190 (wastewater)	Return on Equity
American Water Works Company Inc.	04/22	Pennsylvania-American Water Company	Docket No. R-2020-3031672 (water) Docket No. R-2020-3031673 (wastewater)	Return on Equity
American Water Works Company Inc.	04/20	Pennsylvania-American Water Company	Docket No. R-2020-3019369 (water) Docket No. R-2020-3019371 (wastewater)	Return on Equity
American Water Works Company Inc.	04/17	Pennsylvania-American Water Company	Docket No. R-2017-2595853	Return on Equity
South Dakota Public Utilities Commission				
MidAmerican Energy Company	05/22	MidAmerican Energy Company	D-NG22-005	Return on Equity
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity
Texas Public Utility Commission				
CenterPoint Energy Houston	03/24	CenterPoint Energy Houston	D-56211	Return on Equity
AEP Texas	02/24	AEP Texas	D-56165	Return on Equity
Entergy Texas, Inc.	07/22	Entergy Texas, Inc.	D-53719	Return on Equity
Southwestern Public Service Commission	08/19	Southwestern Public Service Commission	Docket No. D-49831	Return on Equity
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
Texas Railroad Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
CenterPoint Energy Entex and CenterPoint Energy Texas Gas	10/23	CenterPoint Energy Entex and CenterPoint Energy Texas Gas	2023 Texas Division Rate Case Case No. OS-23-00015513	Return on Equity
Utah Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	06/24	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 24-035-04	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/23	Virginia American Water Company, Inc.	Docket No. PUR-2023-00194	Return on Equity
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
Cascade Natural Gas Corporation	03/24	Cascade Natural Gas Corporation	Docket No. UG-240008	Return on Equity
Puget Sound Energy Inc.	02/24	Puget Sound Energy Inc.	Docket No. UE-240004 UG-240005	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	03/23	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-230172	Return on Equity
Cascade Natural Gas Corporation	06/20	Cascade Natural Gas Corporation	Docket No. UG-200568	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	12/19	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-191024	Return on Equity
Cascade Natural Gas Corporation	04/19	Cascade Natural Gas Corporation	Docket No. UG-190210	Return on Equity
West Virginia Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
West Virginia American Water Company	05/23	West Virginia American Water Company	Case No. 23-0383-W-42T	Return on Equity
West Virginia American Water Company	04/21	West Virginia American Water Company	Case No. 21-02369-W-42T	Return on Equity
West Virginia American Water Company	04/18	West Virginia American Water Company	Case No. 18-0573-W-42T Case No. 18-0576-S-42T	Return on Equity
Wisconsin Public Service Commission				
Wisconsin Power and Light	04/24	Wisconsin Power and Light	Docket No. 6680-UR-128	Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/24	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-111	Return on Equity
Wisconsin Power and Light	05/23	Wisconsin Power and Light	Docket No. 6680-UR-124	Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
Wyoming Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	08/24	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-671-ER-24	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	02/23	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-633-ER-23	Return on Equity
PacifiCorp d/b/a Rocky Mountain Power	03/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20000-578-ER-20	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Montana-Dakota Utilities Co.	05/19	Montana-Dakota Utilities Co.	30013-351-GR-19	Return on Equity

CERTIFICATIONS/ACCREDITATIONS

Certified General Appraiser, licensed in the Commonwealth of Massachusetts

SUMMARY OF RESULTS
OF THE COST OF EQUITY ANALYSES

Constant Growth DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean:			
30-Day Avg. Stock Price	8.52%	9.89%	11.40%
90-Day Avg. Stock Price	8.69%	10.07%	11.58%
180-Day Avg. Stock Price	8.84%	10.22%	11.72%
Average	8.68%	10.06%	11.57%
Median:			
30-Day Avg. Stock Price	8.53%	9.89%	11.38%
90-Day Avg. Stock Price	8.77%	10.07%	11.62%
180-Day Avg. Stock Price	8.88%	10.21%	11.73%
Average	8.73%	10.06%	11.58%

CAPM / ECAPM / BYRP

	30-Year Treasury Bond Yield		
	Current 30-Day Avg	Near-Term Projected	Longer-Term Projected
CAPM:			
Current *Value Line* Beta	11.09%	11.08%	11.10%
Current Bloomberg Beta	10.18%	10.16%	10.20%
Long-term Avg. *Value Line* Beta	10.14%	10.11%	10.15%
ECAPM:			
Current *Value Line* Beta	11.34%	11.32%	11.34%
Current Bloomberg Beta	10.66%	10.64%	10.67%
Long-term Avg. *Value Line* Beta	10.62%	10.60%	10.63%
Bond Yield Risk Premium:	10.31%	10.25%	10.35%

PROXY GROUP SCREENING DATA AND RESULTS

Company	Ticker	[1] Dividends	[2] S&P Credit Rating Between BBB- and AAA	[3] Covered by More Than 1 Analyst	[3] Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks)	[4] % Regulated Operating Income > 70%	[5] % Regulated Natural Gas Operating Income > 60%	[6] Announced Merger
Atmos Energy Corporation	ATO	Yes	A-	Yes	Yes	100.00%	66.30%	No
NiSource Inc.	NI	Yes	BBB+	Yes	Yes	99.89%	67.83%	No
Northwest Natural Gas Company	NWN	Yes	A	Yes	Yes	100.00%	90.55%	No
ONE Gas, Inc.	OGS	Yes	A-	Yes	Yes	100.00%	100.00%	No
Southwest Gas Corporation	SWX	Yes	BBB-	Yes	Yes	86.75%	90.89%	No
Spire, Inc.	SR	Yes	BBB+	Yes	Yes	83.38%	100.00%	No

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional
[3] Yahoo! Finance and Zacks
[4] Yahoo! Finance, Value Line Investment Survey, and Zacks
[5] Form 10-K's for 2023, 2022, and 2021
[6] Form 10-K's for 2023, 2022, and 2022
[7] S&P Capital IQ Pro; Financial News Releases

30-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	$3.22	$127.58	2.52%	2.61%	7.00%	7.40%	7.00%	7.13%	9.61%	9.75%	10.02%
NiSource Inc.	NI	$1.06	$31.68	3.35%	3.47%	9.50%	7.50%	6.00%	7.67%	9.45%	11.14%	13.01%
Northwest Natural Gas Company	NWN	$1.95	$39.26	4.97%	5.08%	6.50%	2.80%	n/a	4.65%	7.84%	9.73%	11.63%
ONE Gas, Inc.	OGS	$2.64	$67.78	3.90%	3.98%	3.50%	5.00%	5.00%	4.50%	7.46%	8.48%	8.99%
Southwest Gas Corporation	SWX	$2.48	$72.05	3.44%	3.56%	10.00%	4.00%	6.00%	6.67%	7.51%	10.22%	13.61%
Spire, Inc.	SR	$3.02	$65.37	4.62%	4.74%	4.50%	6.36%	5.00%	5.29%	9.22%	10.03%	11.13%
Mean										8.52%	9.89%	11.40%
Median										8.53%	9.89%	11.38%

Notes:
[1] Bloomberg Professional as of August 31 2024
[2] Bloomberg Professional 30-day average as of August 31 2024
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	$3.22	$120.01	2.68%	2.78%	7.00%	7.40%	7.00%	7.13%	9.78%	9.91%	10.18%
NiSource Inc.	NI	$1.06	$29.55	3.59%	3.72%	9.50%	7.50%	6.00%	7.67%	9.69%	11.39%	13.26%
Northwest Natural Gas Company	NWN	$1.95	$37.51	5.20%	5.32%	6.50%	2.80%	n/a	4.65%	8.07%	9.97%	11.87%
ONE Gas, Inc.	OGS	$2.64	$64.16	4.11%	4.21%	3.50%	5.00%	5.00%	4.50%	7.69%	8.71%	9.22%
Southwest Gas Corporation	SWX	$2.48	$73.07	3.39%	3.51%	10.00%	4.00%	6.00%	6.67%	7.46%	10.17%	13.56%
Spire, Inc.	SR	$3.02	$62.14	4.86%	4.99%	4.50%	6.36%	5.00%	5.29%	9.47%	10.28%	11.37%
Mean										8.69%	10.07%	11.58%
Median										8.77%	10.07%	11.62%

Notes:
[1] Bloomberg Professional as of August 31 2024
[2] Bloomberg Professional 90-day average as of August 31 2024
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
Atmos Energy Corporation	ATO	$3.22	$116.52	2.76%	2.86%	7.00%	7.40%	7.00%	7.13%	9.86%	10.00%	10.27%
NiSource Inc.	NI	$1.06	$27.74	3.82%	3.97%	9.50%	7.50%	6.00%	7.67%	9.94%	11.63%	13.50%
Northwest Natural Gas Company	NWN	$1.95	$36.94	5.28%	5.40%	6.50%	2.80%	n/a	4.65%	8.15%	10.05%	11.95%
ONE Gas, Inc.	OGS	$2.64	$62.32	4.24%	4.33%	3.50%	5.00%	5.00%	4.50%	7.81%	8.83%	9.34%
Southwest Gas Corporation	SWX	$2.48	$69.05	3.59%	3.71%	10.00%	4.00%	6.00%	6.67%	7.66%	10.38%	13.77%
Spire, Inc.	SR	$3.02	$60.58	4.99%	5.12%	4.50%	6.36%	5.00%	5.29%	9.60%	10.40%	11.50%
Mean										8.84%	10.22%	11.72%
Median										8.88%	10.21%	11.73%

Notes:
[1] Bloomberg Professional as of August 31 2024
[2] Bloomberg Professional 180-day average as of August 31 2024
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND VALUE LINE BETA

$$K = Rf + \beta (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.23%	0.85	12.07%	7.84%	10.89%	11.19%
NiSource Inc.	NI	4.23%	0.95	12.07%	7.84%	11.68%	11.78%
Northwest Natural Gas Company	NWN	4.23%	0.85	12.07%	7.84%	10.89%	11.19%
ONE Gas, Inc.	OGS	4.23%	0.85	12.07%	7.84%	10.89%	11.19%
Southwest Gas Corporation	SWX	4.23%	0.90	12.07%	7.84%	11.29%	11.48%
Spire, Inc.	SR	4.23%	0.85	12.07%	7.84%	10.89%	11.19%
Mean						11.09%	11.34%
Median						10.89%	11.19%

Notes:
[1] Bloomberg Professional 30-day average as of August 31 2024
[2] Value Line
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q4 2024 - Q4 2025)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] CAPM ROE (K)	[6] ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.12%	0.85	12.07%	7.95%	10.88%	11.18%
NiSource Inc.	NI	4.12%	0.95	12.07%	7.95%	11.67%	11.77%
Northwest Natural Gas Company	NWN	4.12%	0.85	12.07%	7.95%	10.88%	11.18%
ONE Gas, Inc.	OGS	4.12%	0.85	12.07%	7.95%	10.88%	11.18%
Southwest Gas Corporation	SWX	4.12%	0.90	12.07%	7.95%	11.27%	11.47%
Spire, Inc.	SR	4.12%	0.85	12.07%	7.95%	10.88%	11.18%
Mean						11.08%	11.32%
Median						10.88%	11.18%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2
[2] Value Line
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK-FREE RATE AND VALUE LINE BETA

$$K = Rf + \beta (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.30%	0.85	12.07%	7.77%	10.90%	11.20%
NiSource Inc.	NI	4.30%	0.95	12.07%	7.77%	11.68%	11.78%
Northwest Natural Gas Company	NWN	4.30%	0.85	12.07%	7.77%	10.90%	11.20%
ONE Gas, Inc.	OGS	4.30%	0.85	12.07%	7.77%	10.90%	11.20%
Southwest Gas Corporation	SWX	4.30%	0.90	12.07%	7.77%	11.29%	11.49%
Spire, Inc.	SR	4.30%	0.85	12.07%	7.77%	10.90%	11.20%
Mean						11.10%	11.34%
Median						10.90%	11.20%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Value Line
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND BLOOMBERG BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

Company	Ticker	[1] Current 30-day average of 30-year Treasury bond yield	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] CAPM ROE (K)	[6] ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.23%	0.74	12.07%	7.84%	10.03%	10.54%
NiSource Inc.	NI	4.23%	0.79	12.07%	7.84%	10.46%	10.86%
Northwest Natural Gas Company	NWN	4.23%	0.69	12.07%	7.84%	9.64%	10.24%
ONE Gas, Inc.	OGS	4.23%	0.76	12.07%	7.84%	10.21%	10.68%
Southwest Gas Corporation	SWX	4.23%	0.81	12.07%	7.84%	10.59%	10.96%
Spire, Inc.	SR	4.23%	0.76	12.07%	7.84%	10.18%	10.65%
Mean						10.18%	10.66%
Median						10.20%	10.66%

Notes:
[1] Bloomberg Professional 30-day average as of August 31 2024
[2] Bloomberg Professional
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR TERM PROJECTED RISK-FREE RATE AND BLOOMBERG BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q4 2024 - Q4 2025)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.12%	0.74	12.07%	7.95%	10.00%	10.52%
NiSource Inc.	NI	4.12%	0.79	12.07%	7.95%	10.43%	10.84%
Northwest Natural Gas Company	NWN	4.12%	0.69	12.07%	7.95%	9.60%	10.22%
ONE Gas, Inc.	OGS	4.12%	0.76	12.07%	7.95%	10.18%	10.66%
Southwest Gas Corporation	SWX	4.12%	0.81	12.07%	7.95%	10.57%	10.94%
Spire, Inc.	SR	4.12%	0.76	12.07%	7.95%	10.15%	10.63%
Mean						10.16%	10.64%
Median						10.17%	10.64%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2
[2] Bloomberg Professional
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK-FREE RATE AND BLOOMBERG BETA

$$K = Rf + \beta (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.30%	0.74	12.07%	7.77%	10.05%	10.56%
NiSource Inc.	NI	4.30%	0.79	12.07%	7.77%	10.47%	10.87%
Northwest Natural Gas Company	NWN	4.30%	0.69	12.07%	7.77%	9.66%	10.26%
ONE Gas, Inc.	OGS	4.30%	0.76	12.07%	7.77%	10.23%	10.69%
Southwest Gas Corporation	SWX	4.30%	0.81	12.07%	7.77%	10.60%	10.97%
Spire, Inc.	SR	4.30%	0.76	12.07%	7.77%	10.20%	10.67%
Mean						10.20%	10.67%
Median						10.21%	10.68%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Bloomberg Professional
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND LONG-TERM VALUE LINE BETA

$$K = Rf + \beta\ (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.23%	0.75	12.07%	7.84%	10.11%	10.60%
NiSource Inc.	NI	4.23%	0.76	12.07%	7.84%	10.15%	10.63%
Northwest Natural Gas Company	NWN	4.23%	0.71	12.07%	7.84%	9.79%	10.36%
ONE Gas, Inc.	OGS	4.23%	0.74	12.07%	7.84%	10.01%	10.53%
Southwest Gas Corporation	SWX	4.23%	0.83	12.07%	7.84%	10.72%	11.05%
Spire, Inc.	SR	4.23%	0.74	12.07%	7.84%	10.04%	10.55%
Mean						10.14%	10.62%
Median						10.08%	10.57%

Notes:
[1] Bloomberg Professional 30-day average as of August 31 2024
[2] Schedule AEB-D2, Attachment 5
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
NEAR-TERM PROJECTED RISK FREE RATE AND LONG-TERM VALUE LINE BETA

$K = Rf + \beta (Rm - Rf)$
$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q4 2024 - Q4 2025)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.12%	0.75	12.07%	7.95%	10.08%	10.58%
NiSource Inc.	NI	4.12%	0.76	12.07%	7.95%	10.13%	10.61%
Northwest Natural Gas Company	NWN	4.12%	0.71	12.07%	7.95%	9.76%	10.34%
ONE Gas, Inc.	OGS	4.12%	0.74	12.07%	7.95%	9.98%	10.50%
Southwest Gas Corporation	SWX	4.12%	0.83	12.07%	7.95%	10.70%	11.04%
Spire, Inc.	SR	4.12%	0.74	12.07%	7.95%	10.01%	10.53%
Mean						10.11%	10.60%
Median						10.05%	10.55%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2
[2] Schedule AEB-D2, Attachment 5
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

CAPITAL ASSET PRICING MODEL
LONG-TERM PROJECTED RISK FREE RATE AND LONG-TERM VALUE LINE BETA

$$K = Rf + \beta\ (Rm - Rf)$$
$$K = Rf + 0.25 \times (Rm - Rf) + 0.75 \times \beta \times (Rm - Rf)$$

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2026 - 2030)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	ECAPM ROE (K)
Atmos Energy Corporation	ATO	4.30%	0.75	12.07%	7.77%	10.13%	10.61%
NiSource Inc.	NI	4.30%	0.76	12.07%	7.77%	10.17%	10.65%
Northwest Natural Gas Company	NWN	4.30%	0.71	12.07%	7.77%	9.81%	10.37%
ONE Gas, Inc.	OGS	4.30%	0.74	12.07%	7.77%	10.03%	10.54%
Southwest Gas Corporation	SWX	4.30%	0.83	12.07%	7.77%	10.73%	11.06%
Spire, Inc.	SR	4.30%	0.74	12.07%	7.77%	10.06%	10.56%
Mean						10.15%	10.63%
Median						10.09%	10.59%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[2] Schedule AEB-D2, Attachment 5
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

HISTORICAL VALUE LINE BETA

Company	Ticker	[1] 12/31/2013	[2] 12/31/2014	[3] 12/31/2015	[4] 12/31/2016	[5] 12/31/2017	[6] 12/31/2018	[7] 12/31/2019	[8] 12/31/2020	[9] 12/31/2021	[10] 12/31/2022	[11] 12/31/2023	[12] Average
Atmos Energy Corporation	ATO	0.80	0.80	0.80	0.70	0.70	0.60	0.60	0.80	0.80	0.80	0.85	0.75
NiSource Inc.	NI	0.85	0.85	NMF	NMF	0.60	0.50	0.55	0.85	0.85	0.85	0.90	0.76
Northwest Natural Gas Company	NWN	0.65	0.7	0.65	0.65	0.7	0.6	0.6	0.8	0.85	0.8	0.8	0.71
ONE Gas, Inc.	OGS	NA	NA	NA	0.70	0.70	0.65	0.65	0.80	0.80	0.80	0.80	0.74
Southwest Gas Corporation	SWX	0.8	0.85	0.8	0.75	0.80	0.70	0.70	0.95	0.95	0.90	0.90	0.83
Spire, Inc.	SR	0.65	0.7	0.7	0.70	0.70	0.65	0.65	0.85	0.85	0.85	0.85	0.74
Mean		0.75	0.78	0.74	0.70	0.70	0.62	0.63	0.84	0.85	0.83	0.85	0.75

Notes:
[1] Value Line, dated December 26, 2013.
[2] Value Line, dated December 31, 2014.
[3] Value Line, dated December 30, 2015.
[4] Value Line, dated December 29, 2016.
[5] Value Line, dated December 28, 2017.
[6] Value Line, dated December 27, 2018.
[7] Value Line, dated December 26, 2019.
[8] Value Line, dated December 30, 2020.
[9] Value Line, dated December 29, 2021.
[11] Value Line, dated December 29, 2023.
[12] Average ([1] - [11])

MARKET RISK PREMIUM DERIVED FROM S&P 500 INDEX

[1] Estimate of the S&P 500 Dividend Yield	1.54%
[2] Estimate of the S&P 500 Growth Rate	10.45%
[3] S&P 500 Estimated Required Market Return	12.07%

		[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Name	Ticker	Shares Outst'g	Price	Market Capitalization	Weight in Index	Estimated Dividend Yield	Cap-Weighted Dividend Yield	Bloomberg Long-Term Growth Est.	Cap-Weighted Long-Term Growth Est.
LyondellBasell Industries NV	LYB	325.09	98.70	32,086.28		5.43%		-8.07%	
American Express Co	AXP	710.91	258.65	183,877.39	0.50%	1.08%	0.01%	15.74%	0.08%
Verizon Communications Inc	VZ	4,209.52	41.78	175,873.75	0.48%	6.37%	0.03%	0.86%	0.00%
Broadcom Inc	AVGO	4,654.88	162.82	757,908.21	2.08%	1.29%	0.03%	15.88%	0.33%
Boeing Co/The	BA	616.17	173.74	107,052.85				38.60%	
Solventum Corp	SOLV	172.71	64.11	11,072.50				-2.00%	
Caterpillar Inc	CAT	484.90	356.10	172,672.18	0.47%	1.58%	0.01%	8.38%	0.04%
JPMorgan Chase & Co	JPM	2,845.17	224.80	639,593.09	1.75%	2.05%	0.04%	4.05%	0.07%
Chevron Corp	CVX	1,828.92	147.95	270,588.27	0.74%	4.41%	0.03%	7.00%	0.05%
Coca-Cola Co/The	KO	4,309.87	72.47	312,336.13	0.86%	2.68%	0.02%	6.36%	0.05%
AbbVie Inc	ABBV	1,766.34	196.31	346,750.99	0.95%	3.16%	0.03%	8.80%	0.08%
Walt Disney Co/The	DIS	1,813.59	90.38	163,911.99	0.45%	1.00%	0.00%	18.89%	0.08%
Corpay Inc	CPAY	69.43	315.55	21,909.58	0.06%			14.87%	0.01%
Extra Space Storage Inc	EXR	211.93	177.00	37,511.43		3.66%		-0.20%	
Exxon Mobil Corp	XOM	4,442.83	117.94	523,987.02	1.44%	3.22%	0.05%	5.00%	0.07%
Phillips 66	PSX	418.57	140.31	58,729.42		3.28%		-9.00%	
General Electric Co	GE	1,084.31	174.62	189,342.39		0.64%		29.30%	
HP Inc	HPQ	963.72	36.18	34,867.32	0.10%	3.05%	0.00%	1.42%	0.00%
Home Depot Inc/The	HD	993.29	368.50	366,028.47	1.00%	2.44%	0.02%	3.87%	0.04%
Monolithic Power Systems Inc	MPWR	48.75	934.68	45,567.52		0.53%			
International Business Machines Corp	IBM	921.15	202.13	186,191.65	0.51%	3.30%	0.02%	3.90%	0.02%
Johnson & Johnson	JNJ	2,407.24	165.86	399,265.49	1.09%	2.99%	0.03%	3.73%	0.04%
Lululemon Athletica Inc	LULU	117.66	259.47	30,529.50	0.08%			7.00%	0.01%
McDonald's Corp	MCD	717.34	286.99	205,870.27	0.56%	2.33%	0.01%	5.15%	0.03%
Merck & Co Inc	MRK	2,534.81	118.45	300,248.13	0.82%	2.60%	0.02%	14.00%	0.12%
3M Co	MMM	549.35	134.69	73,992.49		2.08%		-5.37%	
American Water Works Co Inc	AWK	194.86	143.12	27,888.79	0.08%	2.14%	0.00%	8.00%	0.01%
Bank of America Corp	BAC	7,759.58	40.75	316,202.76		2.55%			
Pfizer Inc	PFE	5,666.70	29.01	164,390.82	0.45%	5.79%	0.03%	6.39%	0.03%
Procter & Gamble Co/The	PG	2,349.71	171.54	403,068.91	1.10%	2.35%	0.03%	7.37%	0.08%
AT&T Inc	T	7,170.24	19.90	142,687.86	0.39%	5.58%	0.02%	1.84%	0.01%
Travelers Cos Inc/The	TRV	227.93	228.07	51,984.22	0.14%	1.84%	0.00%	18.21%	0.03%
RTX Corp	RTX	1,330.24	123.34	164,071.68	0.45%	2.04%	0.01%	10.23%	0.05%
Analog Devices Inc	ADI	496.49	233.92	116,139.59		1.57%		-5.82%	
Walmart Inc	WMT	8,038.25	77.23	620,794.12	1.70%	1.07%	0.02%	9.24%	0.16%
Cisco Systems Inc	CSCO	4,028.82	50.54	203,616.31	0.56%	3.17%	0.02%	3.40%	0.02%
Intel Corp	INTC	4,276.00	22.04	94,243.04	0.26%			4.26%	0.01%
General Motors Co	GM	1,123.92	49.78	55,948.84	0.15%	0.96%	0.00%	11.02%	0.02%
Microsoft Corp	MSFT	7,433.04	417.14	3,100,617.47	8.50%	0.72%	0.06%	16.10%	1.37%
Dollar General Corp	DG	219.92	82.97	18,246.35		2.84%		-3.74%	
Cigna Group/The	CI	279.55	361.81	101,143.62	0.28%	1.55%	0.00%	11.65%	0.03%
Kinder Morgan Inc	KMI	2,219.46	21.57	47,873.82	0.13%	5.33%	0.01%	6.52%	0.01%
Citigroup Inc	C	1,907.80	62.64	119,504.28		3.58%		27.26%	
American International Group Inc	AIG	643.95	77.05	49,616.42	0.14%	2.08%	0.00%	12.42%	0.02%
Altria Group Inc	MO	1,706.22	53.77	91,743.66	0.25%	7.59%	0.02%	4.14%	0.01%
HCA Healthcare Inc	HCA	258.07	395.59	102,091.49	0.28%	0.67%	0.00%	10.81%	0.03%
International Paper Co	IP	347.37	48.42	16,819.66		3.82%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1,299.67	19.37	25,174.67	0.07%	2.68%	0.00%	3.73%	0.00%
Abbott Laboratories	ABT	1,739.90	113.27	197,078.13	0.54%	1.94%	0.01%	8.12%	0.04%
Aflac Inc	AFL	560.03	110.36	61,804.47	0.17%	1.81%	0.00%	7.55%	0.01%
Air Products and Chemicals Inc	APD	222.32	278.85	61,992.54	0.17%	2.54%	0.00%	9.52%	0.02%
Super Micro Computer Inc	SMCI	58.56	437.70	25,630.40				69.00%	
Royal Caribbean Cruises Ltd	RCL	257.42	164.62	42,376.48		0.97%		30.00%	
Hess Corp	HES	308.12	138.06	42,538.36	0.12%	1.27%	0.00%	16.00%	0.02%
Archer-Daniels-Midland Co	ADM	478.14	60.99	29,161.88		3.28%		-3.62%	
Automatic Data Processing Inc	ADP	407.80	275.91	112,514.72		2.03%			
Verisk Analytics Inc	VRSK	142.42	272.82	38,856.12	0.11%	0.57%	0.00%	12.54%	0.01%
AutoZone Inc	AZO	17.08	3,181.48	54,349.22	0.15%			14.66%	0.02%
Linde PLC	LIN	477.50	478.25	228,365.81	0.63%	1.16%	0.01%	11.76%	0.07%
Avery Dennison Corp	AVY	80.52	221.85	17,863.14	0.05%	1.59%	0.00%	12.84%	0.01%
Enphase Energy Inc	ENPH	135.42	121.04	16,391.48	0.04%			7.45%	0.00%
MSCI Inc	MSCI	78.65	580.59	45,663.40	0.13%	1.10%	0.00%	11.93%	0.01%
Ball Corp	BALL	303.57	63.61	19,309.77	0.05%	1.26%	0.00%	13.35%	0.01%
Axon Enterprise Inc	AXON	75.57	364.97	27,582.24				20.81%	
Dayforce Inc	DAY	158.10	57.17	9,038.58					
Carrier Global Corp	CARR	902.75	72.78	65,702.29	0.18%	1.04%	0.00%	6.74%	0.01%
Bank of New York Mellon Corp/The	BK	737.96	68.22	50,343.43	0.14%	2.76%	0.00%	10.55%	0.01%
Otis Worldwide Corp	OTIS	400.56	94.69	37,928.55	0.10%	1.65%	0.00%	10.00%	0.01%
Baxter International Inc	BAX	510.18	37.94	19,356.15	0.05%	3.06%	0.00%	6.50%	0.00%
Becton Dickinson & Co	BDX	289.04	242.41	70,066.67	0.19%	1.57%	0.00%	8.34%	0.02%
Berkshire Hathaway Inc	BRK/B	1,325.19	475.92	630,685.85					
Best Buy Co Inc	BBY	215.71	100.40	21,657.69	0.06%	3.75%	0.00%	4.17%	0.00%
Boston Scientific Corp	BSX	1,472.63	81.79	120,446.08	0.33%			12.58%	0.04%
Bristol-Myers Squibb Co	BMY	2,027.40	49.95	101,268.38		4.80%		33.60%	
Brown-Forman Corp	BF/B	303.54	45.37	13,772.14		1.92%		-2.38%	
Coterra Energy Inc	CTRA	739.27	24.33	17,986.54	0.05%	3.45%	0.00%	10.06%	0.00%
Hilton Worldwide Holdings Inc	HLT	246.43	219.64	54,125.23	0.15%	0.27%	0.00%	14.97%	0.02%
Carnival Corp	CCL	1,122.46	16.50	18,520.51					
Qorvo Inc	QRVO	94.86	115.89	10,993.44	0.03%			17.09%	0.01%
Builders FirstSource Inc	BLDR	116.45	174.00	20,263.00	0.06%			1.45%	0.00%
UDR Inc	UDR	329.82	44.51	14,680.47	0.04%	3.82%	0.00%	1.85%	0.00%
Clorox Co/The	CLX	123.86	158.31	19,608.59	0.05%	3.08%	0.00%	8.65%	0.00%
Paycom Software Inc	PAYC	57.43	162.78	9,348.78	0.03%	0.92%	0.00%	9.41%	0.00%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
CMS Energy Corp	CMS	298.64	67.86	20,265.37	0.06%	3.04%	0.00%	7.28%	0.00%
Colgate-Palmolive Co	CL	817.09	106.50	87,019.77	0.24%	1.88%	0.00%	8.73%	0.02%
EPAM Systems Inc	EPAM	56.94	200.76	11,430.27	0.03%			5.29%	0.00%
Conagra Brands Inc	CAG	479.05	31.20	14,946.36	0.04%	4.49%	0.00%	1.81%	0.00%
Airbnb Inc	ABNB	440.00	117.31	51,616.63	0.14%			19.84%	0.03%
Consolidated Edison Inc	ED	346.15	101.56	35,154.69	0.10%	3.27%	0.00%	5.58%	0.01%
Corning Inc	GLW	855.70	41.85	35,811.09	0.10%	2.68%	0.00%	13.41%	0.01%
GoDaddy Inc	GDDY	140.97	167.41	23,600.29					
Cummins Inc	CMI	137.05	312.85	42,875.47	0.12%	2.33%	0.00%	8.28%	0.01%
Caesars Entertainment Inc	CZR	216.34	37.64	8,142.96				-35.64%	
Danaher Corp	DHR	722.21	269.31	194,499.18	0.53%	0.40%	0.00%	1.89%	0.01%
Target Corp	TGT	460.68	153.62	70,768.89	0.19%	2.92%	0.01%	14.38%	0.03%
Deere & Co	DE	273.60	385.74	105,538.46		1.52%		-9.99%	
Dominion Energy Inc	D	838.94	55.90	46,896.63		4.78%		21.59%	
Dover Corp	DOV	137.46	186.03	25,571.31	0.07%	1.11%	0.00%	7.72%	0.01%
Alliant Energy Corp	LNT	256.50	58.27	14,946.26	0.04%	3.30%	0.00%	7.34%	0.00%
Steel Dynamics Inc	STLD	154.30	119.51	18,440.75		1.54%		-4.38%	
Duke Energy Corp	DUK	771.00	113.95	87,855.45	0.24%	3.67%	0.01%	6.61%	0.02%
Regency Centers Corp	REG	181.50	72.69	13,193.02	0.04%	3.69%	0.00%	3.79%	0.00%
Eaton Corp PLC	ETN	398.10	306.93	122,188.83	0.33%	1.23%	0.00%	14.60%	0.05%
Ecolab Inc	ECL	284.54	253.18	72,039.33	0.20%	0.90%	0.00%	15.76%	0.03%
Revvity Inc	RVTY	123.34	122.54	15,113.72	0.04%	0.23%	0.00%	9.44%	0.00%
Emerson Electric Co	EMR	572.70	105.39	60,356.85	0.17%	1.99%	0.00%	15.10%	0.02%
EOG Resources Inc	EOG	568.60	128.82	73,247.05	0.20%	2.83%	0.01%	3.28%	0.01%
Aon PLC	AON	217.24	343.72	74,670.42	0.20%	0.79%	0.00%	11.10%	0.02%
Entergy Corp	ETR	213.83	120.69	25,807.26	0.07%	3.75%	0.00%	7.17%	0.01%
Equifax Inc	EFX	123.74	306.74	37,954.78		0.51%		21.48%	
EQT Corp	EQT	594.02	33.51	19,905.64		1.88%			
IQVIA Holdings Inc	IQV	182.30	251.55	45,857.57	0.13%			10.83%	0.01%
Gartner Inc	IT	77.06	491.96	37,910.44	0.10%			7.67%	0.01%
FedEx Corp	FDX	244.96	298.77	73,187.60	0.20%	1.85%	0.00%	13.35%	0.03%
FMC Corp	FMC	124.82	64.58	8,061.13	0.02%	3.59%	0.00%	15.67%	0.00%
Brown & Brown Inc	BRO	285.26	105.13	29,989.49	0.08%	0.49%	0.00%	10.85%	0.01%
Ford Motor Co	F	3,904.40	11.19	43,690.21	0.12%	5.36%	0.01%	1.34%	0.00%
NextEra Energy Inc	NEE	2,055.00	80.51	165,448.05	0.45%	2.56%	0.01%	8.17%	0.04%
Franklin Resources Inc	BEN	523.00	20.24	10,585.48		6.13%			
Garmin Ltd	GRMN	192.21	183.29	35,230.90	0.10%	1.64%	0.00%	9.55%	0.01%
Freeport-McMoRan Inc	FCX	1,436.86	44.28	63,623.98	0.17%	1.36%	0.00%	17.59%	0.03%
Dexcom Inc	DXCM	400.73	69.34	27,786.41				21.07%	
General Dynamics Corp	GD	274.78	299.36	82,257.54	0.23%	1.90%	0.00%	15.55%	0.04%
General Mills Inc	GIS	556.62	72.29	40,238.06	0.11%	3.32%	0.00%	2.38%	0.00%
Genuine Parts Co	GPC	139.32	143.26	19,958.70		2.79%			
Atmos Energy Corp	ATO	155.23	130.74	20,295.16	0.06%	2.46%	0.00%	7.00%	0.00%
WW Grainger Inc	GWW	48.83	984.92	48,089.70		0.83%			
Halliburton Co	HAL	882.83	31.09	27,447.15	0.08%	2.19%	0.00%	8.17%	0.01%
L3Harris Technologies Inc	LHX	189.71	236.67	44,897.48	0.12%	1.96%	0.00%	8.77%	0.01%
Healthpeak Properties Inc	DOC	699.29	22.28	15,580.20	0.04%	5.39%	0.00%	5.33%	0.00%
Insulet Corp	PODD	70.12	202.77	14,217.22	0.04%			17.61%	0.01%
Catalent Inc	CTLT	180.98	60.96	11,032.54					
Fortive Corp	FTV	350.34	74.40	26,065.44	0.07%	0.43%	0.00%	10.49%	0.01%
Hershey Co/The	HSY	147.67	193.06	28,509.94	0.08%	2.84%	0.00%	2.21%	0.00%
Synchrony Financial	SYF	395.23	50.26	19,864.11		1.99%		64.00%	
Hormel Foods Corp	HRL	548.31	32.55	17,847.33	0.05%	3.47%	0.00%	6.59%	0.00%
Arthur J Gallagher & Co	AJG	219.10	292.57	64,102.09	0.18%	0.82%	0.00%	12.87%	0.02%
Mondelez International Inc	MDLZ	1,335.80	71.81	95,923.65	0.26%	2.62%	0.01%	6.93%	0.02%
CenterPoint Energy Inc	CNP	651.72	27.30	17,791.98	0.05%	2.93%	0.00%	8.00%	0.00%
Humana Inc	HUM	120.40	354.47	42,678.90		1.00%		-1.30%	
Willis Towers Watson PLC	WTW	101.56	292.11	29,665.52	0.08%	1.21%	0.00%	11.69%	0.01%
Illinois Tool Works Inc	ITW	296.90	253.18	75,169.14	0.21%	2.37%	0.00%	6.90%	0.01%
CDW Corp/DE	CDW	133.58	225.64	30,140.09	0.08%	1.10%	0.00%	7.02%	0.01%
Trane Technologies PLC	TT	225.67	361.66	81,615.81	0.22%	0.93%	0.00%	15.56%	0.03%
Interpublic Group of Cos Inc/The	IPG	375.59	32.28	12,124.08	0.03%	4.09%	0.00%	3.20%	0.00%
International Flavors & Fragrances Inc	IFF	255.66	103.99	26,585.98	0.07%	1.54%	0.00%	2.12%	0.00%
Generac Holdings Inc	GNRC	60.15	156.53	9,415.75	0.03%			7.00%	0.00%
NXP Semiconductors NV	NXPI	254.73	256.36	65,303.35	0.18%	1.58%	0.00%	5.89%	0.01%
Kellanova	K	343.95	80.04	27,529.52	0.08%	2.85%	0.00%	9.29%	0.01%
Broadridge Financial Solutions Inc	BR	116.71	212.86	24,842.68		1.65%			
Kimberly-Clark Corp	KMB	336.80	144.66	48,722.07	0.13%	3.37%	0.00%	8.36%	0.01%
Kimco Realty Corp	KIM	674.12	23.26	15,679.94	0.04%	4.13%	0.00%	3.63%	0.00%
Oracle Corp	ORCL	2,755.86	141.29	389,375.46	1.07%	1.13%	0.01%	15.06%	0.16%
Kroger Co/The	KR	721.79	53.21	38,406.50	0.11%	2.41%	0.00%	3.11%	0.00%
Lennar Corp	LEN	241.70	182.06	44,004.45	0.12%	1.10%	0.00%	4.30%	0.01%
Eli Lilly & Co	LLY	950.43	960.02	912,427.97		0.54%		33.00%	
Bath & Body Works Inc	BBWI	219.11	30.76	6,739.89	0.02%	2.60%	0.00%	14.74%	0.00%
Charter Communications Inc	CHTR	142.74	347.54	49,608.21	0.14%			7.10%	0.01%
Loews Corp	L	219.52	81.94	17,987.22		0.31%			
Lowe's Cos Inc	LOW	567.29	248.50	140,972.56		1.85%		-0.19%	
Hubbell Inc	HUBB	53.68	399.92	21,468.11		1.22%			
IDEX Corp	IEX	75.70	206.48	15,631.16		1.34%			
Marsh & McLennan Cos Inc	MMC	491.76	227.51	111,879.41	0.31%	1.43%	0.00%	9.10%	0.03%
Masco Corp	MAS	218.25	79.56	17,363.89	0.05%	1.46%	0.00%	7.76%	0.00%
S&P Global Inc	SPGI	320.20	513.24	164,339.45	0.45%	0.71%	0.00%	14.53%	0.07%
Medtronic PLC	MDT	1,282.49	88.58	113,602.96	0.31%	3.16%	0.01%	5.66%	0.02%
Viatris Inc	VTRS	1,193.52	12.08	14,417.72		3.97%		-3.41%	
CVS Health Corp	CVS	1,257.98	57.24	72,006.72	0.20%	4.65%	0.01%	1.82%	0.00%
DuPont de Nemours Inc	DD	417.50	84.25	35,173.95	0.10%	1.80%	0.00%	2.50%	0.00%
Micron Technology Inc	MU	1,108.84	96.24	106,714.86		0.48%		31.94%	
Motorola Solutions Inc	MSI	166.84	442.04	73,750.40	0.20%	0.89%	0.00%	9.36%	0.02%
Cboe Global Markets Inc	CBOE	104.63	205.40	21,491.82	0.06%	1.23%	0.00%	13.78%	0.01%
Newmont Corp	NEM	1,152.49	53.39	61,531.33		1.87%		48.45%	
NIKE Inc	NKE	1,201.46	82.95	99,661.27	0.27%	1.78%	0.00%	4.46%	0.01%
NiSource Inc	NI	448.51	33.06	14,827.74	0.04%	3.21%	0.00%	7.00%	0.00%

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Norfolk Southern Corp	NSC	226.10	256.16	57,916.75	0.16%	2.11%	0.00%	9.68%	0.02%
Principal Financial Group Inc	PFG	231.58	81.42	18,855.57	0.05%	3.54%	0.00%	13.00%	0.01%
Eversource Energy	ES	357.39	67.53	24,134.21	0.07%	4.24%	0.00%	5.46%	0.00%
Northrop Grumman Corp	NOC	146.25	521.15	76,215.58	0.21%	1.58%	0.00%	8.68%	0.02%
Wells Fargo & Co	WFC	3,403.77	58.47	199,018.43	0.55%	2.74%	0.01%	7.95%	0.04%
Nucor Corp	NUE	237.34	151.91	36,054.02		1.42%		-1.48%	
Occidental Petroleum Corp	OXY	916.20	56.98	52,204.91		1.54%		24.00%	
Omnicom Group Inc	OMC	195.65	100.43	19,649.03	0.05%	2.79%	0.00%	5.36%	0.00%
ONEOK Inc	OKE	584.07	92.36	53,945.07		4.29%			
Raymond James Financial Inc	RJF	205.94	119.57	24,624.60	0.07%	1.51%	0.00%	15.40%	0.01%
PG&E Corp	PCG	2,137.46	19.70	42,107.98	0.12%	0.20%	0.00%	9.95%	0.01%
Parker-Hannifin Corp	PH	128.60	600.20	77,183.32	0.21%	1.09%	0.00%	13.44%	0.03%
Rollins Inc	ROL	484.31	50.18	24,302.88	0.07%	1.20%	0.00%	13.38%	0.01%
PPL Corp	PPL	737.77	31.91	23,542.34	0.06%	3.23%	0.00%	7.01%	0.00%
ConocoPhillips	COP	1,161.25	113.79	132,138.64	0.36%	2.74%	0.01%	13.00%	0.05%
PulteGroup Inc	PHM	207.52	131.65	27,320.53	0.07%	0.61%	0.00%	8.99%	0.01%
Pinnacle West Capital Corp	PNW	113.61	87.52	9,943.32	0.03%	4.02%	0.00%	8.22%	0.00%
PNC Financial Services Group Inc/The	PNC	397.50	185.09	73,572.53	0.20%	3.46%	0.01%	18.04%	0.04%
PPG Industries Inc	PPG	233.30	129.73	30,266.01	0.08%	2.10%	0.00%	8.33%	0.01%
Progressive Corp/The	PGR	585.67	252.20	147,705.22		0.16%		36.31%	
Veralto Corp	VLTO	247.11	112.43	27,782.13		0.32%			
Public Service Enterprise Group Inc	PEG	498.16	80.75	40,226.58	0.11%	2.97%	0.00%	7.47%	0.01%
Cooper Cos Inc/The	COO	199.16	105.73	21,056.76	0.06%			12.43%	0.01%
Edison International	EIX	383.93	87.03	33,412.99	0.09%	3.58%	0.00%	6.00%	0.01%
Schlumberger NV	SLB	1,419.84	43.99	62,458.81	0.17%	2.50%	0.00%	12.22%	0.02%
Charles Schwab Corp/The	SCHW	1,778.45	65.10	115,776.77	0.32%	1.54%	0.00%	12.07%	0.04%
Sherwin-Williams Co/The	SHW	252.26	369.37	93,176.54	0.26%	0.77%	0.00%	9.88%	0.03%
West Pharmaceutical Services Inc	WST	72.54	313.63	22,751.35	0.06%	0.26%	0.00%	2.89%	0.00%
J M Smucker Co/The	SJM	106.41	114.68	12,202.64	0.03%	3.77%	0.00%	6.07%	0.00%
Snap-on Inc	SNA	52.68	283.74	14,948.27	0.04%	2.62%	0.00%	3.83%	0.00%
AMETEK Inc	AME	231.54	171.05	39,604.23	0.11%	0.65%	0.00%	7.02%	0.01%
Uber Technologies Inc	UBER	2,100.94	73.13	153,641.52				60.59%	
Southern Co/The	SO	1,094.63	86.40	94,576.29	0.26%	3.33%	0.01%	7.23%	0.02%
Truist Financial Corp	TFC	1,339.14	44.46	59,538.30	0.16%	4.68%	0.01%	10.91%	0.02%
Southwest Airlines Co	LUV	599.16	28.92	17,327.62		2.49%			
W R Berkley Corp	WRB	380.55	59.70	22,718.89	0.06%	0.54%	0.00%	13.27%	0.01%
Stanley Black & Decker Inc	SWK	153.96	101.54	15,633.00		3.23%			
Public Storage	PSA	175.83	343.72	60,435.94	0.17%	3.49%	0.01%	1.23%	0.00%
Arista Networks Inc	ANET	314.15	353.38	111,015.39	0.30%			18.60%	0.06%
Sysco Corp	SYY	491.52	77.97	38,323.89	0.11%	2.62%	0.00%	7.00%	0.01%
Corteva Inc	CTVA	687.80	57.13	39,293.84	0.11%	1.19%	0.00%	9.85%	0.01%
Texas Instruments Inc	TXN	913.05	214.34	195,702.28		2.43%		-2.86%	
Textron Inc	TXT	187.36	91.20	17,087.51	0.05%	0.09%	0.00%	10.05%	0.00%
Thermo Fisher Scientific Inc	TMO	382.00	615.07	234,954.28	0.64%	0.25%	0.00%	8.70%	0.06%
TJX Cos Inc/The	TJX	1,127.87	117.27	132,265.67	0.36%	1.28%	0.00%	8.20%	0.03%
Globe Life Inc	GL	89.82	105.05	9,435.59	0.03%	0.91%	0.00%	6.00%	0.00%
Johnson Controls International plc	JCI	668.01	72.85	48,664.82	0.13%	2.03%	0.00%	8.72%	0.01%
Ulta Beauty Inc	ULTA	47.12	352.84	16,624.06	0.05%			1.64%	0.00%
Union Pacific Corp	UNP	609.20	256.09	156,009.52	0.43%	2.09%	0.01%	11.33%	0.05%
Keysight Technologies Inc	KEYS	173.54	154.12	26,746.45				-1.19%	
UnitedHealth Group Inc	UNH	923.42	590.20	545,001.30	1.49%	1.42%	0.02%	10.44%	0.16%
Blackstone Inc	BX	720.08	142.36	102,510.16		2.30%		24.48%	
Marathon Oil Corp	MRO	559.38	28.65	16,026.32		1.54%		-5.00%	
Bio-Rad Laboratories Inc	BIO	22.80	337.32	7,689.21	0.02%			12.00%	0.00%
Ventas Inc	VTR	413.15	62.11	25,660.99	0.07%	2.90%	0.00%	8.22%	0.01%
Labcorp Holdings Inc	LH	83.96	229.89	19,302.25	0.05%	1.25%	0.00%	8.45%	0.00%
Vulcan Materials Co	VMC	132.06	245.21	32,382.43		0.75%			
Weyerhaeuser Co	WY	727.32	30.49	22,175.83		2.62%		-13.66%	
Williams Cos Inc/The	WMB	1,218.93	45.77	55,790.47	0.15%	4.15%	0.01%	4.28%	0.01%
Constellation Energy Corp	CEG	315.12	196.70	61,984.30		0.72%		20.39%	
WEC Energy Group Inc	WEC	316.08	93.03	29,404.83	0.08%	3.59%	0.00%	7.82%	0.01%
Adobe Inc	ADBE	443.40	574.41	254,693.39	0.70%			16.27%	0.11%
Vistra Corp	VST	343.56	85.43	29,350.42		1.03%			
AES Corp/The	AES	710.92	17.13	12,178.13		4.03%			
Expeditors International of Washington Inc	EXPD	141.13	123.41	17,416.61	0.05%	1.18%	0.00%	4.39%	0.00%
Amgen Inc	AMGN	537.33	333.83	179,376.54	0.49%	2.70%	0.01%	3.52%	0.02%
Apple Inc	AAPL	15,204.14	229.00	3,481,747.37	9.54%	0.44%	0.04%	8.04%	0.77%
Autodesk Inc	ADSK	215.51	258.40	55,687.53	0.15%			10.23%	0.02%
Cintas Corp	CTAS	100.77	805.12	81,131.14	0.22%	0.78%	0.00%	10.59%	0.02%
Comcast Corp	CMCSA	3,863.06	39.57	152,861.17	0.42%	3.13%	0.01%	7.32%	0.03%
Molson Coors Beverage Co	TAP	192.59	53.97	10,394.14	0.03%	3.26%	0.00%	5.29%	0.00%
KLA Corp	KLAC	134.43	819.43	110,151.88	0.30%	0.71%	0.00%	10.00%	0.03%
Marriott International Inc/MD	MAR	281.52	234.69	66,070.63	0.18%	1.07%	0.00%	4.25%	0.01%
Fiserv Inc	FI	575.73	174.60	100,521.59	0.28%			11.52%	0.03%
McCormick & Co Inc/MD	MKC	252.02	80.03	20,168.76	0.06%	2.10%	0.00%	5.83%	0.00%
PACCAR Inc	PCAR	524.22	96.18	50,419.67	0.14%	1.25%	0.00%	0.48%	0.00%
Costco Wholesale Corp	COST	443.34	892.38	395,623.29	1.08%	0.52%	0.01%	10.36%	0.11%
Stryker Corp	SYK	381.08	360.42	137,347.05	0.38%	0.89%	0.00%	8.60%	0.03%
Tyson Foods Inc	TSN	285.82	64.31	18,381.15		3.05%			
Lamb Weston Holdings Inc	LW	143.67	61.92	8,896.11	0.02%	2.33%	0.00%	2.16%	0.00%
Applied Materials Inc	AMAT	824.40	197.26	162,621.93	0.45%	0.81%	0.00%	9.28%	0.04%
American Airlines Group Inc	AAL	653.54	10.62	6,940.61				-13.42%	
Cardinal Health Inc	CAH	243.85	112.72	27,486.21	0.08%	1.79%	0.00%	9.84%	0.01%
Cincinnati Financial Corp	CINF	156.24	137.03	21,409.57	0.06%	2.36%	0.00%	7.83%	0.00%
Paramount Global	PARA	626.01	10.47	6,554.35		1.91%		49.00%	
DR Horton Inc	DHI	326.04	188.76	61,543.31	0.17%	0.64%	0.00%	8.27%	0.01%
Electronic Arts Inc	EA	264.20	151.82	40,110.84	0.11%	0.50%	0.00%	12.85%	0.01%
Fair Isaac Corp	FICO	24.52	1,730.27	42,424.49				23.00%	
Fastenal Co	FAST	572.65	68.28	39,100.27		2.28%			
M&T Bank Corp	MTB	167.00	170.76	28,517.09	0.08%	3.16%	0.00%	3.87%	0.00%
Xcel Energy Inc	XEL	557.50	61.23	34,135.79	0.09%	3.58%	0.00%	7.10%	0.01%
Fifth Third Bancorp	FITB	676.80	42.69	28,892.46		3.28%		25.00%	

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Gilead Sciences Inc	GILD	1,244.99	79.00	98,354.37	0.27%	3.90%	0.01%	15.38%	0.04%
Hasbro Inc	HAS	139.41	68.16	9,501.98		4.11%		33.11%	
Huntington Bancshares Inc/OH	HBAN	1,452.43	14.97	21,742.92	0.06%	4.14%	0.00%	3.32%	0.00%
Welltower Inc	WELL	609.15	120.68	73,511.98	0.20%	2.22%	0.00%	15.65%	0.03%
Biogen Inc	BIIB	145.66	204.76	29,825.75	0.08%			6.10%	0.00%
Northern Trust Corp	NTRS	201.64	91.21	18,391.40	0.05%	3.29%	0.00%	10.11%	0.01%
Packaging Corp of America	PKG	89.81	209.54	18,819.21	0.05%	2.39%	0.00%	5.83%	0.00%
Paychex Inc	PAYX	359.74	131.20	47,198.15	0.13%	2.99%	0.00%	7.54%	0.01%
QUALCOMM Inc	QCOM	1,114.00	175.30	195,284.20	0.54%	1.94%	0.01%	10.64%	0.06%
Ross Stores Inc	ROST	333.58	150.61	50,239.73	0.14%	0.98%	0.00%	8.85%	0.01%
IDEXX Laboratories Inc	IDXX	82.31	481.33	39,616.35	0.11%			11.25%	0.01%
Starbucks Corp	SBUX	1,133.20	94.57	107,166.72	0.29%	2.41%	0.01%	9.67%	0.03%
KeyCorp	KEY	928.12	17.06	15,833.66	0.04%	4.81%	0.00%	20.00%	0.01%
Fox Corp	FOXA	224.65	41.37	9,293.61	0.03%	1.31%	0.00%	5.35%	0.00%
Fox Corp	FOX	235.58	38.43	9,053.38	0.02%	1.41%	0.00%	5.35%	0.00%
State Street Corp	STT	298.62	87.10	26,009.80	0.07%	3.49%	0.00%	8.82%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	439.69	17.89	7,866.07				50.58%	
US Bancorp	USB	1,560.51	47.23	73,703.08	0.20%	4.15%	0.01%	3.39%	0.01%
A O Smith Corp	AOS	119.96	83.72	10,042.97		1.53%			
Gen Digital Inc	GEN	615.53	26.46	16,286.79	0.04%	1.89%	0.00%	10.49%	0.00%
T Rowe Price Group Inc	TROW	222.60	106.04	23,604.29	0.06%	4.68%	0.00%	7.30%	0.00%
Waste Management Inc	WM	401.32	212.04	85,094.83	0.23%	1.41%	0.00%	13.29%	0.03%
Constellation Brands Inc	STZ	182.19	240.71	43,855.44	0.12%	1.68%	0.00%	11.37%	0.01%
Invesco Ltd	IVZ	450.03	17.09	7,691.05	0.02%	4.80%	0.00%	9.27%	0.00%
Intuit Inc	INTU	279.55	630.26	176,187.29	0.48%	0.66%	0.00%	18.79%	0.09%
Morgan Stanley	MS	1,620.89	103.61	167,940.10	0.46%	3.57%	0.02%	9.60%	0.04%
Microchip Technology Inc	MCHP	536.51	82.16	44,079.25		2.21%		-10.99%	
Crowdstrike Holdings Inc	CRWD	232.72	277.28	64,527.77				35.70%	
Chubb Ltd	CB	403.93	284.18	114,789.96	0.31%	1.28%	0.00%	2.20%	0.01%
Hologic Inc	HOLX	232.27	81.24	18,869.78	0.05%			8.86%	0.00%
Citizens Financial Group Inc	CFG	448.30	43.05	19,299.32		3.90%			
Jabil Inc	JBL	113.45	109.28	12,397.27	0.03%	0.29%	0.00%	7.13%	0.00%
O'Reilly Automotive Inc	ORLY	58.01	1,129.97	65,545.04	0.18%			10.21%	0.02%
Allstate Corp/The	ALL	264.04	188.94	49,887.91		1.95%		168.00%	
Equity Residential	EQR	379.14	74.88	28,389.70	0.08%	3.61%	0.00%	4.23%	0.00%
BorgWarner Inc	BWA	227.77	33.96	7,735.04	0.02%	1.30%	0.00%	4.40%	0.00%
Keurig Dr Pepper Inc	KDP	1,356.09	36.61	49,646.31	0.14%	2.35%	0.00%	6.90%	0.01%
Host Hotels & Resorts Inc	HST	702.44	17.70	12,433.19		4.52%			
Incyte Corp	INCY	192.60	65.66	12,645.98				33.16%	
Simon Property Group Inc	SPG	326.04	167.35	54,561.96	0.15%	4.90%	0.01%	1.42%	0.00%
Eastman Chemical Co	EMN	116.86	102.37	11,962.96	0.03%	3.16%	0.00%	6.10%	0.00%
AvalonBay Communities Inc	AVB	142.22	225.73	32,102.64	0.09%	3.01%	0.00%	4.93%	0.00%
Prudential Financial Inc	PRU	357.00	121.16	43,254.12	0.12%	4.29%	0.01%	9.72%	0.01%
United Parcel Service Inc	UPS	732.51	128.55	94,164.03	0.26%	5.07%	0.01%	0.60%	0.00%
Walgreens Boots Alliance Inc	WBA	863.28	9.25	7,985.29		10.81%		-14.70%	
STERIS PLC	STE	98.62	241.10	23,776.56		0.95%			
McKesson Corp	MCK	129.68	561.08	72,759.17	0.20%	0.51%	0.00%	11.18%	0.02%
Lockheed Martin Corp	LMT	238.36	564.95	134,660.35	0.37%	2.23%	0.01%	2.11%	0.01%
Cencora Inc	COR	196.01	239.57	46,957.64	0.13%	0.85%	0.00%	10.67%	0.01%
Campbell Soup Co	CPB	298.55	49.72	14,844.10	0.04%	2.98%	0.00%	8.36%	0.00%
Capital One Financial Corp	COF	381.86	146.93	56,106.10	0.15%	1.63%	0.00%	12.32%	0.02%
Waters Corp	WAT	59.36	346.35	20,560.03	0.06%			7.80%	0.00%
Nordson Corp	NDSN	57.18	256.56	14,670.61		1.22%			
Dollar Tree Inc	DLTR	214.94	84.49	18,160.62	0.05%			12.39%	0.01%
Darden Restaurants Inc	DRI	118.46	158.15	18,735.08	0.05%	3.54%	0.00%	10.59%	0.01%
Evergy Inc	EVRG	229.75	59.14	13,587.18	0.04%	4.35%	0.00%	4.00%	0.00%
Match Group Inc	MTCH	257.90	37.21	9,596.27				36.15%	
Domino's Pizza Inc	DPZ	34.97	414.21	14,486.17	0.04%	1.46%	0.00%	12.56%	0.00%
NVR Inc	NVR	3.08	9,172.46	28,232.83	0.08%			7.60%	0.01%
NetApp Inc	NTAP	204.78	120.72	24,721.40	0.07%	1.72%	0.00%	5.34%	0.00%
Old Dominion Freight Line Inc	ODFL	214.30	192.80	41,316.46	0.11%	0.54%	0.00%	3.02%	0.00%
DaVita Inc	DVA	83.90	150.92	12,662.19	0.03%			20.00%	0.01%
Hartford Financial Services Group Inc/The	HIG	293.01	115.63	33,881.21	0.09%	1.63%	0.00%	12.37%	0.01%
Iron Mountain Inc	IRM	293.34	113.26	33,223.24		2.53%			
Estee Lauder Cos Inc/The	EL	233.18	91.66	21,373.00	0.06%	2.88%	0.00%	14.58%	0.01%
Cadence Design Systems Inc	CDNS	273.82	268.93	73,638.41	0.20%			16.20%	0.03%
Tyler Technologies Inc	TYL	42.67	587.87	25,086.18					
Universal Health Services Inc	UHS	59.46	237.77	14,138.29	0.04%	0.34%	0.00%	15.50%	0.01%
Skyworks Solutions Inc	SWKS	159.72	109.59	17,503.28		2.55%		-2.57%	
Quest Diagnostics Inc	DGX	111.32	156.97	17,473.43	0.05%	1.91%	0.00%	6.05%	0.00%
Rockwell Automation Inc	ROK	113.47	272.03	30,866.43	0.08%	1.84%	0.00%	1.73%	0.00%
Kraft Heinz Co/The	KHC	1,209.08	35.43	42,837.67	0.12%	4.52%	0.01%	2.51%	0.00%
American Tower Corp	AMT	467.08	224.06	104,654.39	0.29%	2.89%	0.01%	12.31%	0.04%
Regeneron Pharmaceuticals Inc	REGN	108.42	1,184.69	128,440.54				52.50%	
Amazon.com Inc	AMZN	10,495.57	178.50	1,873,458.71				28.99%	
Jack Henry & Associates Inc	JKHY	72.91	173.03	12,615.27	0.03%	1.27%	0.00%	9.73%	0.00%
Ralph Lauren Corp	RL	40.06	171.26	6,860.33	0.02%	1.93%	0.00%	11.05%	0.00%
BXP Inc	BXP	157.93	75.22	11,879.80	0.03%	5.21%	0.00%	0.40%	0.00%
Amphenol Corp	APH	1,204.29	67.45	81,229.29	0.22%	0.98%	0.00%	16.86%	0.04%
Howmet Aerospace Inc	HWM	408.15	96.66	39,451.49		0.33%		22.11%	
Valero Energy Corp	VLO	320.38	146.73	47,009.36		2.92%		-24.00%	
Synopsys Inc	SNPS	153.61	519.58	79,814.76	0.22%			16.33%	0.04%
Etsy Inc	ETSY	114.75	55.09	6,321.69	0.02%			4.06%	0.00%
CH Robinson Worldwide Inc	CHRW	117.28	103.51	12,139.96	0.03%	2.40%	0.00%	17.48%	0.01%
Accenture PLC	ACN	626.38	341.95	214,192.01	0.59%	1.51%	0.01%	5.80%	0.03%
TransDigm Group Inc	TDG	56.11	1,373.21	77,052.19	0.21%			19.57%	0.04%
Yum! Brands Inc	YUM	281.17	134.92	37,934.78	0.10%	1.99%	0.00%	11.41%	0.01%
Prologis Inc	PLD	925.91	127.82	118,349.94	0.32%	3.00%	0.01%	5.36%	0.02%
FirstEnergy Corp	FE	575.92	43.92	25,294.49	0.07%	3.87%	0.00%	7.02%	0.00%
VeriSign Inc	VRSN	97.60	183.90	17,948.64					
Quanta Services Inc	PWR	147.33	275.13	40,534.90		0.13%			
Henry Schein Inc	HSIC	126.71	70.55	8,939.25	0.02%			9.01%	0.00%

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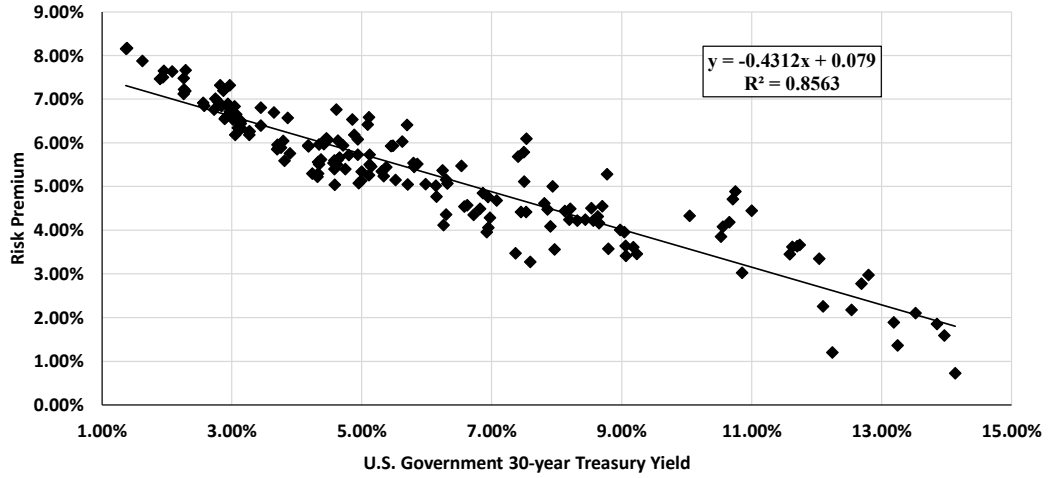
Ameren Corp	AEE	266.51	82.51	21,989.82	0.06%	3.25%	0.00%	6.16%	0.00%
ANSYS Inc	ANSS	87.39	321.42	28,087.93					
FactSet Research Systems Inc	FDS	38.04	422.84	16,084.83	0.04%	0.98%	0.00%	9.67%	0.00%
NVIDIA Corp	NVDA	24,530.00	119.37	2,928,146.10		0.03%		44.35%	
Cognizant Technology Solutions Corp	CTSH	495.66	77.77	38,547.32	0.11%	1.54%	0.00%	6.20%	0.01%
Intuitive Surgical Inc	ISRG	355.35	492.63	175,058.04	0.48%			17.51%	0.08%
Take-Two Interactive Software Inc	TTWO	175.28	161.71	28,345.01				60.49%	
Republic Services Inc	RSG	314.07	208.21	65,392.10	0.18%	1.11%	0.00%	10.33%	0.02%
eBay Inc	EBAY	489.00	59.10	28,899.90	0.08%	1.83%	0.00%	10.12%	0.01%
Goldman Sachs Group Inc/The	GS	315.80	510.25	161,136.95	0.44%	2.35%	0.01%	14.20%	0.06%
SBA Communications Corp	SBAC	107.47	226.66	24,359.60	0.07%	1.73%	0.00%	15.96%	0.01%
Sempra	SRE	633.15	82.18	52,031.94	0.14%	3.02%	0.00%	5.27%	0.01%
Moody's Corp	MCO	182.10	487.74	88,817.45	0.24%	0.70%	0.00%	14.41%	0.04%
ON Semiconductor Corp	ON	428.36	77.87	33,356.08	0.09%			1.28%	0.00%
Booking Holdings Inc	BKNG	33.52	3,909.23	131,053.03	0.36%	0.90%	0.00%	14.59%	0.05%
F5 Inc	FFIV	58.28	203.15	11,840.39	0.03%			7.83%	0.00%
Akamai Technologies Inc	AKAM	151.53	101.84	15,431.41	0.04%			6.12%	0.00%
Charles River Laboratories International Inc	CRL	51.63	197.75	10,210.03	0.03%			5.20%	0.00%
MarketAxess Holdings Inc	MKTX	37.75	242.39	9,150.71	0.03%	1.22%	0.00%	4.02%	0.00%
Devon Energy Corp	DVN	626.20	44.78	28,041.24	0.08%	3.93%	0.00%	6.60%	0.01%
Bio-Techne Corp	TECH	158.60	73.99	11,734.81	0.03%	0.43%	0.00%	6.00%	0.00%
Alphabet Inc	GOOGL	5,859.00	163.38	957,243.42	2.62%	0.49%	0.01%	15.01%	0.39%
Teleflex Inc	TFX	47.12	245.17	11,551.67	0.03%	0.55%	0.00%	7.95%	0.00%
Allegion plc	ALLE	87.13	138.84	12,096.85	0.03%	1.38%	0.00%	7.73%	0.00%
Netflix Inc	NFLX	429.17	701.35	300,994.87				35.72%	
Warner Bros Discovery Inc	WBD	2,451.91	7.84	19,222.96				28.63%	
Agilent Technologies Inc	A	287.33	142.92	41,064.92	0.11%	0.66%	0.00%	5.74%	0.01%
Trimble Inc	TRMB	244.21	56.69	13,844.15					
Elevance Health Inc	ELV	231.89	556.89	129,134.99	0.35%	1.17%	0.00%	11.79%	0.04%
CME Group Inc	CME	360.09	215.74	77,686.68	0.21%	2.13%	0.00%	3.82%	0.01%
Juniper Networks Inc	JNPR	329.16	38.88	12,797.86	0.04%	2.26%	0.00%	6.00%	0.00%
BlackRock Inc	BLK	148.13	901.81	133,583.31	0.37%	2.26%	0.01%	9.76%	0.04%
DTE Energy Co	DTE	206.93	125.02	25,869.76	0.07%	3.26%	0.00%	10.27%	0.01%
Celanese Corp	CE	109.26	130.60	14,269.88	0.04%	2.14%	0.00%	0.56%	0.00%
Nasdaq Inc	NDAQ	575.94	72.08	41,513.76	0.11%	1.33%	0.00%	10.30%	0.01%
Philip Morris International Inc	PM	1,554.80	123.29	191,691.54	0.53%	4.22%	0.02%	9.36%	0.05%
Ingersoll Rand Inc	IR	403.48	91.45	36,898.61		0.09%			
Salesforce Inc	CRM	956.00	252.90	241,772.40	0.66%	0.63%	0.00%	17.52%	0.12%
Roper Technologies Inc	ROP	107.20	554.41	59,432.20		0.54%			
Huntington Ingalls Industries Inc	HII	39.22	282.77	11,088.83	0.03%	1.84%	0.00%	7.62%	0.00%
MetLife Inc	MET	700.33	77.48	54,261.18	0.15%	2.81%	0.00%	14.38%	0.02%
Tapestry Inc	TPR	230.22	40.97	9,432.15	0.03%	3.42%	0.00%	5.52%	0.00%
CSX Corp	CSX	1,938.74	34.27	66,440.62	0.18%	1.40%	0.00%	9.21%	0.02%
Edwards Lifesciences Corp	EW	602.40	69.96	42,143.90	0.12%			8.56%	0.01%
Ameriprise Financial Inc	AMP	98.19	449.44	44,130.06	0.12%	1.32%	0.00%	16.59%	0.02%
Zebra Technologies Corp	ZBRA	51.58	345.38	17,814.70					
Zimmer Biomet Holdings Inc	ZBH	203.65	115.46	23,513.66	0.06%	0.83%	0.00%	6.96%	0.00%
Camden Property Trust	CPT	106.64	125.20	13,350.70	0.04%	3.29%	0.00%	1.87%	0.00%
CBRE Group Inc	CBRE	306.43	115.14	35,282.47					
Mastercard Inc	MA	916.71	483.34	443,083.09	1.21%	0.55%	0.01%	15.18%	0.18%
CarMax Inc	KMX	156.08	84.55	13,196.48	0.04%			17.91%	0.01%
Intercontinental Exchange Inc	ICE	574.14	161.55	92,752.64	0.25%	1.11%	0.00%	9.95%	0.03%
Fidelity National Information Services Inc	FIS	545.57	82.45	44,981.92		1.75%		22.20%	
Smurfit WestRock PLC	SW	519.36	47.42	24,627.96	0.07%	2.55%	0.00%	1.00%	0.00%
Chipotle Mexican Grill Inc	CMG	1,369.48	56.08	76,800.21				22.64%	
Wynn Resorts Ltd	WYNN	110.99	76.88	8,533.06		1.30%			
Live Nation Entertainment Inc	LYV	232.11	97.67	22,670.57					
Assurant Inc	AIZ	51.79	195.63	10,132.26	0.03%	1.47%	0.00%	7.14%	0.00%
NRG Energy Inc	NRG	206.38	85.01	17,544.36	0.05%	1.92%	0.00%	4.00%	0.00%
Monster Beverage Corp	MNST	979.54	47.13	46,165.91	0.13%			10.18%	0.01%
Regions Financial Corp	RF	915.13	23.17	21,203.45	0.06%	4.32%	0.00%	4.68%	0.00%
Baker Hughes Co	BKR	993.42	35.17	34,938.72		2.39%		69.21%	
Mosaic Co/The	MOS	318.64	28.57	9,103.49		2.94%		-21.74%	
Expedia Group Inc	EXPE	124.66	139.09	17,338.40	0.05%			19.59%	0.01%
CF Industries Holdings Inc	CF	180.41	83.09	14,990.43		2.41%		-9.54%	
APA Corp	APA	369.91	28.49	10,538.59		3.51%		-5.79%	
Leidos Holdings Inc	LDOS	134.71	158.51	21,353.52	0.06%	0.96%	0.00%	11.76%	0.01%
Alphabet Inc	GOOG	5,585.00	165.11	922,139.35	2.53%	0.48%	0.01%	15.01%	0.38%
First Solar Inc	FSLR	107.05	227.37	24,339.28				41.25%	
TE Connectivity Ltd	TEL	303.92	153.60	46,681.96	0.13%	1.69%	0.00%	5.41%	0.01%
Discover Financial Services	DFS	251.07	138.71	34,826.20	0.10%	2.02%	0.00%	11.65%	0.01%
Visa Inc	V	1,670.45	276.37	461,660.88	1.27%	0.75%	0.01%	12.33%	0.16%
Mid-America Apartment Communities Inc	MAA	116.88	162.37	18,977.16	0.05%	3.62%	0.00%	0.65%	0.00%
Xylem Inc/NY	XYL	242.89	137.53	33,405.07		1.05%			
Marathon Petroleum Corp	MPC	334.68	177.12	59,279.23		1.86%		-13.00%	
Tractor Supply Co	TSCO	107.87	267.55	28,860.35	0.08%	1.64%	0.00%	5.68%	0.00%
Advanced Micro Devices Inc	AMD	1,618.48	148.56	240,441.69				25.66%	
ResMed Inc	RMD	146.93	245.02	36,001.28	0.10%	0.87%	0.00%	9.57%	0.01%
Mettler-Toledo International Inc	MTD	21.36	1,439.08	30,734.43	0.08%			9.15%	0.01%
VICI Properties Inc	VICI	1,043.14	33.48	34,924.23	0.10%	4.96%	0.00%	1.83%	0.00%
Copart Inc	CPRT	962.30	52.96	50,963.30					
Jacobs Solutions Inc	J	124.25	150.88	18,746.54	0.05%	0.77%	0.00%	10.87%	0.01%
Albemarle Corp	ALB	117.53	90.25	10,607.35		1.80%		35.42%	
Fortinet Inc	FTNT	764.91	76.71	58,676.09	0.16%			8.66%	0.01%
Moderna Inc	MRNA	384.40	77.40	29,752.25	0.08%			17.95%	0.01%
Essex Property Trust Inc	ESS	64.22	301.79	19,380.35	0.05%	3.25%	0.00%	4.50%	0.00%
CoStar Group Inc	CSGP	409.82	77.30	31,678.85	0.09%			13.84%	0.01%
Realty Income Corp	O	870.87	61.85	53,860.57	0.15%	5.10%	0.01%	3.85%	0.01%
Westinghouse Air Brake Technologies Corp	WAB	175.18	169.57	29,705.78	0.08%	0.47%	0.00%	16.12%	0.01%
Pool Corp	POOL	38.26	351.62	13,452.28		1.37%		-0.04%	
Western Digital Corp	WDC	343.45	65.59	22,527.02				-10.00%	
PepsiCo Inc	PEP	1,373.57	172.88	237,463.13	0.65%	3.14%	0.02%	7.40%	0.05%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Diamondback Energy Inc	FANG	178.39	195.11	34,806.45	0.10%	4.80%	0.00%	8.34%	0.01%
Palo Alto Networks Inc	PANW	323.80	362.72	117,448.74	0.32%			11.52%	0.04%
ServiceNow Inc	NOW	206.00	855.00	176,130.00					
Church & Dwight Co Inc	CHD	244.82	101.88	24,941.75	0.07%	1.11%	0.00%	7.35%	0.01%
Federal Realty Investment Trust	FRT	83.67	115.00	9,622.05	0.03%	3.83%	0.00%	4.97%	0.00%
MGM Resorts International	MGM	303.77	37.59	11,418.71				20.80%	
American Electric Power Co Inc	AEP	532.12	100.28	53,360.99	0.15%	3.51%	0.01%	6.25%	0.01%
Invitation Homes Inc	INVH	612.59	36.84	22,567.96	0.06%	3.04%	0.00%	5.19%	0.00%
PTC Inc	PTC	120.14	179.09	21,514.98	0.06%			14.76%	0.01%
JB Hunt Transport Services Inc	JBHT	101.99	173.20	17,664.15	0.05%	0.99%	0.00%	9.73%	0.00%
Lam Research Corp	LRCX	129.88	821.01	106,629.49	0.29%	1.12%	0.00%	16.29%	0.05%
Mohawk Industries Inc	MHK	63.12	155.14	9,791.97	0.03%			4.45%	0.00%
GE HealthCare Technologies Inc	GEHC	456.66	84.82	38,734.07	0.11%	0.14%	0.00%	10.92%	0.01%
Pentair PLC	PNR	165.50	88.69	14,678.02	0.04%	1.04%	0.00%	12.50%	0.01%
Vertex Pharmaceuticals Inc	VRTX	258.10	495.89	127,990.20	0.35%			11.00%	0.04%
Amcor PLC	AMCR	1,445.34	11.44	16,534.72	0.05%	4.37%	0.00%	3.71%	0.00%
Meta Platforms Inc	META	2,184.73	521.31	1,138,921.07	3.12%	0.38%	0.01%	19.80%	0.62%
T-Mobile US Inc	TMUS	1,166.78	198.72	231,863.32	0.64%	1.31%	0.01%	5.00%	0.03%
United Rentals Inc	URI	66.14	741.26	49,023.97	0.13%	0.88%	0.00%	7.45%	0.01%
Alexandria Real Estate Equities Inc	ARE	174.93	119.57	20,915.90	0.06%	4.35%	0.00%	3.03%	0.00%
Honeywell International Inc	HON	649.67	207.91	135,073.10	0.37%	2.08%	0.01%	8.65%	0.03%
Delta Air Lines Inc	DAL	645.42	42.49	27,423.85	0.08%	1.41%	0.00%	6.74%	0.01%
United Airlines Holdings Inc	UAL	328.80	44.04	14,480.48	0.04%			5.31%	0.00%
Seagate Technology Holdings PLC	STX	210.20	99.55	20,924.91		2.81%			
News Corp	NWS	190.68	29.43	5,611.83		0.68%			
Centene Corp	CNC	526.03	78.83	41,466.94	0.11%			4.40%	0.01%
Martin Marietta Materials Inc	MLM	61.12	533.37	32,597.97	0.09%	0.59%	0.00%	7.47%	0.01%
Teradyne Inc	TER	163.18	136.73	22,311.05	0.06%	0.35%	0.00%	16.14%	0.01%
PayPal Holdings Inc	PYPL	1,022.33	72.43	74,047.58	0.20%			12.03%	0.02%
Tesla Inc	TSLA	3,194.64	214.11	684,004.37				-11.00%	
KKR & Co Inc	KKR	887.44	123.77	109,838.45		0.57%			
Arch Capital Group Ltd	ACGL	376.06	113.09	42,528.40	0.12%			6.13%	0.01%
Dow Inc	DOW	703.27	53.58	37,681.10		5.23%		-1.67%	
Everest Group Ltd	EG	43.27	392.24	16,973.79	0.05%	2.04%	0.00%	2.48%	0.00%
Teledyne Technologies Inc	TDY	46.78	432.80	20,248.12					
GE Vernova Inc	GEV	274.80	201.00	55,235.20				70.40%	
News Corp	NWSA	378.33	28.33	10,717.98		0.71%			
Exelon Corp	EXC	999.74	38.09	38,079.91	0.10%	3.99%	0.00%	5.31%	0.01%
Global Payments Inc	GPN	254.44	111.01	28,245.05	0.08%	0.90%	0.00%	9.30%	0.01%
Crown Castle Inc	CCI	434.57	112.02	48,680.20	0.13%	5.59%	0.01%	1.13%	0.00%
Aptiv PLC	APTV	265.76	71.53	19,009.81	0.05%			16.91%	0.01%
Align Technology Inc	ALGN	74.70	237.22	17,719.62	0.05%			9.53%	0.00%
Kenvue Inc	KVUE	1,915.17	21.95	42,037.92	0.12%	3.74%	0.00%	13.58%	0.02%
Targa Resources Corp	TRGP	219.08	146.90	32,182.85	0.09%	2.04%	0.00%	16.74%	0.01%
Bunge Global SA	BG	141.65	101.38	14,360.58		2.68%		-8.59%	
LKQ Corp	LKQ	263.26	41.59	10,948.82		2.89%			
Deckers Outdoor Corp	DECK	25.41	959.29	24,376.52	0.07%			10.80%	0.01%
Zoetis Inc	ZTS	453.05	183.49	83,130.33	0.23%	0.94%	0.00%	10.36%	0.02%
Equinix Inc	EQIX	94.95	834.36	79,218.31	0.22%	2.04%	0.00%	14.03%	0.03%
Digital Realty Trust Inc	DLR	327.41	151.61	49,638.78	0.14%	3.22%	0.00%	3.21%	0.00%
Molina Healthcare Inc	MOH	58.60	349.79	20,497.69	0.06%			11.98%	0.01%
Las Vegas Sands Corp	LVS	736.43	38.99	28,713.48		2.05%			

Notes:

[1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Bloomberg Professional 30-day average as of August 31 2024
[5] Bloomberg Professional 30-day average as of August 31 2024
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
[8] Bloomberg Professional 30-day average as of August 31 2024
[9] Equals [7] x [8]
[10] Bloomberg Professional 30-day average as of August 31 2024
[11] Equals [7] x [10]



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9253532
R Square	0.8562785
Adjusted R Square	0.8554477
Standard Error	0.0054769
Observations	175

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.03092	0.03092	1,030.71696	0.00000
Residual	173	0.00519	0.00003		
Total	174	0.03611			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0790	0.00	86.60	0.0000	0.0772	0.0808	0.0772	0.0808
U.S. Govt. 30-year Treasury	(0.4312)	0.01	(32.10)	0.0000	(0.4577)	(0.4047)	(0.4577)	(0.4047)

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	4.23%	6.08%	10.31%
Blue Chip Near-Term Projected Forecast (Q4 2024 - Q4 2025) [5]	4.12%	6.13%	10.25%
Blue Chip Long-Term Projected Forecast (2026-2030) [6]	4.30%	6.05%	10.35%
AVERAGE			10.30%

Notes:
[1] Regulatory Research Associates, rate cases through August 31, 2024
[2] S&P Capital IQ Pro, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4] S&P Capital IQ Pro, 30-day average as of August 31, 2024
[5] Blue Chip Financial Forecasts, Vol. 43, No. 9, August 30, 2024, at 2
[6] Blue Chip Financial Forecasts, Vol. 43, No. 6, May 31, 2024, at 14
[7] See notes [4], [5] & [6]
[8] Equals 0.079019 + (-0.431192 x Column [7])
[9] Equals Column [7] + Column [8]

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized Natural Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
1980.1	13.45%	12.24%	1.20%
1980.2	14.38%	10.52%	3.85%
1980.3	13.87%	10.85%	3.02%
1980.4	14.35%	12.10%	2.25%
1981.1	14.71%	12.53%	2.18%
1981.2	14.61%	13.24%	1.36%
1981.3	14.86%	14.13%	0.72%
1981.4	15.70%	13.85%	1.86%
1982.1	15.55%	13.96%	1.59%
1982.2	15.62%	13.52%	2.10%
1982.3	15.77%	12.79%	2.97%
1982.4	15.63%	10.75%	4.89%
1983.1	15.41%	10.71%	4.71%
1983.2	14.84%	10.65%	4.19%
1983.3	15.24%	11.62%	3.62%
1983.4	15.40%	11.74%	3.66%
1984.1	15.39%	12.04%	3.35%
1984.2	15.07%	13.18%	1.89%
1984.3	15.46%	12.69%	2.77%
1984.4	15.33%	11.70%	3.63%
1985.1	15.03%	11.58%	3.45%
1985.2	15.44%	11.00%	4.45%
1985.3	14.64%	10.55%	4.08%
1985.4	14.37%	10.04%	4.33%
1986.1	14.05%	8.77%	5.28%
1986.2	13.28%	7.49%	5.79%
1986.3	13.09%	7.40%	5.69%
1986.4	13.62%	7.53%	6.09%
1987.1	12.61%	7.49%	5.11%
1987.2	13.04%	8.53%	4.51%
1987.3	12.70%	9.06%	3.64%
1987.4	12.69%	9.23%	3.46%
1988.1	12.94%	8.63%	4.31%
1988.2	12.48%	9.06%	3.41%
1988.3	12.79%	9.18%	3.61%
1988.4	12.98%	8.97%	4.00%
1989.1	12.99%	9.04%	3.96%
1989.2	13.25%	8.70%	4.55%
1989.3	12.56%	8.12%	4.44%
1989.4	12.94%	7.93%	5.00%
1990.1	12.68%	8.44%	4.24%
1990.2	12.81%	8.65%	4.16%
1990.3	12.36%	8.79%	3.57%
1990.4	12.78%	8.56%	4.22%
1991.1	12.69%	8.20%	4.49%
1991.2	12.53%	8.31%	4.22%
1991.3	12.43%	8.19%	4.24%
1991.4	12.33%	7.85%	4.48%
1992.1	12.42%	7.81%	4.61%
1992.2	11.98%	7.90%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.32%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.58%	4.54%
1994.2	10.84%	7.36%	3.47%
1994.3	10.87%	7.59%	3.28%
1994.4	11.53%	7.96%	3.56%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.72%	4.35%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized Natural Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
1995.4	11.61%	6.24%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.95%
1996.3	11.25%	6.97%	4.28%
1996.4	11.19%	6.62%	4.57%
1997.1	11.31%	6.82%	4.49%
1997.2	11.70%	6.94%	4.76%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.15%	4.77%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.48%	5.93%
1998.4	11.69%	5.11%	6.58%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.80%	5.45%
1999.4	10.38%	6.26%	4.12%
2000.1	10.66%	6.30%	4.36%
2000.2	11.03%	5.98%	5.05%
2000.3	11.33%	5.79%	5.54%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.45%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.52%	5.15%
2002.2	11.64%	5.62%	6.03%
2002.3	11.50%	5.09%	6.41%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.34%	5.24%
2004.3	10.37%	5.11%	5.26%
2004.4	10.66%	4.93%	5.73%
2005.1	10.65%	4.71%	5.94%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.42%	6.05%
2005.4	10.32%	4.65%	5.66%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	5.00%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.59%
2008.3	10.55%	4.45%	6.10%
2008.4	10.34%	3.64%	6.69%
2009.1	10.24%	3.44%	6.80%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.37%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.92%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.70%	5.95%
2011.4	9.88%	3.04%	6.84%

BOND YIELD PLUS RISK PREMIUM

	[1]	[2]	[3]
Quarter	Average Authorized Natural Gas ROE	U.S. Govt. 30-year Treasury	Risk Premium
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.94%	6.89%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.27%	6.18%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.71%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.05%	6.55%
2017.2	9.47%	2.90%	6.57%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.55%	3.01%	6.54%
2019.2	9.73%	2.78%	6.94%
2019.3	9.95%	2.29%	7.67%
2019.4	9.74%	2.26%	7.48%
2020.1	9.35%	1.89%	7.46%
2020.2	9.55%	1.38%	8.17%
2020.3	9.52%	1.37%	8.15%
2020.4	9.50%	1.62%	7.87%
2021.1	9.71%	2.07%	7.63%
2021.2	9.48%	2.26%	7.22%
2021.3	9.43%	1.93%	7.50%
2021.4	9.59%	1.95%	7.65%
2022.1	9.38%	2.25%	7.12%
2022.2	9.23%	3.05%	6.18%
2022.3	9.52%	3.26%	6.26%
2022.4	9.65%	3.89%	5.75%
2023.1	9.64%	3.75%	5.89%
2023.2	9.40%	3.81%	5.59%
2023.3	9.53%	4.23%	5.30%
2023.4	9.62%	4.58%	5.04%
2024.1	9.62%	4.32%	5.29%
2024.2	9.97%	4.58%	5.40%
2024.3	9.54%	4.31%	5.23%
AVERAGE	11.35%	6.05%	5.29%
MEDIAN	10.75%	5.11%	5.47%

SIZE PREMIUM CALCULATION

Proxy Group Market Capitalization

Company	Ticker	[1] Market Capitalization ($ billions)
Atmos Energy Corporation	ATO	19.69
NiSource Inc.	NI	14.23
Northwest Natural Gas Company	NWN	1.51
ONE Gas, Inc.	OGS	3.86
Southwest Gas Corporation	SWX	5.19
Spire, Inc.	SR	3.78
Median		4.53

Ameren Missouri - Natural Gas			
Test Year Rate Base ($millions)	[2]	$	489.40
Company-Proposed Common Equity Ratio	[3]		51.997%
Common Equity ($ millions)	[4]	$	254.47
Market Capitalization of Proxy Group (median) ($million	[5]	$	4,526.21

Kroll Cost of Capital Navigator -- Size Premium

Breakdown of Deciles 1-10	[6] Market Capitalization of Largest Company ($ millions)	[7] Size Premium
1-Largest	2,662,326.05	-0.06%
2	36,391.11	0.46%
3	14,820.05	0.61%
4	7,461.28	0.64%
5	4,621.79	0.95%
6	3,010.81	1.21%
7	1,862.49	1.39%
8	1,046.04	1.14%
9	554.52	1.99%
10-Smallest	212.64	4.70%
Ameren Missouri - Natural Gas - Common Equity	254.47	1.99%
Proxy Group Median Market Capitalization	4,526.21	0.95%
Size Premium [8]		1.04%

Notes:
[1] S&P Capital IQ Pro, equals 30-day average as of August 31, 2024
[2] Data provided by the Company
[3] Data provided by the Company
[4] Equals [2] x [3]
[5] Equals median market capitalization of proxy group x 1000
[6]-[7] Kroll Cost of Capital Navigator - Size Premium: Annual Data as of 12/31/2023
[8] Equals 1.99% − 0.95%

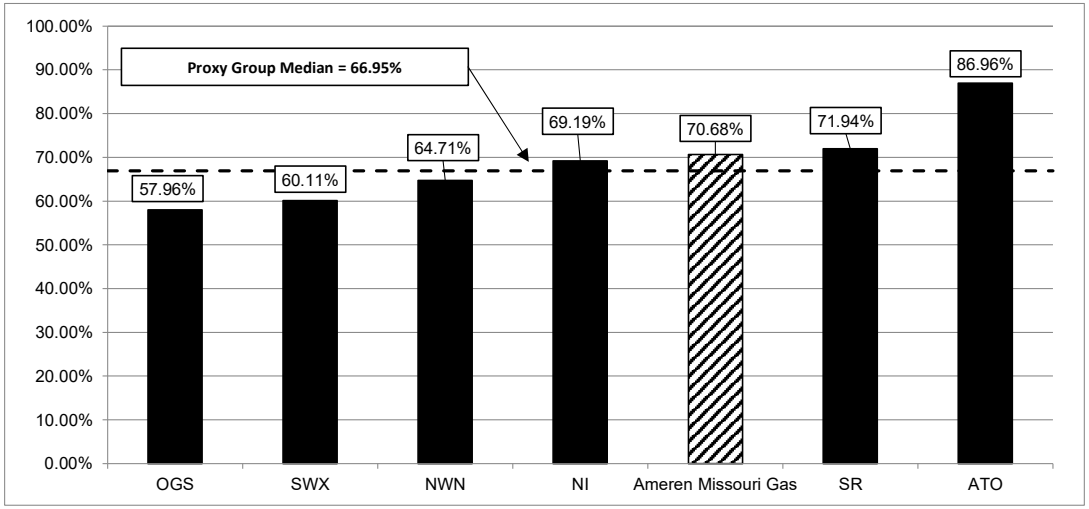
2025-2029 CAPITAL EXPENDITURES AS A PERCENT OF 2023 NET PLANT
($ Millions)

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
		2023	2025	2026	2027	2028	2029	2024-29 Cap. Ex. / 2023 Net Plant
Atmos Energy Corporation	ATO							
Capital Spending per Share			$20.25	$20.13	$20.00	$20.00	$20.00	
Common Shares Outstanding			158.00	$166.50	175.00	175.00	175.00	
Capital Expenditures			$3,199.5	$3,350.8	$3,500.0	$3,500.0	$3,500.0	86.96%
Net Plant		$19,607.0						
NiSource Inc.	NI							
Capital Spending per Share			$6.50	$6.75	$7.00	$7.00	$7.00	
Common Shares Outstanding			450.00	$450.00	450.00	450.00	450.00	
Capital Expenditures			$2,925.0	$3,037.5	$3,150.0	$3,150.0	$3,150.0	69.19%
Net Plant		$22,275.0						
Northwest Natural Gas Company	NWN							
Capital Spending per Share			$9.50	$9.75	$10.00	$10.00	$10.00	
Common Shares Outstanding			42.00	$43.50	45.00	45.00	45.00	
Capital Expenditures			$399.0	$424.1	$450.0	$450.0	$450.0	64.71%
Net Plant		$3,358.0						
ONE Gas Inc.	OGS							
Capital Spending per Share			$12.30	$12.45	$12.60	$12.60	$12.60	
Common Shares Outstanding			56.50	$56.75	57.00	57.00	57.00	
Capital Expenditures			$695.0	$706.5	$718.2	$718.2	$718.2	57.96%
Net Plant		$6,135.2						
Southwest Gas Corporation	SWX							
Capital Spending per Share			$12.50	$12.25	$12.00	$12.00	$12.00	
Common Shares Outstanding			73.00	$74.00	75.00	75.00	75.00	
Capital Expenditures			$912.50	$906.5	$900.0	$900.0	$900.0	60.11%
Net Plant		$7,518.2						
Spire, Inc.	SR							
Capital Spending per Share			$11.25	$12.88	$14.50	$14.50	$14.50	
Common Shares Outstanding			60.00	$61.00	62.00	62.00	62.00	
Capital Expenditures			$675.0	$785.4	$899.0	$899.0	$899.0	71.94%
Net Plant		$5,778.9						
Ameren Missouri Gas	Ameren Missouri Gas							
Capital Expenditures [8]			90.59	76.55	43.25	53.44	55.43	70.68%
Net Plant [9]		$451.7						

Ameren Missouri Gas CapEx Total (2025 - 2029)	$319.25
Ameren Missouri Gas CapEx Annual Average	$63.9
Proxy Group Median	66.95%
Ratio of Ameren Missouri Gas to the Proxy Group Median	1.06

Notes:
[1] - [6] Value Line, dated May 24, 2024
[7] Equals (Column [2] + [3] + [4] + [5] + [6]) / Column [1]
[8] Data provided by the Company
[9] Union Electric Company, 2023 FERC Form 2, at 5-6.

2025-2029 CAPITAL EXPENDITURES AS A PERCENT OF 2023 NET PLANT



Projected CAPEX / 2023 Net Plant

	Company		2025-2029
1	ONE Gas Inc.	OGS	57.96%
2	Southwest Gas Corporation	SWX	60.11%
3	Northwest Natural Gas Company	NWN	64.71%
4	NiSource Inc.	NI	69.19%
5	Ameren Missouri Gas	Ameren Missouri Gas	70.68%
6	Spire, Inc.	SR	71.94%
7	Atmos Energy Corporation	ATO	86.96%
	Proxy Group Median		66.95%
	Ameren Missouri Gas/Proxy Group		1.06

Notes:
Source: Schedule AEB-D2, Attachment 9, page 1, col. [7]

COMPARISON OF AMEREN MISSOURI AND PROXY GROUP COMPANIES
REGULATORY RISK ASSESSMENT

Company	Operating Subsidiary	State	Utility Type	[1] Test Year Convention	[2] Revenue Decoupling	[3] Revenue Stabilization: Formula-Based Rates	[4] Revenue Stabilization: Straight Fixed Variable Rate Design	[5] Overall Revenue Stabilization	[6] Capital Cost Recovery	[7] CWIP Allowed in Rate Base
Atmos Energy Corporation										
	Atmos Energy Corporation	Kansas	Gas	Historical	Partial	No	No	Yes	Yes	Yes
	Atmos Energy Corporation	Kentucky	Gas	Fully Forecast	Partial	No	No	Yes	Yes	Yes
	Atmos Energy Corporation	Louisiana	Gas	Historical	Partial	Yes	No	Yes	No	Yes
	Atmos Energy Corporation	Mississippi	Gas	Historical	Partial	Yes	No	Yes	Yes	Yes
	Atmos Energy Corporation	Tennessee	Gas	Historical	Partial	Yes	No	Yes	No	Yes
	Atmos Energy Corporation	Texas	Gas	Historical	Partial	Yes	No	Yes	Yes	No
NiSource Inc.										
	Northern Indiana Public Service Co.	Indiana	Electric	Fully Forecast	Partial	No	No	Yes	Yes	Yes
	Northern Indiana Public Service Co.	Indiana	Gas	Fully Forecast	No	No	No	No	Yes	Yes
	Columbia Gas of Kentucky Inc.	Kentucky	Gas	Fully Forecast	Partial	No	No	Yes	Yes	Yes
	Columbia Gas of Maryland Inc.	Maryland	Gas	Partially Forecast	Partial	No	No	Yes	Yes	Yes
	Columbia Gas of Ohio Inc.	Ohio	Gas	Partially Forecast	No	No	Yes	Yes	Yes	Yes
	Columbia Gas of Pennsylvania Inc.	Pennsylvania	Gas	Fully Forecast	Partial	No	No	Yes	Yes	No
	Columbia Gas of Virginia Inc.	Virginia	Gas	Historical	Partial	No	No	Yes	Yes	Yes
Northwest Natural Gas Company										
	Northwest Natural Gas Co.	Oregon	Gas	Fully Forecast	Partial	No	No	Yes	Yes	No
	Northwest Natural Gas Co.	Washington	Gas	Historical	No	No	No	No	No	Yes
ONE Gas, Inc.										
	Kansas Gas Service Co.	Kansas	Gas	Historical	Partial	No	No	Yes	Yes	Yes
	Oklahoma Natural Gas Co.	Oklahoma	Gas	Historical	Partial	Yes	No	Yes	No	Yes
	Texas Gas Service Co. Inc.	Texas	Gas	Historical	Partial	Yes	No	Yes	Yes	No
Southwest Gas Corp.										
	Southwest Gas Corp.	Arizona	Gas	Historical	Full	No	No	Yes	Yes	No
	Southwest Gas Corp.	California	Gas	Fully Forecast	Full	No	No	Yes	No	No
	Southwest Gas Corp.	Nevada	Gas	Historical	Full	No	No	Yes	Yes	No
Spire, Inc.										
	Spire Alabama Inc.	Alabama	Gas	Fully Forecast	Partial	Yes	No	Yes	No	Yes
	Spire Gulf Inc.	Alabama	Gas	Fully Forecast	Partial	Yes	No	Yes	No	Yes
	Spire Missouri Inc.	Missouri	Gas	Partially Forecast	Partial	No	No	Yes	Yes	No
Proxy Group Totals				Fully Forecast 9						
				Partially Forecast 3				Yes 22	Yes 17	Yes 16
				Historical 12				No 2	No 7	No 8
				% Forecast 50.0%				% Yes 91.7%	% Yes 70.8%	66.7%
Ameren Missouri [8]		Missouri	Gas	Historical	Partial	No	No	Yes	No	No

Notes:
[1] Regulatory Research Associates, Rate Case History, effective as of August 31, 2024, Company Tariffs, Company Form 10-K.
[2] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this exhibit.
[3] Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF(AND([3]=No, [4]=No, [5]=No), No, Yes)
[6] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this exhibit.
[7] S&P Capital IQ Pro, Commission Profiles, Rate Base and Test Period accessed on August 31, 2024.
[8] Data provided by the Company

COMPARISON OF
RRA JURISDICTIONAL RANKINGS

		[1]	[2]
		RRA	
Ultimate Parent Company	Jurisdiction	Rank	Numeric Rank
Alliant Energy Corporation	Kansas	Average/3	6
	Kentucky	Average/2	5
	Louisiana	Average/2	5
	Mississippi	Average/1	4
	Tennessee	Above Average/3	3
	Texas RRC	Average/1	4
NiSource Inc.	Indiana	Average/1	4
	Kentucky	Average/2	5
	Maryland	Below Average/3	9
	Ohio	Average/2	5
	Pennsylvania	Above Average/2	2
	Virginia	Average/1	4
Northwest Natural Gas Company	Oregon	Average/2	5
	Washington	Average/3	6
ONE Gas, Inc.	Kansas	Average/3	6
	Oklahoma	Average/3	6
	Texas RRC	Average/1	4
Southwest Gas Corporation	Arizona	Below Average/2	8
	California	Average/1	4
	Nevada	Average/1	4
Spire, Inc.	Alabama	Above Average/1	1
	Missouri	Average/3	6
Proxy Group Average		Average/1 - Average/2	4.82
Ameren Missouri	Missouri	Average/3	6

Notes
[1] State Regulatory Evaluations, Regulatory Research Associates, August 7, 2024.
[2] AA/1= 1, AA/2= 2, AA/3= 3, A/1= 4, A/2= 5, A/3=6, BA/1= 7, BA/2= 8, BA/3= 9

COMPARISON OF
S&P JURISDICTIONAL RANKINGS

		[1]	[2]
		S&P	
Ultimate Parent Company	Jurisdiction	Rank	Numeric Rank
Alliant Energy Corporation	Kansas	Highly credit supportive	2
	Kentucky	Most credit supportive	1
	Louisiana	Highly credit supportive	2
	Mississippi	Very credit supportive	3
	Tennessee	Highly credit supportive	2
	Texas RRC	Highly credit supportive	2
NiSource Inc.	Indiana	Highly credit supportive	2
	Kentucky	Most credit supportive	1
	Maryland	Very credit supportive	3
	Ohio	Very credit supportive	3
	Pennsylvania	Highly credit supportive	2
	Virginia	Highly credit supportive	2
Northwest Natural Gas Company	Oregon	More credit supportive	4
	Washington	Very credit supportive	3
ONE Gas, Inc.	Kansas	Highly credit supportive	2
	Oklahoma	Very credit supportive	3
	Texas RRC	Highly credit supportive	2
Southwest Gas Corporation	Arizona	More credit supportive	4
	California	More credit supportive	4
	Nevada	Very credit supportive	3
Spire, Inc.	Alabama	Most credit supportive	1
	Missouri	Very credit supportive	3
Proxy Group Average		Highly credit supportive - Very credit supportive	2.45
Ameren Missouri	Missouri	Very credit supportive	3

Notes

[1] S&P Global Ratings, "North American Utility Regulatory Jurisdictions Update: Ontario Remains Unchanged, Notable Developments Elsewhere," March 11, 2024.

[2] Most Credit Supp. = 1, Highly Credit Supp. = 2, Very Credit Supp. = 3, More Credit Supp. = 4, Credit Supp. = 5

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust Its Revenues for Natural Gas Service.	)))	File No.: GR-2024-0369

AFFIDAVIT OF ANN E. BULKLEY

STATE OF MASSACHUSETTS)
) **ss**
CITY OF BOSTON)

Ann E. Bulkley, being first duly sworn on her oath, states:

My name is Ann E. Bulkley, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Direct Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

Ann E. Bulkley

Sworn to me this 27th day of September 2024.