**BEFORE THE CORPORATION COMMISSION OF THE STATE OF OKLAHOMA**

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| IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC COMPANY FOR AN ORDER OF THE COMMISSION AUTHORIZING APPLICANT TO MODIFY ITS RATES, CHARGES, AND TARIFFS FOR RETAIL ELECTRIC SERVICE IN OKLAHOMA | ) ) ) ) ) ) ) | CASE NO. PUD 2023-000087 |

Direct Testimony

of

Ann E. Bulkley

On behalf of

Oklahoma Gas and Electric Company

December 29, 2023

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## I. INTRODUCTION

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

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

**Q. On whose behalf are you submitting this direct testimony?**

A. I am submitting this direct testimony before the Oklahoma Corporation Commission ("Commission") on behalf of Oklahoma Gas and Electric Company ("OG&E" or the "Company"), which is a wholly-owned subsidiary of OGE Energy Corp. ("OGE Energy").

**Q. Please describe your education and experience.**

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. I have included my resume and a listing of testimony that I have filed in other proceedings as Exhibit AEB-1.

**Q. Please describe the purpose of your direct testimony.**

A. The purpose of my testimony is to present evidence and provide a recommendation regarding the appropriate return on equity ("ROE") for the Company, as well as assess the reasonableness of the Company's proposed capital structure.

**Q. Are you sponsoring any exhibits or schedules in support of your direct testimony?**

A. Yes. My analyses and recommendations are supported by the data presented in Exhibits AEB-2 through AEB-15, which were prepared by me or under my direction.

**Q. Please provide a brief overview of the analyses that led to your ROE recommendation.**

A. I have estimated the market-based cost of equity by applying traditional estimation methodologies to a proxy group of comparable utilities, including the constant growth form of the Discounted Cash Flow ("CGDCF") model, the Capital Asset Pricing Model ("CAPM"), the Empirical Capital Asset Pricing Model ("ECAPM"), and a Bond Yield Risk Premium ("BYRP" or "Risk Premium") analysis. My recommendation also takes into consideration the business and regulatory risk of the Company relative to the proxy group, and the Company's proposed capital structure as compared with the capital structures of the operating utilities of the proxy group companies. While I do not make specific adjustments to my ROE recommendation for these factors, I do consider them in the aggregate when determining where my recommended ROE falls within the range of the analytical results.

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

A. The remainder of my direct 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.
- Section VI describes my cost of equity analyses and the basis for my recommended ROE in this proceeding.
- 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 provides an assessment of the reasonableness of the Company's proposed capital structure.
- Section IX presents my conclusions and recommendations.

## II. SUMMARY OF ANALYSES AND CONCLUSIONS

**Q. Please summarize the key factors considered in your analyses and upon which you base your recommended ROE.**

A. My analyses and conclusions consider the following:

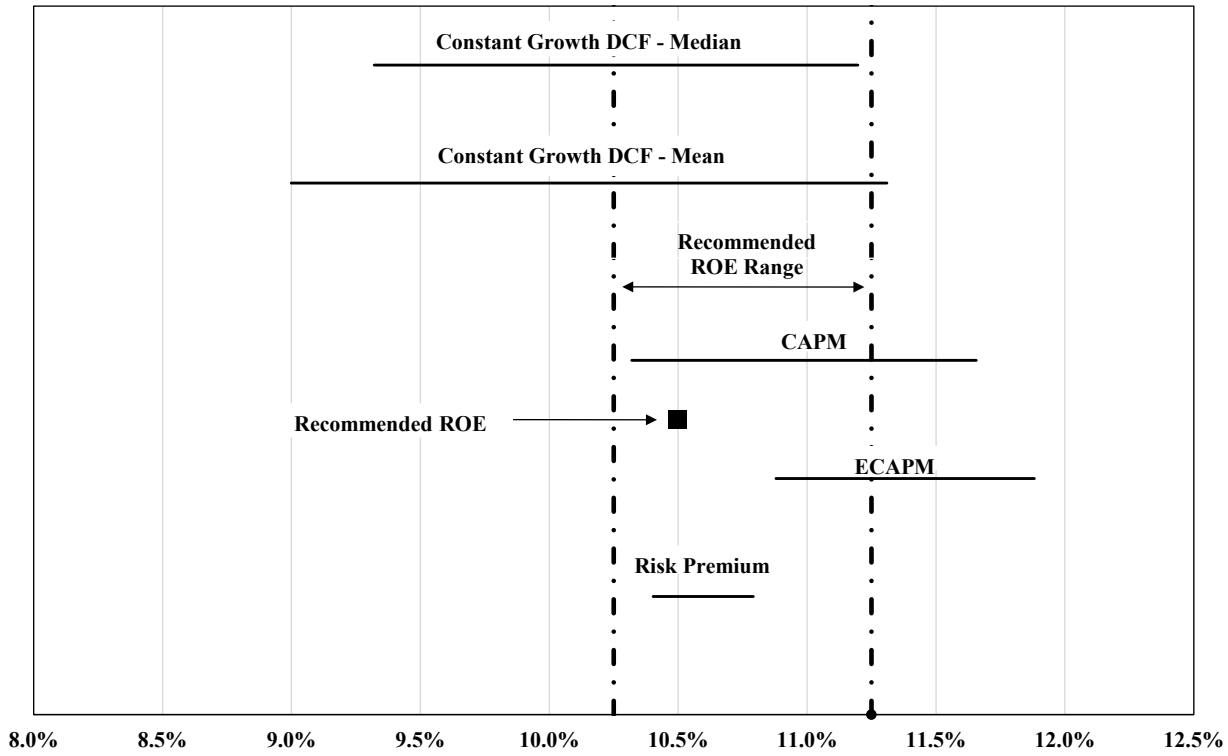
- The United States Supreme Court's *Hope* and *Bluefield* decisions[1] established the standards for determining a fair and reasonable authorized ROE for public utilities, including consistency of the allowed return with the returns of other businesses having similar risk, adequacy of the return to 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 prospective capital market conditions on the cost of equity estimation models and 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.)
- Although the companies in my proxy group are generally comparable to OG&E, each company is unique, and no two companies have the exact same business and financial risk profiles. Accordingly, I considered the Company's regulatory, business, and financial risks relative to a proxy group of comparable companies in determining where the Company's ROE should fall within the reasonable range of analytical results to appropriately account for any residual differences in risk.

**Q. What are the results of the models that you have used to estimate the market-based cost of equity for OG&E?**

A. Figure 1 summarizes the range of results produced by the cost of equity analyses.

[1] 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").

**Figure 1: Summary of Analytical Results**




As shown, the range of results across all methodologies 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.

**Q. Are prospective capital market conditions expected to affect the results of the cost of equity for the Company during the period in which the rates established in this proceeding will be in effect?**

A. Yes. Capital market conditions are expected to affect the results of the cost of equity estimation models. Specifically:

- Long-term interest rates have increased substantially in the past two years and are expected to remain relatively high at least over the next year in response to inflation.
- Since (i) utility dividend yields are less attractive than the risk-free rates of government bonds; (ii) interest rates are expected to remain near current levels over the next year, and (iii) utility stock prices are inversely related to changes in interest rates; it is likely that utility share prices will decline.

- Rating agencies have responded to the risks of the utility sector, citing factors including elevated capital expenditures, interest rates, and inflation that create pressures for customer affordability and prompt rate recovery, and have noted the importance of regulatory support in their current outlooks.
- Similarly, equity analysts have noted the increased risk for the utility sector as a result of elevated interest rates and expect the sector to underperform over the near-term.
- Consequently, it is important to consider that if utility share prices decline, the results of the DCF model, which relies on current utility share prices, would understate the cost of equity during the period that the Company's rates will be in effect.

It is appropriate to consider all of these factors when estimating a reasonable range of the investor-required cost of equity and the recommended ROE for the Company.

**Q. What is your recommended ROE for OG&E?**

A. Considering the analytical results of the market-based cost of equity models and current and prospective capital market conditions, I conclude that an ROE in the range of 10.25 percent to 11.25 percent is reasonable. Based on the Company's regulatory, business, and financial risk relative to the proxy group, I conclude that within that range an ROE of 10.50 percent is reasonable.

**Q. Is OG&E's proposed capital structure reasonable?**

A. Yes. The Company's proposed equity ratio of 53.50 percent is well within the range of equity ratios for utility operating subsidiaries of the proxy group companies. Further, the Company's proposed equity ratio is reasonable considering credit rating agencies' continued concern with the negative effect on the cash flows and credit metrics associated with increasing interest rates, inflation and capital expenditures.

## III. REGULATORY GUIDELINES

**Q. Please describe the guiding principles to be used in establishing the cost of equity for a regulated utility.**

A. The United States Supreme Court's precedent-setting *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) the principle that the result reached, as opposed to the methodology employed, is the controlling factor in arriving at just and reasonable rates.[2]

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

A. Yes. In its Order in Cause No. PUD 200600285, the Commission cited the Oklahoma Supreme Court, [3] which stated, in relevant part:

> The constitutional safeguard afforded to a utility is summarized in *Alabama Public Service Com. v. South Cent. Bell Tel. Co., (Ala., 348 So.2d 443)* as follows: "The just compensation safeguarded to a utility by the 14th Am. to the U.S. Const. is a reasonable return on the value of the property used at the time that is being used for the public service, and rates not sufficient to yield that return are confiscatory. The determination of a fair rate of return is governed by the following legal principles: (1) it cannot be developed by a rule of thumb calculation, but must be determined in the exercise of a fair, enlightened and independent judgment in light of all relevant facts; (2) it must be equal to that generally being earned by others in the same general locality in business undertakings attended by corresponding risks, and uncertainties; (3) it must be sufficient to insure the investor's confidence in the financial soundness of the utility enterprise and enough to maintain and support its credit so that it will be able to raise the money necessary to improve and expand its service to the discharge of all its public duties; (4) in determining the reasonableness of its rates it is necessary to consider

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2 *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

3 Southwestern Public Service Company v. State of Oklahoma, 637 P2d 92.

> effect of the rates imposed in the light of the utility's present situation and in light of its requirements and opportunities."[4]

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 a return that is adequate to attract capital at reasonable term?**

A. An ROE that is adequate to attract capital at reasonable terms enables the Company to continue to provide safe, reliable electricity service while maintaining its financial integrity. That return should be commensurate with returns expected elsewhere in the market for investments of equivalent risk. If it is not, debt and equity investors will seek alternative investment opportunities for which the expected return reflects the perceived risks, thereby inhibiting the Company's ability to attract capital at reasonable cost, which negatively affects customers.

**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 electric, natural gas, and water utilities nationally. 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 within that jurisdiction generally, and for that utility particularly. The cost of capital represents an opportunity cost to investors. If higher returns are available elsewhere for other investments of comparable risk over the same

[4] Oklahoma Corporation Commission, Order No. 545168, Cause No. PUD 200600285, October 9, 2007, at 134.

time-period, investors have an incentive to direct their capital to those alternative investments. Thus, an authorized ROE significantly below authorized ROEs for other utilities can inhibit the utility's ability to attract capital for investment. As discussed later herein, I have reviewed and considered the analysis of regulatory commissions that has been developed by Regulatory Research Associates ("RRA") as one point in my overall risk analysis of the Company. RRA evaluates each state's 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. As discussed in more detail later herein, RRA has recently lowered its ranking for Oklahoma regulation.

**Q. What is the standard for setting the ROE in any jurisdiction?**

A. The stand-alone ratemaking principle is the foundation of jurisdictional ratemaking. This principle requires that the rates that are charged in any operating jurisdiction be for the costs incurred in that jurisdiction. The stand-alone ratemaking principle ensures that customers in each jurisdiction only pay for the costs of the service provided in that jurisdiction, which is not influenced by the business operations in other operating companies. In order to maintain this principle, the cost of equity analysis is performed for an individual operating company as a stand-alone entity. As such, I have evaluated the investor-required return for OG&E's electricity operations in Oklahoma.

**Q. Does the fact that the Company is a subsidiary of OGE Energy, a publicly-traded company, affect your analysis?**

A. No. In this proceeding, consistent with stand-alone ratemaking principles, it is appropriate to establish the cost of equity for the Company, not its publicly-traded entity, OGE Energy. More importantly, however, it is appropriate to establish a cost of equity and capital

structure that provide the Company the ability to attract capital on reasonable terms on a stand-alone basis and within OGE Energy.

**Q. Is the regulatory framework and the authorized ROE and equity ratio important to the financial community?**

A. Yes. The regulatory framework is one of the most important factors in investors' assessments of risk. Specifically, the authorized ROE and equity ratio for regulated utilities is very important for determining the degree of regulatory support for supporting a utility's creditworthiness and financial stability in the jurisdiction. To the extent that authorized returns in a jurisdiction are lower than the returns that have been authorized more broadly, such actions are considered by both debt and equity investors in the overall risk assessment of the regulatory jurisdiction in which the company operates.

**Q. Are you aware of any utilities that have experienced a credit rating downgrade and/or a negative market response related to the financial effects of a rate decision?**

A. Yes. In a recent report on Northern States Power Minnesota ("NSP-M"), Moody's highlighted that the utility's request for reconsideration of certain aspects of the recent rate case decision of the Minnesota Public Utilities Commission ("Minnesota PUC") "provides further evidence of a less supportive Minnesota regulatory environment."[5] Moody's further noted that the ROE of 9.25 percent that was authorized for NSP-M by the Minnesota PUC was lower than the Administrative Law Judge's recommended ROE of 9.87 percent and "compares unfavorably to other Minnesotan electric and natural gas utility authorized ROEs in both litigated and settled rates cases."[6] Moody's also noted that the utility's cash

[5] Moody's Investors Service. Issuer Comment. Northern States Power Company (Minnesota). August 15, 2023, at 1.

[6] *Id.*

flow from operations before changes in working capital-to-debt ratio was approximately 25 percent for the last 12 months, but that on a pro forma basis based on the rate case decision that this ratio would reduce to approximately 23 percent, "bringing it closer to its current downgrade threshold of 22%, a credit negative as it limits the utility's cushion at the current A2 rating."[7]

Additionally, ALLETE, Inc.,[8] CenterPoint Energy Houston Electric,[9] and Pinnacle West Capital Corporation ("PNW")[10] each received credit rating downgrades following a rate case decision for reasons that included a below average authorized ROE. In the case of PNW, the market had a strong negative response to the rate case decision for its operating subsidiary, Arizona Public Service Company, which included an 8.70 percent ROE determination.[11]

**Q. What are your conclusions regarding regulatory guidelines?**

A. The ratemaking process is premised on the principle that, in order for investors and companies to commit the capital needed to provide safe and reliable utility services, a utility must have a reasonable opportunity to recover the return of, and the market-required return on, its invested capital. Accordingly, the Commission's order in this proceeding 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; (2) sufficient to ensure its

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7 *Id.*

8 Moody's Investors Service. "Credit Opinion: ALLETE, Inc. Update following downgrade." April 3, 2019, at 3.

9 FitchRatings. "Fitch Downgrades CenterPoint Energy Houston Electric to BBB+; Affirms CNP; Outlooks Negative." February 19, 2020.

10 S&P Capital IQ Pro; FitchRatings. "Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative." October 12, 2021; and Moody's Investors Service. "Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3; outlook negative." November 17, 2021.

11 S&P Global Market Intelligence. "Pinnacle West shares tumble after regulators slash returns in rate case." October 7, 2021.

financial integrity; and (3) commensurate with returns on investments in enterprises with similar risk. It is important for the ROE authorized in this proceeding to take into consideration current and projected capital market conditions, as well as investors' expectations and requirements for both risks and returns. 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. Providing the opportunity to earn a market-based cost of capital 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 analyze capital market conditions?**

A. The models used to estimate the cost of equity rely on market data and thus the results of those models can be affected by prevailing market conditions at the time the analysis is performed. While the ROE established in a rate proceeding is intended to be forward-looking, the analyst uses current and projected market data, including stock prices, dividends, growth rates, and interest rates, in the cost of equity estimation models to estimate the investor-required return for the subject company.

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 very important to consider projected market data to estimate the return for that forward-looking period.

**Q. What factors are affecting the cost of equity for regulated utilities in the current and prospective capital markets?**

A. The cost of equity for regulated utility companies is affected by several factors in the current and prospective capital markets, including: (1) changes in monetary policy; (2) relatively high inflation; and (3) increased interest rates that are expected to remain relatively high over the next few years. These factors affect the assumptions used in the cost of equity estimation models.

### A. Inflationary Expectations in Current and Projected Capital Market Conditions

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

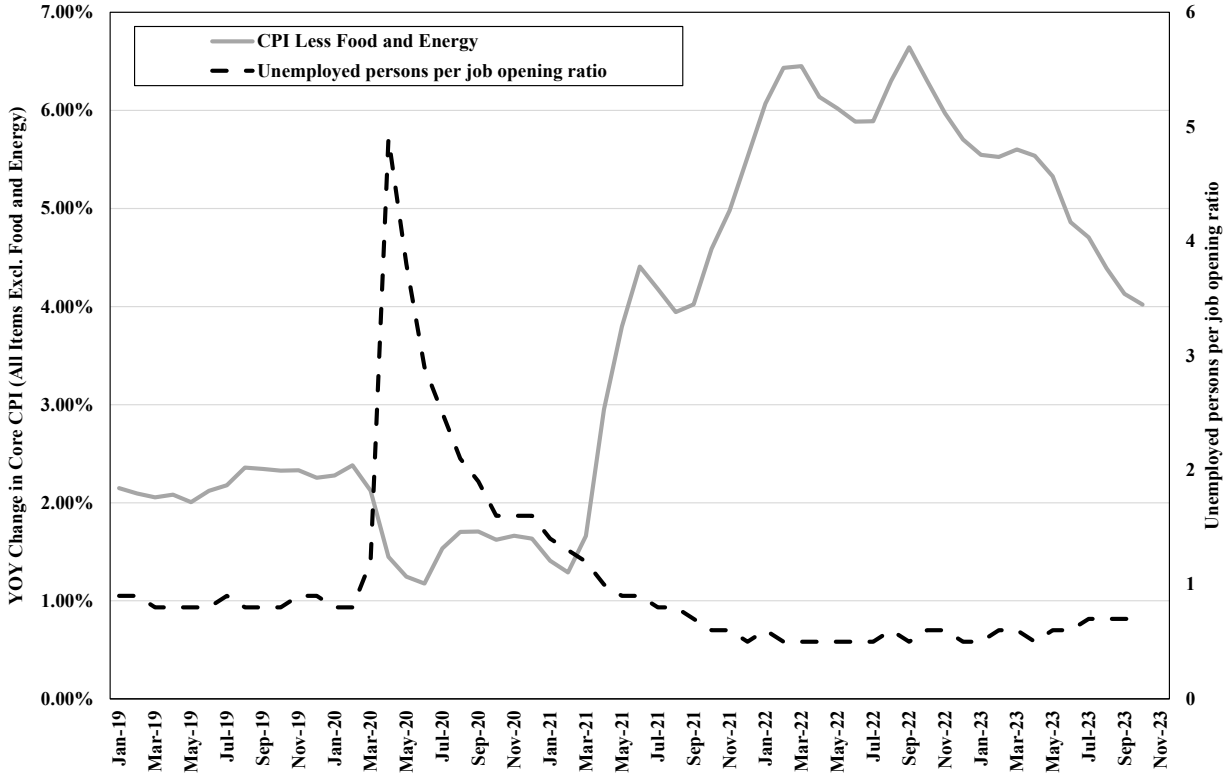
A. As shown in Figure 2, core inflation increased steadily beginning in early 2021, rising from 1.41 percent in January 2021 to a high of 6.64 percent in September 2022, which was the largest 12-month increase since 1982.[12] Since that time, while core inflation has declined in response to the Federal Reserve's monetary policy, it continues to remain significantly 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 0.7 and has been consistently below 1.0 since 2021, despite the Federal Reserve's accelerated policy normalization. This metric indicates sustained strength in the labor market. Given the Federal Reserve's dual mandate of maximum employment and

[12] Figure 2 presents the year-over-year ("YOY") change in core inflation, as measured by the Consumer Price Index ("CPI") excluding food and energy prices as published by the Bureau of Labor Statistics. I considered core inflation because it is the preferred inflation indicator of the Federal Reserve for determining the direction of monetary policy. Core inflation is preferred by the Federal Reserve because it removes the effect of food and energy prices, which can be highly volatile.

price stability, the continued increased levels of core inflation coupled with the strength in the labor market has resulted in the Federal Reserve's sustained focus on the priority of reducing inflation.

**Figure 2: Core Inflation and Unemployed Persons-to-Job Openings, January 2019 to November 2023[13]**




**Q. What are the expectations for inflation over the near-term?**

A. The Federal Reserve has indicated that it expects inflation will remain elevated above its target level until 2026 and that the extent to which it maintains the restrictive monetary policy will depend on market indicators going forward. For example, Federal Reserve Chair Powell at the Federal Open Market Committee ("FOMC") meeting on December 13,

[13] Bureau of Labor Statistics; note, data available as of November 2023 is through October 2023.

2023 observed that while inflation is off of its recent highs, it remains too high and noted that further policy firming is possible based on the data:

> Today, we decided to leave our policy interest rate unchanged and to continue to reduce our securities holdings. Given how far we have come, along with the uncertainties and risks that we face, the Committee is proceeding carefully. We will make decisions about the extent of any additional policy firming and how long policy will remain restrictive based on the totality of the incoming data, the evolving outlook, and the balance of risks.[14]

Chair Powell reiterated that the FOMC was committed to bringing inflation down to the 2 percent target level, and that while the easing of inflation has been good news, it is currently projected to take until 2026 to reach the Federal Reserve's target of 2.0 percent:

> Inflation has eased over the past year but remains above our longer-run goal of 2 percent. Based on the Consumer Price Index and other data, we estimate that total PCE prices rose 2.6 percent over the 12 months ending in November; and that, excluding the volatile food and energy categories, core PCE prices rose 3.1 percent. The lower inflation readings over the past several months are welcome, but we will need to see further evidence to build confidence that inflation is moving down sustainably toward our goal. Longer-term inflation expectations appear to remain well anchored, as reflected in a broad range of surveys of households, businesses, and forecasters, as well as measures from financial markets. As is evident from the SEP [Summary of Economic Projections], we anticipate that the process of getting inflation all the way to 2 percent will take some time. The median projection in the SEP is 2.8 percent this year, falls to 2.4 percent next year, and reaches 2 percent in 2026.[15]

Chair Powell noted that the FOMC members project a gradual decline in the federal funds rates over time, although remain cautious and leave open the possibility of further monetary policy tightening as required:

> While we believe that our policy rate is likely at or near its peak for this tightening cycle, the economy has surprised forecasters in many ways since the pandemic, and ongoing progress toward our 2 percent inflation objective is not assured. We are prepared to tighten policy further if appropriate. We are committed to achieving a stance of monetary policy that is sufficiently

[14] Federal Reserve, Transcript of Chair Powell's Press Conference, December 13, 2023, at 1.

[15] *Id*., at 2-3.

> restrictive to bring inflation sustainably down to 2 percent over time, and to keeping policy restrictive until we are confident that inflation is on a path to that objective.
>
> In our SEP [Summary of Economic Projections], FOMC participants wrote down their individual assessments of an appropriate path for the federal funds rate based on what each participant judges to be the most likely scenario going forward. While participants do not view it as likely to be appropriate to raise interest rates further, neither do they want to take the possibility off the table. If the economy evolves as projected, the median participant projects that the appropriate level of the federal funds rate will be 4.6 percent at the end of 2024, 3.6 percent at the end of 2025, and 2.9 percent at the end of 2026, still above the median longer-term rate. These projections are not a Committee decision or plan; if the economy does not evolve as projected, the path for policy will adjust as appropriate to foster our maximum employment and price stability goals.[16]

### B. The Use of Monetary Policy to Address Inflation

**Q. What policy actions has the Federal Reserve enacted 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. Beginning in March 2022 and through May 3, 2023, the Federal Reserve increased the target federal funds rate through a series of increases from a range of 0.00 – 0.50 percent to a range of 5.25 percent to 5.50 percent.[17] While inflation has declined from its peak, it still is above the Federal Reserve's target of 2 percent, and therefore, as just noted, the Federal Reserve anticipates maintaining short-term interest rates higher for longer in order to achieve its goal of 2 percent inflation over the long-run.

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[16] *Id*., at 3-4; clarification added.

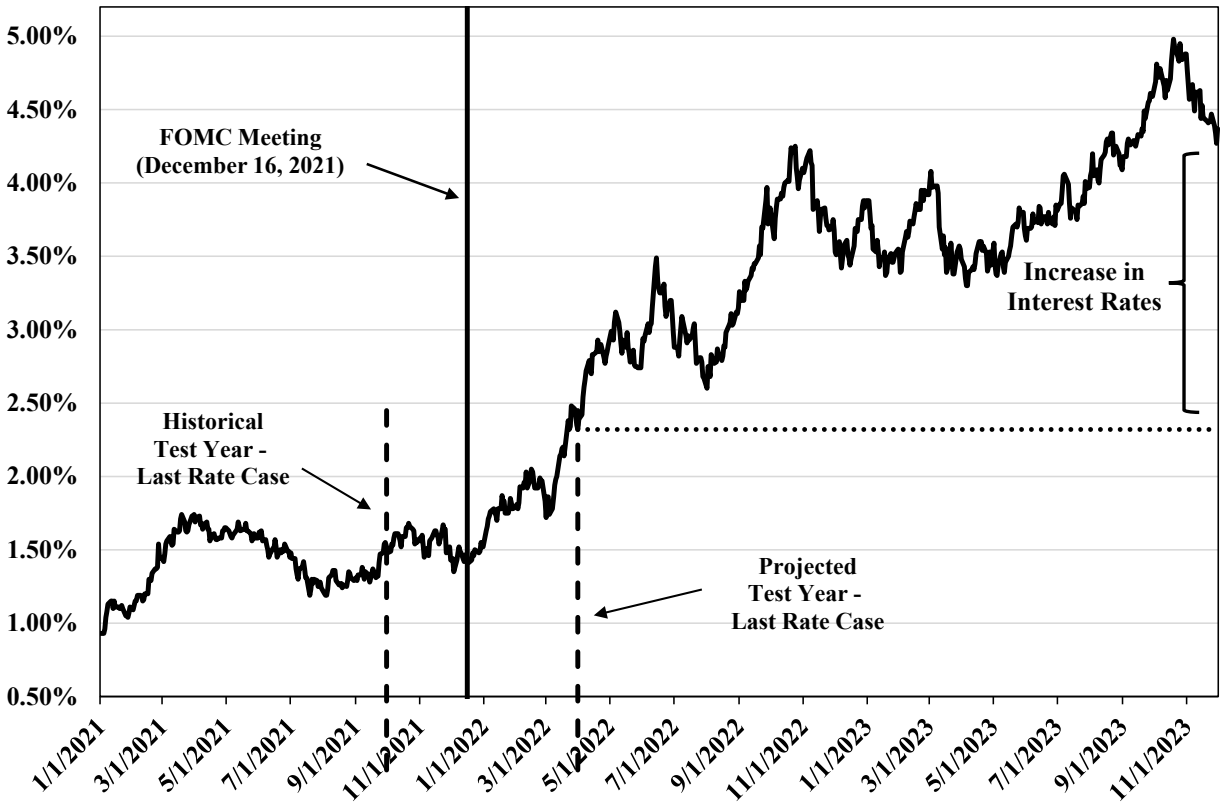
[17] https://www.federalreserve.gov/monetarypolicy/openmarket.htm.

### C. The Effect of Inflation and Monetary Policy on Interest Rates and the Investor-Required Return

**Q. Have the yields on long-term government bonds increased in response to inflation and the Federal Reserve's normalization of monetary policy?**

A. Yes. As the Federal Reserve has substantially increased the federal funds rate and decreased its holdings of Treasury bonds and mortgage-backed securities in response to increased levels of inflation that have persisted for longer than originally projected, longer-term interest rates have also increased. As shown in Figure 3, since the Federal Reserve's December 2021 meeting, the yield on the 10-year Treasury bond has approximately tripled, increasing from 1.47 percent on December 15, 2021, to 4.37 percent at the end of November 2023. Similarly, the yield on the 10-year Treasury bond has increased over 200 basis points since the test year used by the Company in its last rate proceeding for the known and measurable changes through March 31, 2022.

**Figure 3: 10-Year Treasury Bond Yield, January 2021 – November 2023**[18]




**Q. How have interest rates and inflation changed since the Company's last rate case?**

A. As shown in Figure 4, both short-term and long-term interest rates have increased substantially since both the Company filed its application and the Commission authorized an ROE of 9.50 percent as part of the settlement in the Company's 2021 rate proceeding. Specifically, long-term interest rates have increased approximately 290 basis points since the filing of the Company's last rate proceeding, and nearly 160 basis points since the Commission approved the settlement, which is indicative of a significant increase in the cost of equity relative to the Company's last rate proceeding. As discussed, as a result of the Federal Reserve's monetary policy of increasing short-term interest rates, core inflation

[18] S&P Capital IQ Pro.

has declined since the last rate proceeding, although inflation remains above the Federal Reserve's long-term target value of 2.0 percent.

**Figure 4: Change in Market Conditions Since Company's Last Rate Case[19]**

| Period | Date | Federal Funds Rate | 30-Day Avg of 30-Year Treasury Bond Yield | Core Inflation Rate | Auth'd ROE |
|---|---|---|---|---|---|
| Filing - Case No. 2021-00164 | 12/30/2021 | 0.08% | 1.87% | 5.52% | |
| Decision - Case No. 2021-00164 | 9/8/2022 | 2.33% | 3.18% | 6.64% | 9.50% |
| Current | 11/30/2023 | 5.33% | 4.76% | 4.02% | |

**Q. What have equity analysts said about long-term government bond yields?**

A. Leading equity analysts have noted that they expect the yields on long-term government bonds to remain elevated. For example, in the most recent Big Money poll released by *Barron's* in October 2023, which surveys money managers regarding the outlook for the next twelve months, two-thirds of the money managers surveyed expect the yield on the 10-year Treasury bond to be at least 4.50 percent in October 2024.[20] Similarly, according to the most recent *Blue Chip Financial Forecasts* report, the consensus estimate of the average yields on the 10-year and 30-year Treasury bonds are 4.22 percent and 4.48 percent, respectively, through the first quarter of 2025.[21] Therefore, investors expect interest rates to remain elevated for at least the next 18 months. As a result, it is reasonable to expect that if government bond yields remain elevated, the cost of equity will be increasing above the levels experienced in the 2020 and 2021 lower interest rate environment.

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

[20] Jasinski, Nicholas. "Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds." October 27, 2023.

[21] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, p. 2.

### D. Expected Performance of Utility Stocks and the Investor-Required Return on Utility Investments

**Q. Are utility share prices correlated to changes in the yields on long-term government bonds?**

A. Yes. Interest rates and utility share prices are inversely correlated, which means that increases in interest rates result in declines in the share prices of utilities and vice versa. For example, Goldman Sachs and Deutsche Bank examined the sensitivity of share prices of different industries to changes in interest rates over the past five years. Both Goldman Sachs and Deutsche Bank found that utilities had one of the strongest negative relationships with bond yields (*i.e.*, increases in bond yields resulted in the decline of utility share prices).[22]

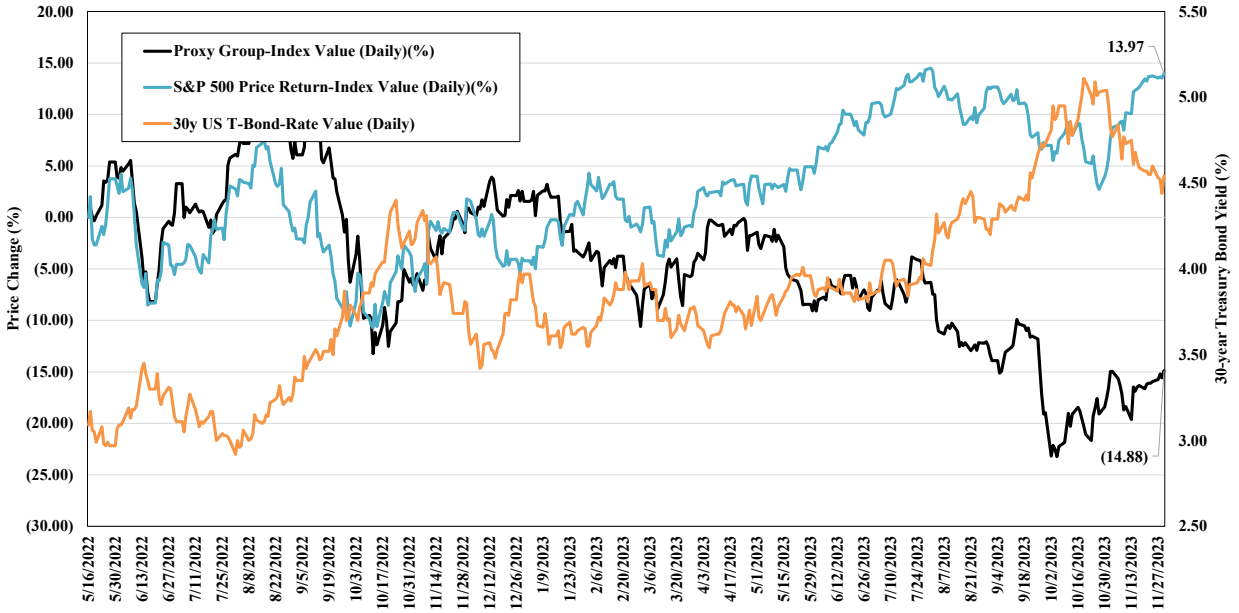
**Q. In the Company's last rate proceeding, you discussed equity analysts' expected underperformance of the utility sector. Did that occur?**

A. Yes. Since the filing of my rebuttal testimony in mid-July 2022 in the Company's last rate proceeding, utility stocks have significantly underperformed the broader market, as Treasury bond yields have increased to levels greater than the dividend yields of utility stocks. For example, as shown in Figure 5, since July 13, 2022, the yield on the 30-year Treasury bond has increased by 145 basis points, while the share prices for the vertically-integrated electric utilities included in my proxy group (discussed in the following section) have *declined* by 14.9 percent and the S&P 500 Index has *increased* 14.0 percent. In fact, on October 2, 2023, the utilities sector dropped by 4.7 percent, its single highest one-day

[22] Lee, Justina. "Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks." Bloomberg.com, March 11, 2021.

percentage decline since April 2020.[23] The stock price underperformance for the utility sector indicates that the cost of equity has increased since the Company's last rate proceeding.

**Figure 5: Relative Performance of the Proxy Group and the S&P 500 Index, Mid-May 2022 through November 2023[24]**




**Q. How do equity analysts expect the utilities sector to perform in 2024?**

A. Equity analysts have recently projected the continued underperformance of the utility sector and have not changed their views on the sector. For example, Fidelity Investments classifies the utility sector as underweight,[25] and Bank of America recently noted that they are "not so constructive on [u]tilities" given that the dividend yields for utilities are below both the yields available on long- and short-term treasury bonds.[26] Moreover, the

[23] Valetkevich, Caroline. "S&P 500 ends near flat; utilities drop, focus on rate outlook." Reuters. October 2, 2023.

[24] S&P Capital IQ Pro.

[25] Fidelity Investments. "Fourth Quarter 2023 Investment Research Update." October 19, 2023.

[26] Dumoulin-Smith, Julien, *et. al*. "US Electric Utilities & IPPs: As the leaves fall, preparing for Autumn utility outlook. Macro still has potholes." BofA Securities, September 6, 2023.

professional investors surveyed by *Barron's* in its most recent Big Money poll selected the utility sector as one of the four equity sectors that they liked the least over the next twelve months, indicating they are projecting that utilities will underperform the broader market in 2024.[27]

**Q. Why do equity analysts expect the utility sector to underperform over the near-term?**

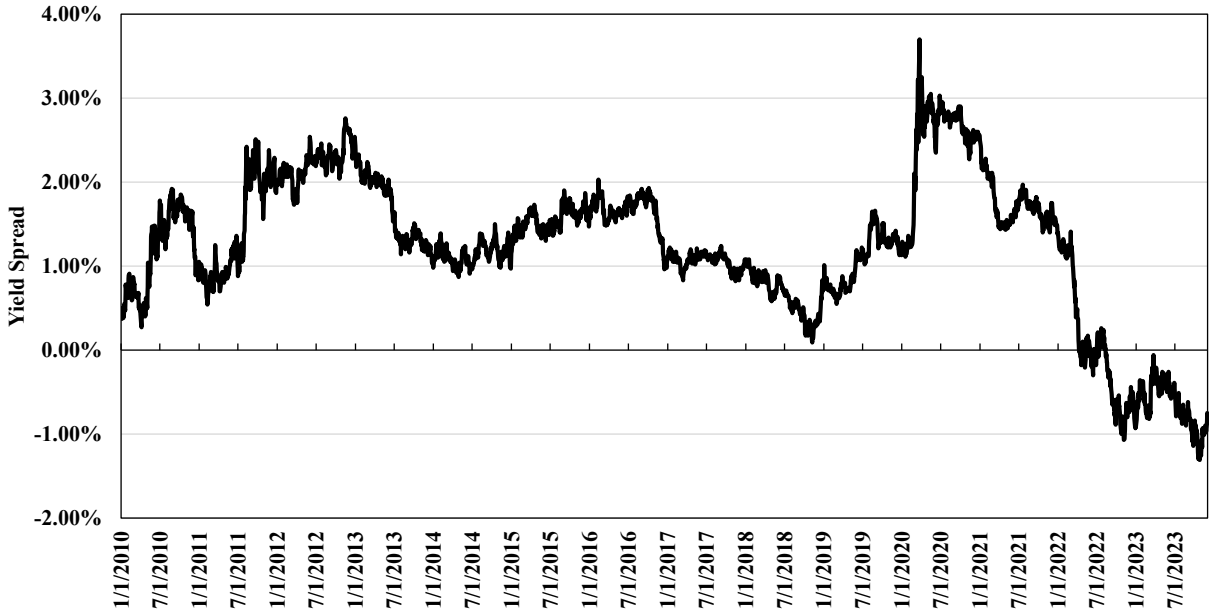
A. Equity analysts expect the utility sector to continue to underperform given that, on average, the yields for the utility sector remain lower than the yields on long-term government bonds. To illustrate this point, I examined the difference between the dividend yields of utility stocks and the yields on long-term government bonds from January 2010 through November 2023 ("yield spread"). I selected the dividend yield on the S&P Utilities Index as the measure of the dividend yields for the utility sector and the yield on the 10-year Treasury bond as the estimate of the yield on long-term government bonds.

As shown in Figure 6, the recent significant increase in long-term government bonds yields has resulted in the yield on long-term government bonds exceeding the dividend yields of utilities. The yield spread as of November 30, 2023 was negative 0.87 percent, meaning that the yield on the 10-year Treasury bond exceeds the dividend yield for the S&P Utilities Index. However, the long-term average yield spread from 2010 to 2023 is 1.23 percent. Therefore, the current yield spread is well below the long-term average. Because of the fact that the yield spread is currently well below the long-term average, and the expectation that interest rates will remain relatively high through at least the next year, it is reasonable to conclude that the utility sector is likely to underperform

[27] Jasinski, Nicholas. "Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds." *Barron's*. October 27, 2023.

over the near-term. This is because investors that purchased utility stocks as an alternative to the lower yields on long-term government bonds would otherwise be inclined to rotate into government bonds given the yields on long-term government bonds remain elevated and higher than utility dividend yields, thus resulting in a decrease in the share prices of utilities.

**Figure 6: Spread between the S&P Utilities Index Dividend Yield and the 10-year Treasury Bond Yield, January 2010 – November 2023[28]**




**Q. Do you have any further context as to how unlikely it is to have a negative yield spread of this magnitude?**

A. Yes. For further context as to how unlikely it is to have a yield spread of negative 0.87 percent, I calculated the z-score for the current yield spread, which measures the number of standard deviations from the mean. The current yield spread has a z-score of -2.44, indicating that the current yield spread is over 2 standard deviations from the mean of 1.23

[28] S&P Capital IQ Pro and Bloomberg Professional.

percent.[29] In other words, 95 percent of the daily yield spread observations from 2010 through November 2023 fall between -0.49 percent and 2.96 percent, with the current yield spread falling outside of that range. Thus, the current yield spread is an outlier, which is why equity analysts do not expect this current level to hold.

**Q. What is the significance of the inverse relationship between interest rates and utility share prices in the current market?**

A. If interest rates remain relatively high as expected, then the share prices of utilities would be expected to decline. If the prices of utility stocks decline, then the DCF model, which relies on historical averages of share prices to calculate the dividend yield, is likely to understate the dividend yield and thus the cost of equity.

### E. Conclusion

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

A. Due to their impact on the cost of equity, it is important that current and projected market conditions be considered in setting the forward-looking ROE in this proceeding. The combination of persistently high inflation and the Federal Reserve's changes in monetary policy that have increased interest rates are indicative of an increasing cost of equity since (i) there is a strong historical inverse correlation between interest rates (*i.e.*, yields on long-term government bonds) and the share prices of utility stocks (*i.e.*, as interest rates increase, utility share prices decline, and thus utility dividend yields increase); and (ii) the yields on long-term government bonds currently exceed the dividend yields of utilities, when

[29] The z-score is calculated as: (yield spread at November 30, 2023, minus average yield spread 2010 through October 2023)/standard deviation of yield spread from 2010 through November 2023. This equals: (-0.0087 minus 0.0123)/0.0086.

historically long-term government bond yields have been lower than the dividend yields of utilities. Because the cost of equity in this proceeding is being estimated for the future period that the Company's rates will be in effect, and because the cost of equity is expected to increase over the near term for utilities, cost of equity estimates based in whole or in part on historical or current market conditions, as opposed to projected market conditions, will likely understate the cost of equity during the future period that the Company's rates will be in effect. Therefore, these current and expected market conditions support consideration of the higher end of the range of cost of equity results produced by the DCF models, and warrant consideration of forward-looking cost of equity estimation models such as the CAPM and ECAPM, which better reflect expected market conditions.

## V. PROXY GROUP SELECTION

**Q. Please provide a brief profile of OG&E.**

A. OG&E is a vertically-integrated electric utility company that is a wholly-owned subsidiary of OGE Energy. The Company has utility operations in Oklahoma and western Arkansas. In Oklahoma, the Company provides retail electric utility service to approximately 889,000 residential, commercial and industrial customers.[30] As of December 31, 2022, OG&E's net utility electric plant in service in Oklahoma was approximately $10,540.7 million.[31] In addition, OG&E had total electric sales in 2022 of approximately 30 million MWh, consisting of approximately 35 percent residential, 26 percent commercial, 14 percent

[30] OG&E SEC Form 10-K, December 31, 2022, at 4.

[31] *Id*., at p. 51.

industrial, and 25 percent other.[32] OG&E currently has an investment grade long-term rating of A- (Outlook: Stable) from S&P and A3 (Outlook: Stable) from Moody's.[33]

**Q. Why have you used a group of proxy companies to estimate the cost of equity for OG&E?**

A. In this proceeding, the cost of equity is being estimated for an electric utility company that is not itself publicly traded. Because the cost of equity is a market-based concept and because OG&E'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 estimating the cost of equity.

Even if OG&E was a publicly-traded entity, it is possible that transitory events could bias its 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 risk characteristics that are substantially comparable to the Company, and thus provide a reasonable basis to estimate the appropriate cost of equity for the Company.

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

A. I began with the group of 36 companies that *Value Line* classifies as electric utilities and applied the following screening criteria to select companies that:

- pay consistent quarterly cash dividends, because companies that do not pay a dividend cannot be analyzed using the CGDCF model;
- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;

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[32] *Id.,* at p. 7.

[33] S&P Global Market Intelligence; Moody's Investor Services, March 30, 2023.

- own regulated generation assets that are included in rate base;
- derive more than 40 percent of its megawatt-hour sales from its owned generation facilities;
- derive more than 60 percent of their total operating income from regulated electric operations; and
- were not parties to a merger or transformative transaction during the analytical periods relied on.

**Q. Did you include OGE Energy in your proxy group?**

A. No. In order to avoid the circular logic that otherwise would occur, it is my practice to exclude the subject company, or its parent holding company, from the proxy group.

**Q. What is the composition of your proxy group?**

A. Applying these screening criteria results in a proxy group consisting of the companies shown in Figure 7, as well as in Exhibit AEB-3.

**Figure 7: Proxy Group**

| Company | Ticker |
|---|---|
| ALLETE, Inc. | ALE |
| Alliant Energy Corporation | LNT |
| Ameren Corporation | AEE |
| American Electric Power Company, Inc. | AEP |
| Avista Corporation | AVA |
| CMS Energy Corporation | CMS |
| Duke Energy Corporation | DUK |
| Entergy Corporation | ETR |
| Evergy, Inc. | EVRG |
| IDACORP, Inc. | IDA |
| NextEra Energy, Inc. | NEE |
| NorthWestern Corporation | NWE |
| Pinnacle West Capital Corporation | PNW |
| Portland General Electric Company | POR |
| Southern Company | SO |
| Xcel Energy Inc. | XEL |

## VI. COST OF EQUITY ESTIMATION

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

A. The rate of return for a regulated utility is the weighted average cost of capital, in which the costs of the individual sources of capital are weighted by their respective proportion (*i.e.*, book values) in the utility's capital structure. The ROE is the cost rate applied to the equity capital in calculating the rate of return. While the costs 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 estimate the cost of equity for OG&E in this proceeding?**

A. I consider the results of the constant growth DCF model, the CAPM, the ECAPM, and a BYRP approach. A reasonable cost of equity estimate appropriately considers alternative methodologies and the reasonableness of their individual and collective results.

**Q. Why is it important to use more than one analytical approach?**

**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. Several models have been developed to estimate the cost of equity, and I use multiple approaches to estimate the cost of equity. As a practical matter, however, all of 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[34] suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[35] recommend the CAPM, DCF, and BYRP approaches.

**Q. Is it important given the current market conditions to use more than one analytical approach?**

A. Yes. As discussed previously, interest rates have increased substantially over the past two years and are expected to remain elevated over at least the next year from the lows seen during the COVID-19 pandemic. While the share prices of utilities have declined, the negative yield spread is an indication that utility share prices have not declined sufficiently to account for the recent rise in interest rates. As a result, equity analysts expect the utility sector to continue to underperform, and thus it is reasonable to conclude that the DCF model is likely understating the forward-looking cost of equity that relies on historical share prices to calculate the dividend yield. These recent changes in market conditions highlight the benefit of using multiple models since each model relies on different

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

[35] Brigham, Eugene and Louis Gapenski. Financial Management: Theory and Practice. Orlando, Dryden Press, 1994, at 341.

assumptions, certain of which better reflect current and projected market conditions at different times. As discussed previously, the CAPM, ECAPM, and BYRP analyses offer some balance through the use of both current and projected market data. Accordingly, it is 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.

### A. 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:

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

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

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

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 for the CGDCF model?**

A. The constant growth DCF model requires the following four assumptions: (1) a constant growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings ratio; and (4) a discount rate greater than the expected growth rate. To

the extent that any of these assumptions are 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 is based on the proxy group companies' current annual dividend and average closing stock prices over the 30-, 90-, and 180-trading days ended November 30, 2023.

**Q. Why do you use 30-, 90-, and 180-day averaging periods?**

A. In my constant growth DCF model, I use an average of recent trading days to calculate the 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. However, the averaging periods that I use rely on historical data that are not consistent with the forward-looking market expectations. Therefore, the results of the constant growth DCF model may underestimate the forward-looking cost of equity, which, as discussed, has been recognized by regulators in the current market conditions. As a result, I place more weight on the mean to mean-high results produced by my constant growth DCF model.

**Q. Do you make any adjustments to the dividend yield to account for periodic growth in dividends?**

A. Yes. Because 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. In order 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. However, over the long run, dividend growth can only be sustained by earnings growth, meaning 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. Accordingly, I have incorporated a number of sources of long-term EPS growth rates into the constant growth DCF model.

**Q. Which sources of long-term earnings growth rates did you use?**

A. My constant growth DCF model incorporates three sources of long-term projected EPS growth rates: (1) *Zacks Investment Research* ("*Zacks*"); (2) Yahoo! Finance; and (3) *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 reflect accurately investor perceptions of a company's growth prospects.

**Q. How do you calculate the range of results for the constant growth DCF models?**

A. I calculate 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 use 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 calculate results using the average EPS growth rate from all three sources for each proxy group company.

**Q. What are the results of your DCF analyses?**

A. Figure 8 (see also Exhibit AEB-4) summarizes the results of my DCF analyses. While I also summarize the DCF results using the minimum growth rates, given the expected

underperformance of utility stocks and thus the likelihood that the DCF model is understating the cost of equity, which, as noted below, has been recognized by other regulatory commissions, I do not believe it is appropriate to give these DCF results any material weight at this time.

**Figure 8: Summary of DCF Results**

| | Minimum Growth Rate | Average Growth Rate | Maximum Growth Rate |
|---|---|---|---|
| Mean Results: | | | |
| 30-Day Average | 9.11% | 10.32% | 11.42% |
| 90-Day Average | 9.04% | 10.26% | 11.35% |
| 180-Day Average | 8.85% | 10.06% | 11.15% |
| Average | 9.00% | 10.21% | 11.31% |
| Median Results: | | | |
| 30-Day Average | 9.48% | 10.10% | 11.29% |
| 90-Day Average | 9.34% | 10.04% | 11.26% |
| 180-Day Average | 9.15% | 9.92% | 11.05% |
| Average | 9.32% | 10.02% | 11.20% |

**Q. Have regulatory commissions acknowledged that the DCF model might understate the cost of equity given the current capital market conditions of high inflation and increasing interest rates?**

A. Yes. For example, in its May 2022 decision in establishing the cost of equity for Aqua Pennsylvania, Inc., the Pennsylvania Public Utility Commission ("PPUC") specifically concluded that the current capital market conditions of high inflation and increasing interest rates has resulted in the DCF model understating the utility cost of equity, and that weight should be placed on risk premium models, such as the CAPM, in the determination of the ROE.

> To help control rising inflation, the Federal Open Market Committee has signaled that it is ending its policies designed to maintain low interest rates. Aqua Exc. at 9. Because the DCF model does not directly account for

> interest rates, consequently, it is slow to respond to interest rate changes. However, I&E's CAPM model uses forecasted yields on ten-year Treasury bonds, and accordingly, its methodology captures forward looking changes in interest rates.
>
> Therefore, our methodology for determining Aqua's ROE shall utilize both I&E's DCF and CAPM methodologies. As noted above, the Commission recognizes the importance of informed judgment and information provided by other ROE models. In the 2012 PPL Order, the Commission considered PPL's CAPM and RP methods, tempered by informed judgment, instead of DCF-only results. We conclude that methodologies other than the DCF can be used as a check upon the reasonableness of the DCF derived ROE calculation. Historically, we have relied primarily upon the DCF methodology in arriving at ROE determinations and have utilized the results of the CAPM as a check upon the reasonableness of the DCF derived equity return. As such, where evidence based on other methods suggests that the DCF-only results may understate the utility's ROE, we will consider those other methods, to some degree, in determining the appropriate range of reasonableness for our equity return determination. In light of the above, we shall determine an appropriate ROE for Aqua using informed judgement based on I&E's DCF and CAPM methodologies.[36]

Similarly, the Massachusetts Department of Public Utilities in a recent rate case for NSTAR Electric Company concluded that given the recent increase in interest rates there was "greater certainty" that the results of the DCF model were understating the cost of equity for the utility.[37]

**Q. What are your conclusions about the results of the DCF models?**

A. As discussed previously, given that utility stocks are expected to underperform the broader market as interest rates remain elevated and yields on long-term government bonds exceed utility dividend yields, it is likely that current dividend yields in the DCF model that are based on historical stock prices are understated. As a result, it is likely that the DCF results are understated in the current market conditions, which has been recognized by other utility

[36] Pennsylvania Public Utility Commission, Docket Nos. R-2021-3027385 and R-2021-3027386, Opinion and Order, May 12, 2022, at 154–155.

[37] Massachusetts Department of Public Utilities, D.P.U. 22-22, November 30, 2022, at 385-386.

regulators. Therefore, it is important to consider the results of multiple analytical models. While I have given weight to the results of the DCF model, my recommendation also gives weight to the results of other cost of equity estimation models.

### B. CAPM Analysis

**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 or "systematic" risk of that security.[38] This second component is the product of the market risk premium and the beta coefficient, which measures the relative riskiness of the security being evaluated.

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

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

Where:

$K_e$ = the required market ROE;

$\beta$ = the beta coefficient of an individual security;

$r_f$ = the risk-free rate of return; 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

[38] Systematic risk is the risk inherent in the entire market or market segment, which cannot be diversified away using a portfolio of assets. Unsystematic risk is the risk of a specific company that can, theoretically, be mitigated through portfolio diversification.

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 4.77 percent;[39] (2) the average projected 30-year U.S. Treasury bond yield for the first quarter of 2024 through the first quarter of 2025, which is 4.48 percent;[40] and (3) the average projected 30-year U.S. Treasury bond yield for 2025 through 2029, which is 4.10 percent.[41]

**Q. What beta coefficients do you use in your CAPM analysis?**

A. As shown on Exhibit AEB-5, I use the beta coefficients for the proxy group companies as reported by Bloomberg and *Value Line*. The beta coefficients reported by Bloomberg are calculated using ten years of weekly returns relative to the S&P 500 Index. The *Value Line* beta coefficients are calculated based on five years of weekly returns relative to the New York Stock Exchange Composite Index. Additionally, as shown in shown Exhibit AEB-

[39] Bloomberg Professional, as of November 30, 2023.

[40] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, at 2.

[41] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, at 14.

5, I also consider an additional CAPM analysis that relies on the long-term average utility beta coefficient for the companies in my proxy group from 2013 through 2022.

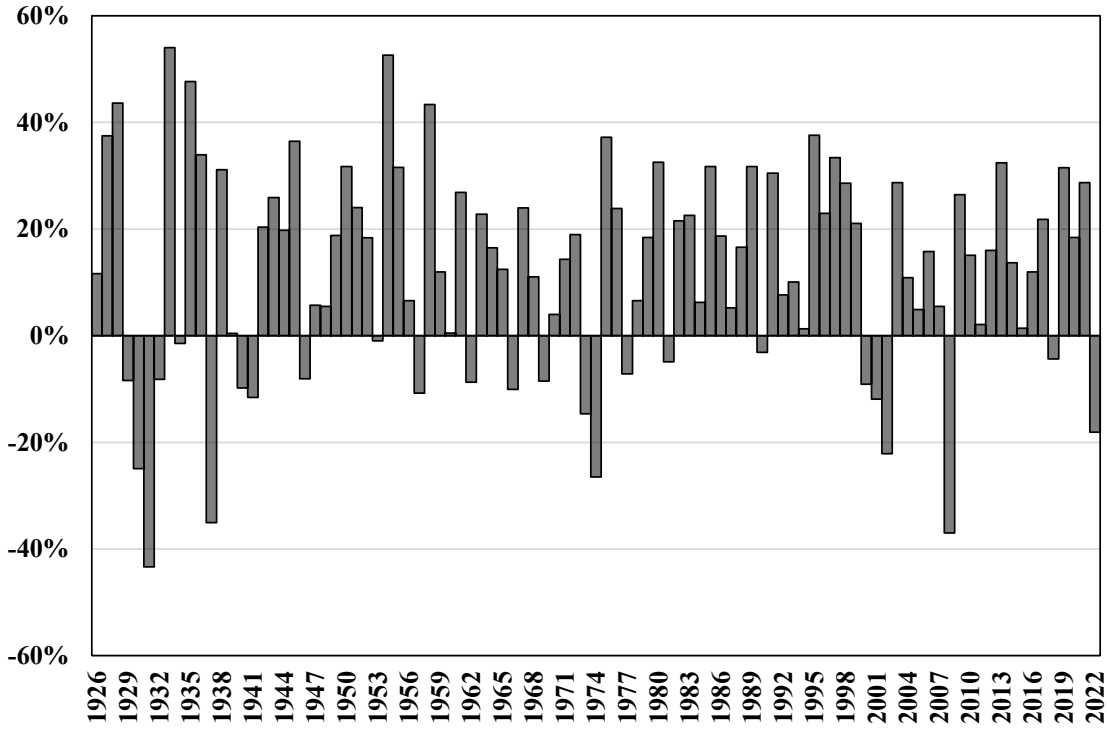
**Q. How do you estimate the market risk premium in the CAPM?**

A. I estimate the market risk premium as the difference between the implied expected equity market return and the risk-free rate. As shown in Exhibit AEB-7, the expected market return is calculated using the constant growth DCF model discussed previously as applied to the companies in the S&P 500 Index. Based on an estimated market capitalization-weighted dividend yield of 1.88 percent and a weighted long-term growth rate of 10.78 percent, the estimated required market return for the S&P 500 Index as of November 30, 2023 is 12.56 percent.

**Q. How does the expected market return compare to observed historical market returns?**

A. As shown in Figure 9, given the range of annual equity returns that have been observed over the past century, a current expected market return of 12.56 percent is not unreasonable. In 50 out of the past 97 years (or approximately 52 percent of observations), the realized equity market return was at least 12.56 percent or greater.

**Figure 9: Realized U.S. equity market returns (1926-2022)**[42]




**Q. Do 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.[43] 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:

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

Where:

$k_e$ = the required market ROE;

[42] Depicts total annual returns on large company stocks, as reported in the 2023 Kroll SBBI Yearbook.

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

$\beta$ = the adjusted beta coefficient of an individual security;
$rf$ = the risk-free rate of return; and
$r_m$ = 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.[44]

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 and ECAPM analyses?**

A. The results of my CAPM and ECAPM analyses are summarized in Figure 10, as well as presented in Exhibit AEB-5.

[44] *Id*. at 191.

**Figure 10: Summary of CAPM and ECAPM Results**

| | 30-Year Treasury Bond Yield | | |
|---|---|---|---|
| | Current 30-Day Avg | Near-Term Projected | Longer-Term Projected |
| CAPM: | | | |
| Current *Value Line* Beta | 11.66% | 11.62% | 11.58% |
| Current Bloomberg Beta | 10.89% | 10.83% | 10.75% |
| Long-term Avg. *Value Line* Beta | 10.50% | 10.42% | 10.32% |
| ECAPM: | | | |
| Current *Value Line* Beta | 11.88% | 11.86% | 11.82% |
| Current Bloomberg Beta | 11.31% | 11.26% | 11.20% |
| Long-term Avg. *Value Line* Beta | 11.01% | 10.95% | 10.88% |

### C. BYRP Analysis

**Q. Please describe the BYRP approach.**

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 bondholders. In other words, because returns to equity holders have greater risk than returns to bondholders, equity holders require a higher return for that incremental risk. Thus, risk premium approaches 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 use actual authorized returns for vertically integrated electric utilities 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 presented in Exhibit AEB-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.[45]

**Q. Is the BYRP 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. As discussed previously, utilities have experienced credit rating downgrades and been subject to a negative market reaction related to the financial effects of a rate case decision that included a below average authorized ROE. Because my BYRP analysis is based on authorized ROEs for utility companies relative to corresponding Treasury yields, it provides relevant information to assess the return expectations of investors in the current interest rate environment.

**Q. What did your BYRP analysis reveal?**

A. As shown in Figure 11, from 1980 through November 2023, 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:

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[45] *See e.g.*, 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* Harris, Robert S. "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return." *Financial Management*, Spring 1986, at 66.

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

Where:

$RP$ = Risk Premium (difference between authorized ROEs and the yield on 30-year Treasury bonds)

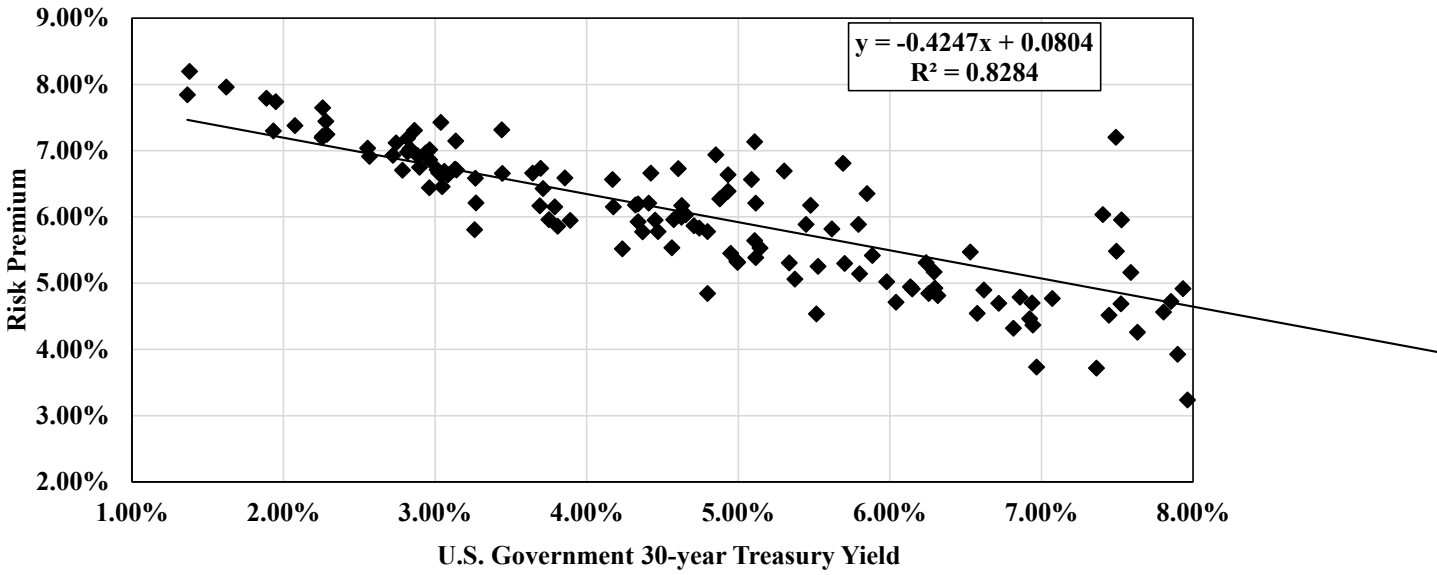
$a$ = intercept term

$b$ = slope term

$T$ = 30-year Treasury bond yield

Data regarding authorized ROEs were derived from all of the natural gas utility rate cases over this period as reported by RRA.[46] The equation's coefficients are statistically significant at the 99.00 percent level.

**Figure 11: Risk Premium Results**




**Q. What are the results of your BYRP analysis?**

A. Figure 12 presents the results of my BYRP analysis, which is also presented in more detail in Exhibit AEB-8.

[46] The data was screened to eliminate limited issue rider cases, transmission cases, electric distribution-only (*i.e.*, no generation) cases, and cases that were silent with respect to the authorized ROE.

**Figure 12: BYRP Results**

| | 30-Year Treasury Bond Yield | | |
|---|---|---|---|
| | Current 30-Day Avg | Near-Term Projected | Longer-Term Projected |
| Bond Yield Risk Premium: | 10.79% | 10.62% | 10.40% |

**Q. How did the results of the BYRP analysis inform your recommended ROE for OG&E?**

A. I have considered the results of the BYRP analysis in my recommended ROE for OG&E. As noted, investors consider the authorized ROE for a utility when assessing the risk of that company as compared to utilities of comparable risk operating in other jurisdictions.

## VII. BUSINESS AND REGULATORY RISKS

**Q. Do the results of the cost of equity analyses alone 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. Several additional factors must be considered when determining where the Company's cost of equity falls within the range of analytical results. These risk factors, discussed below, should be considered with respect to their overall effect on the Company's risk profile relative to the proxy group.

### A. Wildfire Risk

**Q. Have equity analysts and credit rating agencies recognized wildfire as a substantial risk to the electric utility sector?**

A. Yes. While wildfire risk is not a new threat to utility investors, it has become a much larger focus to both equity investors and credit rating agencies. For example, BofA Securities

("BofA") has stated that wildfire risk **<u>**has become the top question among all different investor types**</u>.**[47] In fact, BofA has stated that it sees **"<u>**the consistent existential risk posed by wildfires outflanking any other factor exposure of a given utility equity**</u>."**[48] For example, BofA highlighted the catastrophic wildfires in California in 2017-2018 that led to the bankruptcy of PG&E Corporation and its subsidiary Pacific Gas and Electric Company ("PG&E") and caused material liabilities that weakened the earnings growth for Southern California Edison ("SoCalEd"), but noted that the current wildfire risk **<u>**feels worse given the increased occurrences of wildfires across multiple states, even outside of the traditional wildfire season, and the billions in potential wildfire liabilities currently faced by PacifiCorp in Oregon, Xcel Energy in Colorado, and Hawaiian Electric .**</u>[49] A such, a utility's exposure to wildfire risk is expected to be a defining factor for utility valuations:

> **<u>**Should there be further events, we perceive a risk that the 'new' premium utility will be defined by its exposure to wildfire factors. The first screen is simply geography and FEMA's assessment of wildfire risk, while the second consideration is the legal and regulatory construct under which the utility operates. We anticipate having explicit and refreshed plans will become a necessity for any utilities operating in geographies.**</u>
>
> *****
>
> **<u>On balance, the added wildfire concerns across the west, with their disproportionate manifestation across small- and even mid-caps makes us incrementally cautious on the entire sub-group of utilities.**</u>[50]

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[47] BofA Global Research. US Utilities & IPPs. "Wildfire wakeup: what the Hawaiian fires mean for the sector as prudency shifts." August 28, 2023.

[48] BofA Global Research. US Utilities & IPPs. "As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes." September 6, 2023.

[49] BofA Global Research. US Utilities & IPPs. "Wildfire wakeup: what the Hawaiian fires mean for the sector as prudency shifts." August 28, 2023.

[50] BofA Global Research. US Utilities & IPPs. "As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes." September 6, 2023.

As further stated by BofA:

> **PacifiCorp and Xcel Energy (XEL) are each facing billions in potential wildfire-related liabilities. Hawaiian Electric may not have shareholder value if wholly responsible for the ~$5.4Bn estimated wildfire damage. In the past week, Evergy (EVRG) had a fire caused by its downed poles, and Entergy Corp (ETR) warned of fire hazards. The increased occurrences in multiple states, even outside of the traditional wildfire season has investors of all types on edge.** [51]

From the credit rating agency perspective, Moody's has noted that wildfire risk "can reach catastrophic levels at utilities," and that it is difficult to determine which utilities are most at risk given that the recent wildfires in Oregon and Hawaii were in moderate risk zones.[52] S&P has stated that ****"[d]amages and related costs from physical risks are escalating in North America as regions designated as high-fire risk expand," and that over the past 6 years, utility credit downgrades directly related to physical risks have increased significantly.**** [53] Similarly, Fitch has noted the higher regulatory risk associated with wildfires, and stated that extreme weather, which includes wildfires, has driven approximately one-quarter of its downgrades in the past 6 years, yet was not a driver of downgrades in the 6 years prior.[54] The most recent example is Hawaiian Electric Industries Inc. and its subsidiaries after the catastrophic Maui fires in August 2023 when

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[51] *Id*.

[52] Moody's Investors Service. "Breakfast with the Analysts. 58th Annual EEI Financial Conference." November 13, 2023, at 30.

[53] S&P Global Ratings. "A Storm is Brewing: Extreme Weather Events Pressure North American Utilities' Credit Quality." November 9, 2023, at 1.

[54] FitchRatings. "Climate Related Risks in Focus." 35th Annual Presentation at EEI Financial Conference. November 13, 2023, at 5, 11.

S&P, Moody's, and Fitch all downgraded to "junk" status in response to the potential wildfire liabilities faced by the utility.[55]

**Q. Is wildfire risk to utilities limited to a few states?**

A. No. The Federal Emergency Management Agency ("FEMA") publishes a National Risk Index that ranks the wildfire risk by county and census tract in five categories: Very High, Relatively High, Relatively Moderate, Relatively Low, and Very low. Based on FEMA's assessment, wildfire risk is much broader than a few states, with the risk identified primarily as west of the Mississippi River, Hawaii, Florida, and the southeastern coast of the U.S.[56]

**Q. Have you conducted any analysis to evaluate the wildfire risk in Oklahoma as compared to the jurisdictions in which the companies in the proxy group operate?**

A. Yes. Based on FEMA's rankings of the Expected Annual Loss associated with wildfire for each state, I have conducted an analysis to compare the wildfire risk of Oklahoma to the jurisdictions in which the utility operating subsidiaries of the companies in the proxy group operate. Specifically, I have applied a numeric ranking system to the FEMA rankings with "Very Low" assigned the lowest ranking (*i.e.*, a "1") and "Very High" assigned the highest ranking (*i.e.*, a "5"). As shown on Exhibit AEB-11, Oklahoma is ranked "Relatively Moderate" (*i.e.*, a "3"). These rankings for Oklahoma, and the Company's service territory demonstrate a higher risk than the proxy group average ranking of between "Relatively Low" and "Relatively Moderate" (*i.e.*, a "2.12").

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[55] *See, e.g.,* "Fitch downgrades Hawaiian Electric to junk on worries over wildfire exposure." Reuters. August 21, 2023; "S&P downgrades Hawaiian Electric to 'B-'as wildfires raise market-access worries." Reuters. August 24, 2023; "Moody's downgrades Hawaiian Electric's credit to junk amid Maui wildfire scrutiny." Reuters. August 18, 2023.

[56] FEMA National Risk Index; https://hazards.fema.gov/nri/map# (wildfire risk by census tract).

**Q. What are your conclusions regarding the effect of wildfire risk on OG&E?**

A. Wildfire risk presents one of the most significant business, operational, and financial threats for utilities in states subject to such risks. Oklahoma has relatively greater wildfire risk as compared to the proxy group utilities, and it is clear that equity investors and credit rating agencies are reflecting the incremental risk for companies that have been affected by wildfire exposure and that the electric utility sector overall has increased risk related to this threat. The capital costs associated with wildfire mitigation can be significant and continue over many years, thus making the timeliness of cost recovery important. Absent meaningful regulatory support for the utilities in the states subject to substantial potential losses from wildfires, the investor-required return increases significantly due to the higher risk of wildfire exposure. Addressing this risk in a timely manner should be a top regulatory priority in order to provide the Company with the ability to access capital on reasonable terms and make the capital investments needed going forward.

**B. <u>Capital Expenditures</u>**

**Q. Please summarize the Company's capital expenditure requirements.**

A. The Company's current projection of capital expenditures for 2024 through 2027 totals approximately $4.087 billion, which represents approximately 39 percent of the Company's approximate $10.541 in net utility plant as of December 31, 2022.[57]

**Q. How do OG&E's capital expenditure requirements compare to those of the proxy group companies?**

A. As shown on Exhibit AEB-10, I have calculated the ratio of expected capital expenditures to net utility plant for OG&E and each of the companies in the proxy group by dividing

[57] Data provided by the Company.

each company's projected capital expenditures for the period from 2024 through 2027 by its total net utility plant as of December 31, 2022. As shown, OG&E's ratio of capital expenditures as a percentage of net utility plant is approximately 91 percent of the median for the proxy group companies.

**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 large 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. 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. ****[58]

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 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.**** [59]

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

[59] 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.

Specifically regarding the Company, S&P recently stated that it expects the Company **<u>**to have negative discretionary cash flow throughout its forecast, and noted the potential for the Company's capital expenditure plan to increase above currently projected levels due to plans to retire approximately 845 MW of natural gas-fired units by 2027**</u>.[60]

Therefore, to the extent that the Company's rates do not continue to reasonably permit the recovery of its prudently-incurred capital investments on a timely basis, OG&E would face increased recovery risk and thus increased pressure on its credit metrics.

**Q. Does OG&E have any capital tracking mechanisms to recover the costs associated with its capital expenditures plan between rate cases?**

A. Yes. Currently, OG&E has a Grid Enhancement Mechanism ("GEM") that allows the Company to recover a relatively small portion of the costs associated with grid enhancement capital expenditures.[61] It is important to note that the GEM is currently set to expire in July 2025. Further, it is important to note that the vast majority of OG&E's projected capital expenditures do not qualify for cost recovery through the GEM since it is limited to recovery of very specific investment types and has a revenue requirement cap of $6 million per annual investment plan year. Also, as noted, the Company's projected capital expenditures over 2024 through 2027 average more than $1 billion per year.

In addition, OG&E has a Generation Capacity Recovery ("GCR") Rider, which is limited to the future cost recovery associated with the addition of the Horseshoe Lake gas-fired combined-cycle generating units that are expected to commence operation in 2026.

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60 S&P Global Ratings. Ratings Direct. Oklahoma Gas & Electric Co. July 21, 2023, at 2.

61 The Company also has a Southwest Power Pool Cost Tracker, however this tracker passes through the costs of third-party owned transmission projects.

Cost recovery through the GCR is not permitted until the Horseshoe Lake units are in service. The Horseshoe Lake capital expenditures are incremental to the $1 billion annual capital needs identified for the 2024-2027 period.

Therefore, considering the limitations of the capital cost recovery mechanisms currently authorized for the Company, OG&E will still depend on rate case filings for the majority of its capital cost recovery.

**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 as a percentage of net utility plant are significant and are expected to continue over the next few years. While OG&E does have the GEM and GCR to recover qualifying capital costs, these mechanisms are limited and do not provide for timely recovery of a substantial portion of the Company's capital expenditures between rate cases. As a result, the Company has relatively greater risk of timely cost recovery and earnings potential relative to the proxy group companies.

### 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 commissions recognize that because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, and that doing so balances the long-term interests of investors and customers. Utilities must finance their operations and thus require the opportunity to earn a reasonable return on their invested capital to maintain their financial profiles. The

Company is no exception, and 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 utility to generate the cash flow needed to meet its near-term financial obligations, make the capital investments needed to maintain and expand its systems, 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 efficient access to capital markets. Moreover, because fixed income investors have many investment alternatives, even within a given market sector, a utility'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 require that the authorized return be adequate to provide a risk-comparable return on the equity portion of the utility's capital investments. Because equity investors are the residual claimants on the utility's cash flows (*i.e.*, the equity return is subordinate to interest payments), they are particularly concerned with the strength of regulatory support and its effect on future cash flows.

**Q. Do credit rating agencies consider regulatory risk in establishing a company's credit rating?**

A. Yes. 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.[62]

S&P also identifies the regulatory framework as an important factor in credit ratings for regulated utilities, stating: "One significant aspect of regulatory risk that influences credit quality is the regulatory environment in the jurisdictions in which a utility operates."[63] 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.[64]

**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 operate as a monopoly, the regulatory environment and how the utility adapts to that environment are the most important credit considerations."[65] Moody's further highlighted 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

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

63 Standard & Poor's Global Ratings. Ratings Direct, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others. June 25, 2018, at 2.

64 *Id*., at 1.

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

utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[66]

**Q. Have you conducted any analysis of the regulatory framework in Oklahoma relative to the jurisdictions in which the companies in your proxy group operate?**

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

Test Year Convention: OG&E is relying on a historical test year in Oklahoma for 12 months ending September 30, 2023, with a subsequent update to March 31, 2024. Similarly, as shown in Exhibit AEB-11, approximately 54 percent of the operating utility subsidiaries of the proxy group companies provide service in jurisdictions that use a historical test year. Forecast test years result in more prompt recovery of incurred costs and thus mitigates the regulatory lag associated with historical test years. As Lowry, Hovde, Getachew, and Makos (2010) explain:

> This report provides an in depth discussion of the test year issue. It includes the results of empirical research which explores why the unit costs of electric IOUs are rising and shows that utilities operating under forward test years realize higher returns on capital and have credit ratings that are materially better than those of utilities operating under historical test years. The research suggests that shifting to a future test year is a prime strategy for rebuilding utility credit ratings as insurance against an uncertain future.[67]

Revenue Stabilization/Non-Volumetric Rate Design: OG&E has partial decoupling with its ability to recover the costs of energy efficiency programs, the lost revenues associated with those programs, and other certain incentives through rate riders. As shown in Exhibit AEB-11, approximately 59 percent of the utility operating subsidiaries of the proxy group companies also have some form of revenue stabilization through either decoupling, formula-based rates, and/or

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66 *Id*.

67 Lowry, Mark Newton, David Hovde, Lullit Getachew, and Matt Makos. "Forward Test Years for US Electric Utilities." Prepared for the Edison Electric Institute. August 2010 at 1.

straight-fixed variable rate design that allow them to break the link between customer usage and revenues.

Capital Cost Recovery: As discussed, the Company has a GEM and GCR mechanism that provide for the recovery specific costs related to eligible capital investments between rate proceedings. As shown in Exhibit AEB-11, approximately 67 percent of the operating utility subsidiaries of the proxy group companies have some form of capital cost recovery allowing for the recovery of capital investments placed into service between rate cases.

**Q. Have you conducted any additional analyses to evaluate the regulatory environment in Oklahoma as compared to the jurisdictions in which the companies in the proxy group operate?**

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

**Q. How does RRA evaluate 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 case decisions and other regulatory decisions, and information obtained through contact with commissioners, staff, utilities, and government outreach.

**Q. How do you use the RRA ratings to compare the regulatory jurisdictions of the proxy group 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 have 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 Exhibit AEB-12, the Oklahoma 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 "4.68"). RRA had identified Oklahoma as a jurisdiction to watch in February 2023,[68] and has recently lowered its ranking of Oklahoma's regulation due, in part, to the Commission's decision to depart from historical practice by making significant amendments to the comprehensive settlement in the recent Public Service Company of Oklahoma ("PSO") rate proceeding,[69] which included the Commission lowering the stipulated ROE by 20 basis points when it was already below the average ROEs approved for vertically-integrated electric utilities nationwide in 2023.[70]

**Q. How do you conduct your analysis of the S&P credit supportiveness ranking?**

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 is similar to the analysis of the RRA overall regulatory ranking discussed above. Specifically, I have assigned a numerical ranking to each category, from Most Credit Supportive (*i.e.*, a "1") to Credit Supportive (*i.e.*, a "5").

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[68] S&P Global. "RRA State Regulatory Evaluations – Energy." February 24, 2023, at 9.

[69] Oklahoma Corporation Commission, Final Order, Case No. PUD 2022-000093, November 3, 2023, at 7.

[70] S&P Global. "RRA State Regulatory Evaluations – Energy." December 4, 2023, at 6.

As shown on Exhibit AEB-13, similar to the RRA regulatory rankings discussed above, S&P ranks Oklahoma as "3", which is slightly below the proxy group average ranking of "2.53".

**Q. As you noted, the Commission recently authorized an ROE of 9.30 percent in Case No. PUD 2022-000093.[71] Are the circumstances in that proceeding the same as in this proceeding?**

A. No. At a minimum, the capital market conditions upon which the cost of equity analyses were based are quite different. While the Commission authorized an ROE of 9.30 percent for PSO in that proceeding, the applicant's cost of equity analyses reflected data as of mid-August 2022, while the intervenors' cost of equity analyses reflected data through mid-February 2023. As shown in Figure 3, market conditions since that time have changed substantially, with long-term interest rates increasing significantly. Further, Figure 5 demonstrates that utility stock prices have decreased significantly, which results in significantly higher dividend yields and increased estimates of the cost of equity in the DCF model. Without commenting on the veracity of any of the cost of equity analyses conducted in that proceeding, these changes in market conditions alone have unquestionably resulted in an increase in the market-based cost of equity since the data presented in the record and considered by the Commission in Case No. PUD 2022-000093.

[71] Oklahoma Corporation Commission, Final Order, Case No. PUD 2022-000093, November 3, 2023, at 7.

**Q. Can you highlight the magnitude of the changes that have occurred in the market since the cost of equity analyses were conducted by the parties in Case No. PUD 2022-000093?**

A. Yes. As shown in Figure 13, long-term interest rates have increased by approximately 170 basis points relative to the date on which PSO based its cost of equity analyses in Case No. PUD 2022-000093, and by approximately 110 basis points relative to the data on which the intervenors based their respective cost of equity analyses. Further, the S&P Utilities Index has declined by 18.5 percent and 9.0 percent, respectively, since those dates as well, causing an increase in the dividend yields of those utilities.

**Figure 13: Changes in Capital Market Conditions Since Cost of Equity Analyses Conducted in Case No. PUD 2022-000093**

| Change Since… | Federal Funds Rate | 30-Day Avg of 30-Year Treasury Bond Yield | Core Inflation Rate | S&P 500 Utilities Index |
|---|---|---|---|---|
| Applicant Cost of Equity Analyses | 3.0% | 1.7% | -2.3% | -18.5% |
| Intervenor Cost of Equity Analyses | 0.8% | 1.1% | -1.5% | -9.0% |

**Q. Directionally, should the ROE authorized in this proceeding be higher than the ROE that was previously authorized for the Company in its last rate proceeding?**

A. Yes. One of the fundamental principles in setting a just and reasonable return is that the return must be comparable to returns available to investors in companies with similar risk. It is the responsibility of the regulatory commissions to ensure that utility rates are just and reasonable. Further, the Oklahoma commission has historically relied on comparability standards that are consistent with those established in *Hope* and *Bluefield*, which suggest that the return that is established is comparable with the returns on alternative investments of comparable risk. Further, while these cases do not prescribe a methodology for

establishing the ROE, the end result is intended to satisfy these criteria. Therefore, it is important that the ROE that is determined in this proceeding consider the changes in market conditions since the Commission approved the Company's settlement in its last rate proceeding and since the evidence considered in the PSO rate proceeding. Based on the increases in the cost of capital discussed herein, it is reasonable to expect that the cost of equity has increased since the Company's last rate proceeding.

**Q. Is it important that the Commission consider how the ROE to be authorized for the Company in this proceeding compares to other comparable utilities?**

A. Yes. As discussed previously, OG&E must compete for discretionary capital within the OGE Energy corporate structure, which must in turn compete for capital with other utilities and businesses. Investors consider the business and financial risks for a company like OG&E relative to other comparable investments. In its most recent credit report on the Company, S&P notes that the Company has effective management of its regulatory risk through various cost recovery mechanisms; however, has identified a "[l]ack of regulatory diversity" as a risk of the Company, which makes it "largely dependent on its regulators to sustain credit quality."[72] Therefore, the Commission should consider how the authorized ROE for the Company in this proceeding compares to the ROEs authorized for other vertically-integrated utilities, assess that comparison relative to the changes in capital market conditions, as well as consider the specific business and regulatory risks of the Company relative to the proxy group, so that the Company's future access to capital is not negatively impacted. 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

[72] S&P Global Ratings. Ratings Direct. Oklahoma Gas and Electric Co. July 21, 2023, at 1.

the overall risk assessment of the regulatory jurisdiction in which the company operates. As noted, there are various examples of utilities that have experienced a credit rating downgrade and/or a negative market response related to the financial effects of a rate decision.

**Q. What are your conclusions regarding the perceived risks related to the Oklahoma regulatory environment?**

A. 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. Based on my analysis, while the Company's regulatory risk and the ability to timely recover its prudently incurred costs is generally consistent with the operating utilities of the proxy group, it is moderately higher given the limitations on capital cost recovery associated with the GEM and GCR mechanisms. For these reasons, I conclude that OG&E has greater than average regulatory risk when compared to the proxy group.

### D. Flotation Cost

**Q. What are flotation costs?**

A. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for preparation, filing, underwriting, and other issuance costs.

**Q. Why is it important to consider flotation costs in the authorized ROE?**

A. A regulated utility must have the opportunity to earn an ROE that is both competitive and compensatory to attract and retain new investors. To the extent that a company is denied the opportunity to recover prudently incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diluting equity share value.

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

A. Yes. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet under "paid in capital." They are not current expenses, and, therefore, are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the great majority of a utility's flotation cost is incurred prior to the test year but remains part of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes. Therefore, it is irrelevant whether an issuance occurs during the test year or is planned for the test year because failure to allow recovery of past flotation costs may deny the Company the opportunity to earn its required rate of return in the future.

**Q. Please provide an example of why a flotation cost adjustment is necessary to compensate investors for the capital they have invested.**

A. Assume OG&E issues stock with a value of $100, and an equity investor invests $100 in the Company in exchange for that stock. Further suppose that, after paying the flotation costs associated with the equity issuance, which include fees paid to underwriters and attorneys, among others, OG&E ends up with only $97 of issuance proceeds, rather than the $100 the investor contributed. OG&E invests that $97 in plant used to serve its customers, which becomes part of rate base. Absent a flotation cost adjustment, the investor will thereafter earn a return on only the $97 invested in rate base, even though she contributed $100. Making a small flotation cost adjustment gives the investor a reasonable opportunity to earn the authorized return, rather than the lower return that results when the authorized return is applied to an amount less than what the investor contributed.

**Q. Is the date of OG&Es last issued common equity important in the determination of flotation costs?**

A. No. It is important to recognize flotation costs for all equity issuances since these costs reduce the permanent capital structure of the company. Therefore, the vintage of the issuance is not particularly important because an investor should have a reasonable opportunity to earn a return on the full amount of capital that she has contributed in every year of the investment. As noted in my earlier example, the investor contributed $100, but due to flotation costs, OG&E only ends up with $97 to invest in rate base. Without the recognition of flotation costs, the investor will only earn a return on the $97 invested in rate base in year 1 as well as every subsequent year of the investment. Therefore, adjusting the ROE in year 1 to recognize flotation costs will only provide the opportunity for the investor to earn a return on her full investment in year 1, while in year 2 and thereafter the investor will still only earn a return on the $97 invested in rate base. As a result, the ROE should be adjusted for flotation costs in every year regardless of the vintage of the issuance, because as long as the $100 is invested, the investor should have a reasonable opportunity to earn a return on the entire amount.

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

A. Yes. The academic and financial communities recognize the need to reimburse investors for equity issuance costs in the same spirit that they recognize that investors should be reimbursed for the costs of issuing debt. This treatment is consistent with the philosophy of a fair rate of return. According to Dr. Shannon Pratt:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which

> reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[73]

**Q. Have you estimated what a reasonable flotation cost adjustment would be for the Company?**

A. Yes. My flotation cost calculation is based on the equity issuance costs that were incurred by OG&E in its last equity issuance. That flotation cost percentage is then applied to the expected dividend yields for the proxy group companies. As shown in Exhibit AEB-14, the impact on the proxy group's cost of equity associated with OG&E's historical flotation cost is 20 basis points (*i.e.*, 0.20 percent).

**Q. Do your cost of equity model results include an adjustment for flotation cost recovery?**

A. No. I do not make an explicit adjustment for flotation costs to any of the quantitative results of my cost of equity models. Rather, I have considered the incremental cost associated with stock issuance as part of my overall recommendation regarding the range of reasonable ROE for the Company, as well as my recommended ROE for the Company within that range.

[73] Pratt, Shannon P. *Cost of Capital Estimation and Applications*. Second Edition, at 220-21.

## VIII. CAPITAL STRUCTURE

**Q. Is the capital structure of the Company an important consideration in the determination of the appropriate ROE?**

A. Yes. The equity ratio is the primary indicator of financial risk for a regulated utility. All else equal, a higher debt ratio increases the risk to investors. For debt holders, higher debt ratios result in a greater portion of the available cash flow being required to meet debt service, thereby increasing the risk associated with the payments on debt. The result of increased risk is a higher interest rate. The incremental risk of a higher debt ratio is more significant for common equity shareholders, whose claim on the cash flow of the Company is secondary to debt holders. Therefore, the greater the debt service requirement, the less cash flow is available for common equity holders.

**Q. What is the Company's proposed capital structure?**

A. The Company proposes to establish a capital structure consisting of 53.50 percent common equity and 46.50 percent long-term debt.

**Q. Did you conduct any analysis to determine if the requested equity ratio was reasonable?**

A. Yes. I compared the Company's proposed capital structure relative to the actual capital structures of the utility operating subsidiaries of the companies in the proxy group. The cost of equity is estimated based on the return that is derived from companies in the proxy group that are deemed to be comparable in risk to the Company; however, those companies must be publicly-traded in order to apply the cost of equity models. The operating utility subsidiaries of the proxy group companies are most risk-comparable to the Company, and thus it is reasonable to look to the average capital structure of the operating utilities of the

proxy group to benchmark the equity ratios for the Company. Specifically, I have calculated the average proportion of common equity, long-term debt, preferred equity and short-term debt for the most recent three years for each of the utility operating subsidiaries of the proxy group companies. As shown in Exhibit AEB-15, the equity ratios for the utility operating subsidiaries of the proxy group range from 45.52 percent to 61.29 percent, with an average of 52.82 percent. The Company's proposed equity ratio of 53.50 percent is well within the range of equity ratios of the proxy group, and just slightly above the average.

**Q. Are there other factors to be considered in setting the Company's capital structure?**

A. Yes, there are other factors that should be considered in setting the Company's capital structure, namely the challenges that the credit rating agencies have highlighted as placing pressure on the credit metrics for utilities.

For example, while Moody's recently revised its outlook for the utility sector from "negative" to "stable", Moody's continues to note that high interest rates and increased capital spending will place pressure on credit metrics. Thus, Moody's highlights constructive regulatory outcomes that promote timely cost recovery as a key factor in supporting utility credit quality.[74]

Likewise, while S&P also recently revised its outlook for the industry from negative to stable, S&P continues to see significant risks over the near-term for the industry as a result of inflation and increased levels of capital spending. Specifically, S&P noted:

> Despite the improvement in economic data, we expect inflation, rising interest rates, higher capital spending, and the strategic decision by many companies to operate with only minimal financial cushion from their

[74] Moody's Investors Service, Outlook. "Outlook turns stable on low prices and credit-supportive regulation." September 7, 2023.

> downgrade thresholds to continue to pressure the industry's credit quality. Throughout 2022 and so far in 2023, the Federal Reserve has consistently raised interest rates to reduce the pace of inflation. While these actions appear to have had a positive effect on slowing inflation, there's still been a modest weakening in the industry's financial measures because of inflation and rising interest rates. An environment of continuously rising costs tends to weaken the industry's financial measures because of the timing difference between when the higher costs are incurred and when they are ultimately recovered from ratepayers.[75]

S&P has also recently concluded:

> The confluence of higher operating costs due to rising inflation, higher interest rates, storm restoration costs, increasing capital spending, and the recovery of previously deferred higher commodity costs, has resulted in growing rate case filings and increased rate rider recovery requests from state regulators. We expect to closely monitor the industry's ability to not just recover these rising costs but to do so in such a manner that minimizes the regulatory lag. However, given the impact of these higher costs to the customer bill, the industry's ability to effectively manage regulatory risk could become increasingly challenging, possibly pressuring its credit quality.[76]

Fitch Ratings ("Fitch") has stated that it is maintaining a "deteriorating outlook" on the U.S. utility sector in 2024 based on elevated capital spending and continuing higher interest rates that place pressure on credit metrics. Fitch noted that bill affordability will remain a major issue for the industry that could affect future regulatory outcomes, and that while it expects authorized ROEs to start trending up with the increase in interest rates, albeit with a lag, given the uncertain macroeconomic environment and bill pressure on customers, the lag could be longer than in previous cycles.[77]

The credit ratings agencies' continued concerns over the negative effects of inflation and increased capital expenditures underscore the importance of maintaining

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[75] S&P Global Ratings. "The Outlook for North American Regulated Utilities Turns Stable," May 18, 2023, at 8.

[76] S&P Global Ratings. "Regulatory Friction Is Constraining Cost Recovery For North American Investor-Owned Utilities." November 6, 2023, at 8.

[77] FitchRatings. "North American Utilities, Power & Gas Outlook." S&P Market Intelligence, November 13, 2023.

adequate cash flow metrics for the industry as a whole, and OG&E in particular in the context of this proceeding.

**Q. Will the capital structure and ROE authorized in this proceeding affect the Company's access to capital at reasonable rates?**

A. Yes. The level of earnings authorized by the Commission directly affects the Company's ability to fund its operations with internally-generated funds. Both bond investors and rating agencies expect a significant portion of ongoing capital investments to be financed with internally-generated funds. In addition, it is important to recognize that because a utility's investment horizon is very long, investors require the assurance of a sufficiently high return to satisfy the long-term financing requirements of the assets placed into service. Those assurances, which often are measured by the relationship between internally-generated cash flows and debt (or interest expense), depend quite heavily on the capital structure. As a consequence, both the ROE and capital structure are very important to debt and equity investors, particularly given the capital market conditions discussed previously.

## IX. CONCLUSIONS AND RECOMMENDATION

**Q. What is your conclusion regarding a fair ROE for OG&E?**

A. Based on the various quantitative analyses summarized in Figure 14 below, 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, an ROE of 10.50 percent within that range is reasonable.

**Figure 14: Summary of Analytical Results**

***Constant Growth DCF***

| | Minimum Growth Rate | Average Growth Rate | Maximum Growth Rate |
|---|---|---|---|
| Mean Results: | | | |
| 30-Day Average | 9.11% | 10.32% | 11.42% |
| 90-Day Average | 9.04% | 10.26% | 11.35% |
| 180-Day Average | 8.85% | 10.06% | 11.15% |
| Average | 9.00% | 10.21% | 11.31% |
| Median Results: | | | |
| 30-Day Average | 9.48% | 10.10% | 11.29% |
| 90-Day Average | 9.34% | 10.04% | 11.26% |
| 180-Day Average | 9.15% | 9.92% | 11.05% |
| Average | 9.32% | 10.02% | 11.20% |

***CAPM / ECAPM / Bond Yield Risk Premium***

| | 30-Year Treasury Bond Yield | | |
|---|---|---|---|
| | Current 30-Day Avg | Near-Term Projected | Longer-Term Projected |
| CAPM: | | | |
| Current *Value Line* Beta | 11.66% | 11.62% | 11.58% |
| Current Bloomberg Beta | 10.89% | 10.83% | 10.75% |
| Long-term Avg. *Value Line* Beta | 10.50% | 10.42% | 10.32% |
| ECAPM: | | | |
| Current *Value Line* Beta | 11.88% | 11.86% | 11.82% |
| Current Bloomberg Beta | 11.31% | 11.26% | 11.20% |
| Long-term Avg. *Value Line* Beta | 11.01% | 10.95% | 10.88% |
| Bond Yield Risk Premium: | 10.79% | 10.62% | 10.40% |

**Q. What is your conclusion with respect to OG&E's proposed capital structure?**

A. My conclusion is that the Company's proposal to establish a capital structure consisting of 53.50 percent common equity and 46.50 percent long-term debt is reasonable when compared to actual capital structures of the proxy group companies. Based on the

Company's relatively higher risk profile, its requested equity ratio is reasonable and appropriate. Further, taking into consideration the impact of current and projected market conditions on the cash flows of utilities as raised by the credit rating agencies, I conclude that the Company's proposal is reasonable and should be adopted for ratemaking purposes.

**Q. Does this conclude your Direct Testimony?**

A. Yes, it does.

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# Ann E. Bulkley

## PRINCIPAL

Boston | 508.981.0866 | Ann.Bulkley@brattle.com

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

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## 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** | | | | |
| 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** | | | | |
| Public Service Company of Colorado | 11/22 | Public Service Company of Colorado | Docket No. 22AL-0530E | Return on Equity |

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| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| 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** | | | | |
| 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 |
| 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 |

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| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| 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** | | | | |
| 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** | | | | |
| 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 |

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| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| **Indiana Utility Regulatory Commission** | | | | |
| 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 |
| 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<br>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** | | | | |
| 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 |

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| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| 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-_____-_____-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** | | | | |
| 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<br>Docket No. F-325472<br>Docket No. F-325473<br>Docket No. F-325474 | Valuation of Electric Generation Assets |
| **Massachusetts Department of Public Utilities** | | | | |
| 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 |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| **Michigan Public Service Commission** | | | | |
| 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** | | | | |
| 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 |
| 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 |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| 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 | 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<br>Case No. SR-2022-0304 | Return on Equity |
| Evergy Missouri West | 1/22 | Evergy Missouri West | File No. ER-2022-0130 | Return on Equity |
| Evergy Missouri Metro | 1/22 | Evergy Missouri Metro | File No. ER-2022-0129 | Return on Equity |
| Ameren Missouri | 03/21 | Ameren Missouri | Docket No. ER-2021-0240<br>Docket No. GR-2021-0241 | Return on Equity |
| Missouri American Water Company | 06/20 | Missouri American Water Company | Case No. WR-2020-0344<br>Case No. SR-2020-0345 | Return on Equity |
| Missouri American Water Company | 06/17 | Missouri American Water Company | Case No. WR-17-0285<br>Case No. SR-17-0286 | Return on Equity |
| **Montana Public Service Commission** | | | | |
| 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 |
| **New Hampshire - Board of Tax and Land Appeals** | | | | |
| Liberty Utilities (Granite State Electric) | 05/23 | Liberty Utilities (Granite State Electric) | Docket No. DE 23-039 | Return on Equity |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| Public Service Company of New Hampshire d/b/a Eversource Energy | 11/19<br>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 |
| **New Hampshire-Rockingham Superior Court** | | | | |
| Eversource Energy | 05/18 | Public Service Commission of New Hampshire | 218-2016-CV-00899<br>218-2017-CV-00917 | Valuation of Utility Property |
| **New Jersey Board of Public Utilities** | | | | |
| 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<br>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<br>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 |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| 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 |
| 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-____ | Return on Equity |
| New York State Electric and Gas Company<br><br>Rochester Gas and Electric | 05/22 | New York State Electric and Gas Company<br><br>Rochester Gas and Electric | 22-E-0317<br>22-G-0318<br>22-E-0319<br>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<br>Gas 20-G-0429 | Return on Equity |
| Niagara Mohawk Power Corporation | 07/20 | National Grid USA | Case No. 20-E-0380<br>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<br><br>Rochester Gas and Electric | 05/19 | New York State Electric and Gas Company<br><br>Rochester Gas and Electric | 19-E-0378<br>19-G-0379<br>19-E-0380<br>19-G-0381 | Return on Equity |
| Brooklyn Union Gas Company d/b/a National Grid NY<br>KeySpan Gas East Corporation d/b/a National Grid | 04/19 | Brooklyn Union Gas Company d/b/a National Grid NY<br>KeySpan Gas East Corporation d/b/a National Grid | 19-G-0309<br>19-G-0310 | Return on Equity |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| Central Hudson Gas and Electric Corporation | 07/17 | Central Hudson Gas and Electric Corporation | Electric 17-E-0459<br>Gas 17-G-0460 | Return on Equity |
| Niagara Mohawk Power Corporation | 04/17 | National Grid USA | Case No. 17-E-0238<br>17-G-0239 | Return on Equity |
| Corning Natural Gas Corporation | 06/16 | Corning Natural Gas Corporation | Case No. 16-G-0369 | Return on Equity |
| 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<br>Case No. 15-G-0059 | Return on Equity |
| New York State Electric and Gas Company<br>Rochester Gas and Electric | 05/15 | New York State Electric and Gas Company<br>Rochester Gas and Electric | Case No. 15-E-0283<br>Case No. 15-G-0284<br>Case No. 15-E-0285<br>Case No. 15-G-0286 | Return on Equity |
| **North Dakota Public Service Commission** | | | | |
| 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 | 12/21 | 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 | 03/22 | PacifiCorp d/b/a Pacific Power & Light | Docket No. UE-399 | Return on Equity |

Brattle

| 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. | 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** | | | | |
| 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 |
| **Utah Public Service Commission** | | | | |
| 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. | 11/21 | 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 |

Brattle

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| **Washington Utilities Transportation Commission** | | | | |
| 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** | | | | |
| 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<br>Case No. 18-0576-S-42T | Return on Equity |
| **Wisconsin Public Service Commission** | | | | |
| 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 |

| SPONSOR | DATE | CASE/APPLICANT | DOCKET /CASE NO. | SUBJECT |
|---|---|---|---|---|
| **Wyoming Public Service Commission** | | | | |
| 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 |
| 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 and the State of New Hampshire

**COST OF EQUITY ANALYSES**
**SUMMARY OF RESULTS**

***Constant Growth DCF***

| | Minimum Growth Rate | Average Growth Rate | Maximum Growth Rate |
|---|---|---|---|
| Mean Results: | | | |
| 30-Day Average | 9.11% | 10.32% | 11.42% |
| 90-Day Average | 9.04% | 10.26% | 11.35% |
| 180-Day Average | 8.85% | 10.06% | 11.15% |
| Average | 9.00% | 10.21% | 11.31% |
| Median Results: | | | |
| 30-Day Average | 9.48% | 10.10% | 11.29% |
| 90-Day Average | 9.34% | 10.04% | 11.26% |
| 180-Day Average | 9.15% | 9.92% | 11.05% |
| Average | 9.32% | 10.02% | 11.20% |

***CAPM / ECAPM / Bond Yield Risk Premium***

| | 30-Year Treasury Bond Yield | | |
|---|---|---|---|
| | Current 30-Day Avg | Near-Term Projected | Longer-Term Projected |
| CAPM: | | | |
| Current *Value Line* Beta | 11.66% | 11.62% | 11.58% |
| Current Bloomberg Beta | 10.89% | 10.83% | 10.75% |
| Long-term Avg. *Value Line* Beta | 10.50% | 10.42% | 10.32% |
| ECAPM: | | | |
| Current *Value Line* Beta | 11.88% | 11.86% | 11.82% |
| Current Bloomberg Beta | 11.31% | 11.26% | 11.20% |
| Long-term Avg. *Value Line* Beta | 11.01% | 10.95% | 10.88% |
| Bond Yield Risk Premium: | 10.79% | 10.62% | 10.40% |

PROXY GROUP SCREENING DATA AND RESULTS

| | | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] |
|---|---|---|---|---|---|---|---|---|---|
| Company | Ticker | Dividends | S&P Credit Rating Between BBB- and AAA | Covered by More Than 1 Analyst | Positive Growth Rates from at least two sources (Value Line, Yahoo! First Call, and Zacks) | Generation Assets Included in Rate Base | % Company-Owned Generation >40% | % Regulated Electric Operating Income > 60% of Total Oper. Income | Announced Merger |
| ALLETE, Inc. | ALE | Yes | BBB | Yes | Yes | Yes | 43.27% | 100.00% | No |
| Alliant Energy Corporation | LNT | Yes | A- | Yes | Yes | Yes | 72.75% | 87.90% | No |
| Ameren Corporation | AEE | Yes | BBB+ | Yes | Yes | Yes | 75.34% | 84.57% | No |
| American Electric Power Company, Inc. | AEP | Yes | A- | Yes | Yes | Yes | 51.62% | 97.34% | No |
| Avista Corporation | AVA | Yes | BBB | Yes | Yes | Yes | 59.47% | 73.85% | No |
| CMS Energy Corporation | CMS | Yes | BBB+ | Yes | Yes | Yes | 42.50% | 65.48% | No |
| Duke Energy Corporation | DUK | Yes | BBB+ | Yes | Yes | Yes | 81.53% | 91.02% | No |
| Entergy Corporation | ETR | Yes | BBB+ | Yes | Yes | Yes | 71.43% | 98.21% | No |
| Evergy, Inc. | EVRG | Yes | A- | Yes | Yes | Yes | 62.14% | 99.91% | No |
| IDACORP, Inc. | IDA | Yes | BBB | Yes | Yes | Yes | 65.35% | 92.16% | No |
| NextEra Energy, Inc. | NEE | Yes | A- | Yes | Yes | Yes | 96.40% | 84.28% | No |
| NorthWestern Corporation | NWE | Yes | BBB | Yes | Yes | Yes | 55.82% | 100.00% | No |
| Pinnacle West Capital Corporation | PNW | Yes | BBB+ | Yes | Yes | Yes | 76.09% | 100.00% | No |
| Portland General Electric Company | POR | Yes | BBB+ | Yes | Yes | Yes | 54.88% | 100.00% | No |
| Southern Company | SO | Yes | BBB+ | Yes | Yes | Yes | 76.85% | 75.31% | No |
| Xcel Energy Inc. | XEL | Yes | A- | Yes | Yes | Yes | 57.97% | 86.47% | No |

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional
[3] Yahoo! Finance and Zacks
[4] Yahoo! Finance, Value Line Investment Survey, and Zacks
[5] S&P Capital IQ Pro
[6] S&P Capital IQ Pro
[7] Form 10-Ks for 2022, 2021 & 2020
[8] SNL Financial News Releases

30-DAY CONSTANT GROWTH DCF

| | | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | All Proxy Group [9] | [10] | [11] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Company | Ticker | Annualized Dividend | Stock Price | Dividend Yield | Expected Dividend Yield | Value Line Earnings Growth | Yahoo! Finance Earnings Growth | Zacks Earnings Growth | Average Growth Rate | Low ROE | Mean ROE | High ROE |
| ALLETE, Inc. | ALE | $2.71 | $54.18 | 5.00% | 5.19% | 6.00% | 8.10% | 8.10% | 7.40% | 11.15% | 12.59% | 13.30% |
| Alliant Energy Corporation | LNT | $1.81 | $49.32 | 3.67% | 3.79% | 6.50% | 6.65% | 6.30% | 6.48% | 10.09% | 10.27% | 10.44% |
| Ameren Corporation | AEE | $2.52 | $76.88 | 3.28% | 3.38% | 6.50% | 6.20% | 6.60% | 6.43% | 9.58% | 9.82% | 9.99% |
| American Electric Power Company, Inc. | AEP | $3.52 | $76.65 | 4.59% | 4.71% | 6.50% | 3.70% | 4.80% | 5.00% | 8.38% | 9.71% | 11.24% |
| Avista Corporation | AVA | $1.84 | $33.32 | 5.52% | 5.69% | 6.00% | 5.90% | 5.90% | 5.93% | 11.59% | 11.62% | 11.69% |
| CMS Energy Corporation | CMS | $1.95 | $55.46 | 3.52% | 3.64% | 6.50% | 7.70% | 7.50% | 7.23% | 10.13% | 10.88% | 11.35% |
| Duke Energy Corporation | DUK | $4.10 | $88.52 | 4.63% | 4.77% | 5.00% | 6.55% | 6.10% | 5.88% | 9.75% | 10.65% | 11.33% |
| Entergy Corporation | ETR | $4.52 | $96.53 | 4.68% | 4.82% | 0.50% | 11.00% | 6.40% | 5.97% | 5.19% | 10.79% | 15.94% |
| Evergy, Inc. | EVRG | $2.57 | $49.33 | 5.21% | 5.33% | 7.50% | 2.50% | 4.30% | 4.77% | 7.77% | 10.10% | 12.90% |
| IDACORP, Inc. | IDA | $3.32 | $96.12 | 3.45% | 3.52% | 4.00% | 3.70% | 4.10% | 3.93% | 7.22% | 7.46% | 7.62% |
| NextEra Energy, Inc. | NEE | $1.87 | $56.48 | 3.31% | 3.45% | 9.50% | 8.15% | 8.20% | 8.62% | 11.60% | 12.07% | 12.97% |
| NorthWestern Corporation | NWE | $2.56 | $49.46 | 5.18% | 5.29% | 3.50% | 4.08% | 5.20% | 4.26% | 8.77% | 9.55% | 10.51% |
| Pinnacle West Capital Corporation | PNW | $3.52 | $72.98 | 4.82% | 4.94% | 2.50% | 5.90% | 5.90% | 4.77% | 7.38% | 9.70% | 10.87% |
| Portland General Electric Company | POR | $1.90 | $40.73 | 4.66% | 4.79% | 5.00% | 4.60% | 6.00% | 5.20% | 9.37% | 9.99% | 10.80% |
| Southern Company | SO | $2.80 | $68.05 | 4.11% | 4.24% | 6.50% | 7.10% | 4.00% | 5.87% | 8.20% | 10.10% | 11.36% |
| Xcel Energy Inc. | XEL | $2.08 | $59.77 | 3.48% | 3.59% | 6.00% | 6.80% | 6.10% | 6.30% | 9.58% | 9.89% | 10.40% |
| Mean | | | | 4.32% | 4.45% | 5.50% | 6.16% | 5.97% | 5.88% | 9.11% | 10.32% | 11.42% |
| Median | | | | 4.61% | 4.74% | 6.00% | 6.38% | 6.05% | 5.91% | 9.48% | 10.10% | 11.29% |

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional, equals 30-day average as of November 30, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])
[12] - [14] Excludes companies with ROEs less than 7.00%.

90-DAY CONSTANT GROWTH DCF

| Company | | [1] Annualized Dividend | [2] Stock Price | [3] Dividend Yield | [4] Expected Dividend Yield | [5] Value Line Earnings Growth | [6] Yahoo! Finance Earnings Growth | [7] Zacks Earnings Growth | [8] Average Growth Rate | [9] Low ROE | [10] Mean ROE | [11] High ROE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALLETE, Inc. | ALE | $2.71 | $54.27 | 4.99% | 5.18% | 6.00% | 8.10% | 8.10% | 7.40% | 11.14% | 12.58% | 13.30% |
| Alliant Energy Corporation | LNT | $1.81 | $49.86 | 3.63% | 3.75% | 6.50% | 6.65% | 6.30% | 6.48% | 10.04% | 10.23% | 10.40% |
| Ameren Corporation | AEE | $2.52 | $78.29 | 3.22% | 3.32% | 6.50% | 6.20% | 6.60% | 6.43% | 9.52% | 9.76% | 9.92% |
| American Electric Power Company, Inc. | AEP | $3.52 | $77.17 | 4.56% | 4.68% | 6.50% | 3.70% | 4.80% | 5.00% | 8.35% | 9.68% | 11.21% |
| Avista Corporation | AVA | $1.84 | $33.50 | 5.49% | 5.66% | 6.00% | 5.90% | 5.90% | 5.93% | 11.55% | 11.59% | 11.66% |
| CMS Energy Corporation | CMS | $1.95 | $55.55 | 3.51% | 3.64% | 6.50% | 7.70% | 7.50% | 7.23% | 10.12% | 10.87% | 11.35% |
| Duke Energy Corporation | DUK | $4.10 | $89.10 | 4.60% | 4.74% | 5.00% | 6.55% | 6.10% | 5.88% | 9.72% | 10.62% | 11.30% |
| Entergy Corporation | ETR | $4.52 | $95.22 | 4.75% | 4.89% | 0.50% | 11.00% | 6.40% | 5.97% | 5.26% | 10.86% | 16.01% |
| Evergy, Inc. | EVRG | $2.57 | $52.10 | 4.93% | 5.05% | 7.50% | 2.50% | 4.30% | 4.77% | 7.49% | 9.82% | 12.62% |
| IDACORP, Inc. | IDA | $3.32 | $95.86 | 3.46% | 3.53% | 4.00% | 3.70% | 4.10% | 3.93% | 7.23% | 7.46% | 7.63% |
| NextEra Energy, Inc. | NEE | $1.87 | $61.29 | 3.05% | 3.18% | 9.50% | 8.15% | 8.20% | 8.62% | 11.33% | 11.80% | 12.70% |
| NorthWestern Corporation | NWE | $2.56 | $50.42 | 5.08% | 5.19% | 3.50% | 4.08% | 5.20% | 4.26% | 8.67% | 9.45% | 10.41% |
| Pinnacle West Capital Corporation | PNW | $3.52 | $75.15 | 4.68% | 4.80% | 2.50% | 5.90% | 5.90% | 4.77% | 7.24% | 9.56% | 10.72% |
| Portland General Electric Company | POR | $1.90 | $42.56 | 4.46% | 4.58% | 5.00% | 4.60% | 6.00% | 5.20% | 9.17% | 9.78% | 10.60% |
| Southern Company | SO | $2.80 | $67.52 | 4.15% | 4.27% | 6.50% | 7.10% | 4.00% | 5.87% | 8.23% | 10.14% | 11.39% |
| Xcel Energy Inc. | XEL | $2.08 | $58.79 | 3.54% | 3.65% | 6.00% | 6.80% | 6.10% | 6.30% | 9.64% | 9.95% | 10.46% |
| Mean | | | | 4.26% | 4.38% | 5.50% | 6.16% | 5.97% | 5.88% | 9.04% | 10.26% | 11.35% |
| Median | | | | 4.51% | 4.63% | 6.00% | 6.38% | 6.05% | 5.91% | 9.34% | 10.04% | 11.26% |

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional, equals 90-day average as of November 30, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([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 Earnings Growth | [6] Yahoo! Finance Earnings Growth | [7] Zacks Earnings Growth | [8] Average Growth Rate | [9] Low ROE | [10] Mean ROE | [11] High ROE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALLETE, Inc. | ALE | $2.71 | $56.88 | 4.76% | 4.94% | 6.00% | 8.10% | 8.10% | 7.40% | 10.91% | 12.34% | 13.06% |
| Alliant Energy Corporation | LNT | $1.81 | $51.12 | 3.54% | 3.66% | 6.50% | 6.65% | 6.30% | 6.48% | 9.95% | 10.14% | 10.31% |
| Ameren Corporation | AEE | $2.52 | $81.27 | 3.10% | 3.20% | 6.50% | 6.20% | 6.60% | 6.43% | 9.40% | 9.63% | 9.80% |
| American Electric Power Company, Inc. | AEP | $3.52 | $81.52 | 4.32% | 4.43% | 6.50% | 3.70% | 4.80% | 5.00% | 8.10% | 9.43% | 10.96% |
| Avista Corporation | AVA | $1.84 | $36.89 | 4.99% | 5.14% | 6.00% | 5.90% | 5.90% | 5.93% | 11.04% | 11.07% | 11.14% |
| CMS Energy Corporation | CMS | $1.95 | $57.38 | 3.40% | 3.52% | 6.50% | 7.70% | 7.50% | 7.23% | 10.01% | 10.75% | 11.23% |
| Duke Energy Corporation | DUK | $4.10 | $90.33 | 4.54% | 4.67% | 5.00% | 6.55% | 6.10% | 5.88% | 9.65% | 10.56% | 11.24% |
| Entergy Corporation | ETR | $4.52 | $97.81 | 4.62% | 4.76% | 0.50% | 11.00% | 6.40% | 5.97% | 5.13% | 10.73% | 15.88% |
| Evergy, Inc. | EVRG | $2.57 | $55.28 | 4.65% | 4.76% | 7.50% | 2.50% | 4.30% | 4.77% | 7.21% | 9.53% | 12.32% |
| IDACORP, Inc. | IDA | $3.32 | $100.25 | 3.31% | 3.38% | 4.00% | 3.70% | 4.10% | 3.93% | 7.07% | 7.31% | 7.48% |
| NextEra Energy, Inc. | NEE | $1.87 | $67.60 | 2.77% | 2.89% | 9.50% | 8.15% | 8.20% | 8.62% | 11.03% | 11.50% | 12.40% |
| NorthWestern Corporation | NWE | $2.56 | $53.59 | 4.78% | 4.88% | 3.50% | 4.08% | 5.20% | 4.26% | 8.36% | 9.14% | 10.10% |
| Pinnacle West Capital Corporation | PNW | $3.52 | $76.59 | 4.60% | 4.71% | 2.50% | 5.90% | 5.90% | 4.77% | 7.15% | 9.47% | 10.63% |
| Portland General Electric Company | POR | $1.90 | $45.25 | 4.20% | 4.31% | 5.00% | 4.60% | 6.00% | 5.20% | 8.90% | 9.51% | 10.32% |
| Southern Company | SO | $2.80 | $68.47 | 4.09% | 4.21% | 6.50% | 7.10% | 4.00% | 5.87% | 8.17% | 10.08% | 11.33% |
| Xcel Energy Inc. | XEL | $2.08 | $61.98 | 3.36% | 3.46% | 6.00% | 6.80% | 6.10% | 6.30% | 9.46% | 9.76% | 10.27% |
| Mean | | | | 4.06% | 4.18% | 5.50% | 6.16% | 5.97% | 5.88% | 8.85% | 10.06% | 11.15% |
| Median | | | | 4.26% | 4.37% | 6.00% | 6.38% | 6.05% | 5.91% | 9.15% | 9.92% | 11.05% |

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional, equals 180-day average as of November 30, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals Average ([5], [6], [7])
[9] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7]) + Minimum ([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7]) + Maximum ([5], [6], [7])

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL 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 U.S. Treasury bond yield | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.77% | 0.90 | 12.56% | 7.78% | 11.78% | 11.97% |
| Alliant Energy Corporation | LNT | 4.77% | 0.85 | 12.56% | 7.78% | 11.39% | 11.68% |
| Ameren Corporation | AEE | 4.77% | 0.85 | 12.56% | 7.78% | 11.39% | 11.68% |
| American Electric Power Company, Inc. | AEP | 4.77% | 0.80 | 12.56% | 7.78% | 11.00% | 11.39% |
| Avista Corporation | AVA | 4.77% | 0.90 | 12.56% | 7.78% | 11.78% | 11.97% |
| CMS Energy Corporation | CMS | 4.77% | 0.80 | 12.56% | 7.78% | 11.00% | 11.39% |
| Duke Energy Corporation | DUK | 4.77% | 0.85 | 12.56% | 7.78% | 11.39% | 11.68% |
| Entergy Corporation | ETR | 4.77% | 0.95 | 12.56% | 7.78% | 12.17% | 12.26% |
| Evergy, Inc. | EVRG | 4.77% | 0.90 | 12.56% | 7.78% | 11.78% | 11.97% |
| IDACORP, Inc. | IDA | 4.77% | 0.85 | 12.56% | 7.78% | 11.39% | 11.68% |
| NextEra Energy, Inc. | NEE | 4.77% | 0.95 | 12.56% | 7.78% | 12.17% | 12.26% |
| NorthWestern Corporation | NWE | 4.77% | 0.95 | 12.56% | 7.78% | 12.17% | 12.26% |
| Pinnacle West Capital Corporation | PNW | 4.77% | 0.95 | 12.56% | 7.78% | 12.17% | 12.26% |
| Portland General Electric Company | POR | 4.77% | 0.90 | 12.56% | 7.78% | 11.78% | 11.97% |
| Southern Company | SO | 4.77% | 0.90 | 12.56% | 7.78% | 11.78% | 11.97% |
| Xcel Energy Inc. | XEL | 4.77% | 0.85 | 12.56% | 7.78% | 11.39% | 11.68% |
| Mean | | | | | | 11.66% | 11.88% |

Notes:
[1] Bloomberg Professional, as of November 30, 2023
[2] Value Line
[3] Exhibit AEB-7
[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 & VL 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 (Q1 2024 - Q1 2025) | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.48% | 0.90 | 12.56% | 8.08% | 11.75% | 11.95% |
| Alliant Energy Corporation | LNT | 4.48% | 0.85 | 12.56% | 8.08% | 11.34% | 11.65% |
| Ameren Corporation | AEE | 4.48% | 0.85 | 12.56% | 8.08% | 11.34% | 11.65% |
| American Electric Power Company, Inc. | AEP | 4.48% | 0.80 | 12.56% | 8.08% | 10.94% | 11.34% |
| Avista Corporation | AVA | 4.48% | 0.90 | 12.56% | 8.08% | 11.75% | 11.95% |
| CMS Energy Corporation | CMS | 4.48% | 0.80 | 12.56% | 8.08% | 10.94% | 11.34% |
| Duke Energy Corporation | DUK | 4.48% | 0.85 | 12.56% | 8.08% | 11.34% | 11.65% |
| Entergy Corporation | ETR | 4.48% | 0.95 | 12.56% | 8.08% | 12.15% | 12.25% |
| Evergy, Inc. | EVRG | 4.48% | 0.90 | 12.56% | 8.08% | 11.75% | 11.95% |
| IDACORP, Inc. | IDA | 4.48% | 0.85 | 12.56% | 8.08% | 11.34% | 11.65% |
| NextEra Energy, Inc. | NEE | 4.48% | 0.95 | 12.56% | 8.08% | 12.15% | 12.25% |
| NorthWestern Corporation | NWE | 4.48% | 0.95 | 12.56% | 8.08% | 12.15% | 12.25% |
| Pinnacle West Capital Corporation | PNW | 4.48% | 0.95 | 12.56% | 8.08% | 12.15% | 12.25% |
| Portland General Electric Company | POR | 4.48% | 0.90 | 12.56% | 8.08% | 11.75% | 11.95% |
| Southern Company | SO | 4.48% | 0.90 | 12.56% | 8.08% | 11.75% | 11.95% |
| Xcel Energy Inc. | XEL | 4.48% | 0.85 | 12.56% | 8.08% | 11.34% | 11.65% |
| Mean | | | | | | 11.62% | 11.86% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Value Line
[3] Exhibit AEB-7
[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 & VL 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 (2025 - 2029) | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.10% | 0.90 | 12.56% | 8.46% | 11.71% | 11.92% |
| Alliant Energy Corporation | LNT | 4.10% | 0.85 | 12.56% | 8.46% | 11.29% | 11.60% |
| Ameren Corporation | AEE | 4.10% | 0.85 | 12.56% | 8.46% | 11.29% | 11.60% |
| American Electric Power Company, Inc. | AEP | 4.10% | 0.80 | 12.56% | 8.46% | 10.86% | 11.29% |
| Avista Corporation | AVA | 4.10% | 0.90 | 12.56% | 8.46% | 11.71% | 11.92% |
| CMS Energy Corporation | CMS | 4.10% | 0.80 | 12.56% | 8.46% | 10.86% | 11.29% |
| Duke Energy Corporation | DUK | 4.10% | 0.85 | 12.56% | 8.46% | 11.29% | 11.60% |
| Entergy Corporation | ETR | 4.10% | 0.95 | 12.56% | 8.46% | 12.13% | 12.24% |
| Evergy, Inc. | EVRG | 4.10% | 0.90 | 12.56% | 8.46% | 11.71% | 11.92% |
| IDACORP, Inc. | IDA | 4.10% | 0.85 | 12.56% | 8.46% | 11.29% | 11.60% |
| NextEra Energy, Inc. | NEE | 4.10% | 0.95 | 12.56% | 8.46% | 12.13% | 12.24% |
| NorthWestern Corporation | NWE | 4.10% | 0.95 | 12.56% | 8.46% | 12.13% | 12.24% |
| Pinnacle West Capital Corporation | PNW | 4.10% | 0.95 | 12.56% | 8.46% | 12.13% | 12.24% |
| Portland General Electric Company | POR | 4.10% | 0.90 | 12.56% | 8.46% | 11.71% | 11.92% |
| Southern Company | SO | 4.10% | 0.90 | 12.56% | 8.46% | 11.71% | 11.92% |
| Xcel Energy Inc. | XEL | 4.10% | 0.85 | 12.56% | 8.46% | 11.29% | 11.60% |
| Mean | | | | | | 11.58% | 11.82% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 14
[2] Value Line
[3] Exhibit AEB-7
[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 & 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 | Current 30-day average of 30-year U.S. Treasury bond yield | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.77% | 0.83 | 12.56% | 7.78% | 11.20% | 11.54% |
| Alliant Energy Corporation | LNT | 4.77% | 0.79 | 12.56% | 7.78% | 10.92% | 11.33% |
| Ameren Corporation | AEE | 4.77% | 0.75 | 12.56% | 7.78% | 10.61% | 11.10% |
| American Electric Power Company, Inc. | AEP | 4.77% | 0.76 | 12.56% | 7.78% | 10.65% | 11.13% |
| Avista Corporation | AVA | 4.77% | 0.76 | 12.56% | 7.78% | 10.70% | 11.16% |
| CMS Energy Corporation | CMS | 4.77% | 0.75 | 12.56% | 7.78% | 10.58% | 11.08% |
| Duke Energy Corporation | DUK | 4.77% | 0.72 | 12.56% | 7.78% | 10.34% | 10.89% |
| Entergy Corporation | ETR | 4.77% | 0.86 | 12.56% | 7.78% | 11.46% | 11.73% |
| Evergy, Inc. | EVRG | 4.77% | 0.78 | 12.56% | 7.78% | 10.85% | 11.27% |
| IDACORP, Inc. | IDA | 4.77% | 0.80 | 12.56% | 7.78% | 10.99% | 11.38% |
| NextEra Energy, Inc. | NEE | 4.77% | 0.81 | 12.56% | 7.78% | 11.10% | 11.46% |
| NorthWestern Corporation | NWE | 4.77% | 0.87 | 12.56% | 7.78% | 11.52% | 11.78% |
| Pinnacle West Capital Corporation | PNW | 4.77% | 0.82 | 12.56% | 7.78% | 11.14% | 11.50% |
| Portland General Electric Company | POR | 4.77% | 0.79 | 12.56% | 7.78% | 10.92% | 11.33% |
| Southern Company | SO | 4.77% | 0.77 | 12.56% | 7.78% | 10.80% | 11.24% |
| Xcel Energy Inc. | XEL | 4.77% | 0.74 | 12.56% | 7.78% | 10.51% | 11.02% |
| Mean | | | | | | 10.89% | 11.31% |

Notes:
[1] Bloomberg Professional, as of November 30, 2023
[2] Bloomberg Professional, based on 10-year weekly returns
[3] Exhibit AEB-7
[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 & 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 (Q1 2024 - Q1 2025) | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.48% | 0.83 | 12.56% | 8.08% | 11.15% | 11.50% |
| Alliant Energy Corporation | LNT | 4.48% | 0.79 | 12.56% | 8.08% | 10.85% | 11.28% |
| Ameren Corporation | AEE | 4.48% | 0.75 | 12.56% | 8.08% | 10.53% | 11.04% |
| American Electric Power Company, Inc. | AEP | 4.48% | 0.76 | 12.56% | 8.08% | 10.58% | 11.07% |
| Avista Corporation | AVA | 4.48% | 0.76 | 12.56% | 8.08% | 10.63% | 11.11% |
| CMS Energy Corporation | CMS | 4.48% | 0.75 | 12.56% | 8.08% | 10.51% | 11.02% |
| Duke Energy Corporation | DUK | 4.48% | 0.72 | 12.56% | 8.08% | 10.26% | 10.83% |
| Entergy Corporation | ETR | 4.48% | 0.86 | 12.56% | 8.08% | 11.42% | 11.70% |
| Evergy, Inc. | EVRG | 4.48% | 0.78 | 12.56% | 8.08% | 10.78% | 11.23% |
| IDACORP, Inc. | IDA | 4.48% | 0.80 | 12.56% | 8.08% | 10.93% | 11.34% |
| NextEra Energy, Inc. | NEE | 4.48% | 0.81 | 12.56% | 8.08% | 11.05% | 11.42% |
| NorthWestern Corporation | NWE | 4.48% | 0.87 | 12.56% | 8.08% | 11.48% | 11.75% |
| Pinnacle West Capital Corporation | PNW | 4.48% | 0.82 | 12.56% | 8.08% | 11.09% | 11.46% |
| Portland General Electric Company | POR | 4.48% | 0.79 | 12.56% | 8.08% | 10.86% | 11.28% |
| Southern Company | SO | 4.48% | 0.77 | 12.56% | 8.08% | 10.74% | 11.19% |
| Xcel Energy Inc. | XEL | 4.48% | 0.74 | 12.56% | 8.08% | 10.43% | 10.96% |
| Mean | | | | | | 10.83% | 11.26% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Bloomberg Professional, based on 10-year weekly returns
[3] Exhibit AEB-7
[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 & 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 (2025 - 2029) | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.10% | 0.83 | 12.56% | 8.46% | 11.08% | 11.45% |
| Alliant Energy Corporation | LNT | 4.10% | 0.79 | 12.56% | 8.46% | 10.77% | 11.22% |
| Ameren Corporation | AEE | 4.10% | 0.75 | 12.56% | 8.46% | 10.44% | 10.97% |
| American Electric Power Company, Inc. | AEP | 4.10% | 0.76 | 12.56% | 8.46% | 10.49% | 11.01% |
| Avista Corporation | AVA | 4.10% | 0.76 | 12.56% | 8.46% | 10.54% | 11.04% |
| CMS Energy Corporation | CMS | 4.10% | 0.75 | 12.56% | 8.46% | 10.41% | 10.95% |
| Duke Energy Corporation | DUK | 4.10% | 0.72 | 12.56% | 8.46% | 10.15% | 10.75% |
| Entergy Corporation | ETR | 4.10% | 0.86 | 12.56% | 8.46% | 11.36% | 11.66% |
| Evergy, Inc. | EVRG | 4.10% | 0.78 | 12.56% | 8.46% | 10.70% | 11.16% |
| IDACORP, Inc. | IDA | 4.10% | 0.80 | 12.56% | 8.46% | 10.85% | 11.28% |
| NextEra Energy, Inc. | NEE | 4.10% | 0.81 | 12.56% | 8.46% | 10.97% | 11.37% |
| NorthWestern Corporation | NWE | 4.10% | 0.87 | 12.56% | 8.46% | 11.43% | 11.71% |
| Pinnacle West Capital Corporation | PNW | 4.10% | 0.82 | 12.56% | 8.46% | 11.02% | 11.41% |
| Portland General Electric Company | POR | 4.10% | 0.79 | 12.56% | 8.46% | 10.78% | 11.22% |
| Southern Company | SO | 4.10% | 0.77 | 12.56% | 8.46% | 10.65% | 11.13% |
| Xcel Energy Inc. | XEL | 4.10% | 0.74 | 12.56% | 8.46% | 10.33% | 10.89% |
| Mean | | | | | | 10.75% | 11.20% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 14
[2] Bloomberg Professional, based on 10-year weekly returns
[3] Exhibit AEB-7
[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 & VALUE LINE LT AVERAGE 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 U.S. Treasury bond yield | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.77% | 0.79 | 12.56% | 7.78% | 10.88% | 11.30% |
| Alliant Energy Corporation | LNT | 4.77% | 0.75 | 12.56% | 7.78% | 10.61% | 11.10% |
| Ameren Corporation | AEE | 4.77% | 0.73 | 12.56% | 7.78% | 10.42% | 10.95% |
| American Electric Power Company, Inc. | AEP | 4.77% | 0.68 | 12.56% | 7.78% | 10.03% | 10.66% |
| Avista Corporation | AVA | 4.77% | 0.79 | 12.56% | 7.78% | 10.88% | 11.30% |
| CMS Energy Corporation | CMS | 4.77% | 0.69 | 12.56% | 7.78% | 10.14% | 10.75% |
| Duke Energy Corporation | DUK | 4.77% | 0.67 | 12.56% | 7.78% | 9.95% | 10.60% |
| Entergy Corporation | ETR | 4.77% | 0.75 | 12.56% | 7.78% | 10.57% | 11.07% |
| Evergy, Inc. | EVRG | 4.77% | 0.95 | 12.56% | 7.78% | 12.17% | 12.26% |
| IDACORP, Inc. | IDA | 4.77% | 0.73 | 12.56% | 7.78% | 10.46% | 10.98% |
| NextEra Energy, Inc. | NEE | 4.77% | 0.73 | 12.56% | 7.78% | 10.46% | 10.98% |
| NorthWestern Corporation | NWE | 4.77% | 0.75 | 12.56% | 7.78% | 10.57% | 11.07% |
| Pinnacle West Capital Corporation | PNW | 4.77% | 0.74 | 12.56% | 7.78% | 10.49% | 11.01% |
| Portland General Electric Company | POR | 4.77% | 0.75 | 12.56% | 7.78% | 10.61% | 11.10% |
| Southern Company | SO | 4.77% | 0.66 | 12.56% | 7.78% | 9.87% | 10.54% |
| Xcel Energy Inc. | XEL | 4.77% | 0.66 | 12.56% | 7.78% | 9.87% | 10.54% |
| Mean | | | | | | 10.50% | 11.01% |

Notes:
[1] Bloomberg Professional, as of November 30, 2023
[2] Exhibit AEB-6
[3] Exhibit AEB-7
[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 & VALUE LINE LT AVERAGE 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 (Q1 2024 - Q1 2025) | [2] Beta (β) | [3] Market Return (Rm) | [4] Market Risk Premium (Rm − Rf) | [5] ROE (K) | [6] ECAPM ROE (K) |
|---|---|---|---|---|---|---|---|
| ALLETE, Inc. | ALE | 4.48% | 0.79 | 12.56% | 8.08% | 10.82% | 11.25% |
| Alliant Energy Corporation | LNT | 4.48% | 0.75 | 12.56% | 8.08% | 10.54% | 11.04% |
| Ameren Corporation | AEE | 4.48% | 0.73 | 12.56% | 8.08% | 10.34% | 10.89% |
| American Electric Power Company, Inc. | AEP | 4.48% | 0.68 | 12.56% | 8.08% | 9.93% | 10.59% |
| Avista Corporation | AVA | 4.48% | 0.79 | 12.56% | 8.08% | 10.82% | 11.25% |
| CMS Energy Corporation | CMS | 4.48% | 0.69 | 12.56% | 8.08% | 10.05% | 10.68% |
| Duke Energy Corporation | DUK | 4.48% | 0.67 | 12.56% | 8.08% | 9.85% | 10.53% |
| Entergy Corporation | ETR | 4.48% | 0.75 | 12.56% | 8.08% | 10.50% | 11.01% |
| Evergy, Inc. | EVRG | 4.48% | 0.95 | 12.56% | 8.08% | 12.15% | 12.25% |
| IDACORP, Inc. | IDA | 4.48% | 0.73 | 12.56% | 8.08% | 10.38% | 10.92% |
| NextEra Energy, Inc. | NEE | 4.48% | 0.73 | 12.56% | 8.08% | 10.38% | 10.92% |
| NorthWestern Corporation | NWE | 4.48% | 0.75 | 12.56% | 8.08% | 10.50% | 11.01% |
| Pinnacle West Capital Corporation | PNW | 4.48% | 0.74 | 12.56% | 8.08% | 10.42% | 10.95% |
| Portland General Electric Company | POR | 4.48% | 0.75 | 12.56% | 8.08% | 10.54% | 11.04% |
| Southern Company | SO | 4.48% | 0.66 | 12.56% | 8.08% | 9.77% | 10.47% |
| Xcel Energy Inc. | XEL | 4.48% | 0.66 | 12.56% | 8.08% | 9.77% | 10.47% |
| Mean | | | | | | 10.42% | 10.95% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Exhibit AEB-6
[3] Exhibit AEB-7
[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 & VALUE LINE LT 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 (2025 - 2029) | Beta (β) | Market Return (Rm) | Market Risk Premium (Rm − Rf) | ROE (K) | ECAPM ROE (K) |
| ALLETE, Inc. | ALE | 4.10% | 0.79 | 12.56% | 8.46% | 10.74% | 11.19% |
| Alliant Energy Corporation | LNT | 4.10% | 0.75 | 12.56% | 8.46% | 10.44% | 10.97% |
| Ameren Corporation | AEE | 4.10% | 0.73 | 12.56% | 8.46% | 10.23% | 10.81% |
| American Electric Power Company, Inc. | AEP | 4.10% | 0.68 | 12.56% | 8.46% | 9.81% | 10.49% |
| Avista Corporation | AVA | 4.10% | 0.79 | 12.56% | 8.46% | 10.74% | 11.19% |
| CMS Energy Corporation | CMS | 4.10% | 0.69 | 12.56% | 8.46% | 9.93% | 10.59% |
| Duke Energy Corporation | DUK | 4.10% | 0.67 | 12.56% | 8.46% | 9.72% | 10.43% |
| Entergy Corporation | ETR | 4.10% | 0.75 | 12.56% | 8.46% | 10.40% | 10.94% |
| Evergy, Inc. | EVRG | 4.10% | 0.95 | 12.56% | 8.46% | 12.13% | 12.24% |
| IDACORP, Inc. | IDA | 4.10% | 0.73 | 12.56% | 8.46% | 10.27% | 10.84% |
| NextEra Energy, Inc. | NEE | 4.10% | 0.73 | 12.56% | 8.46% | 10.27% | 10.84% |
| NorthWestern Corporation | NWE | 4.10% | 0.75 | 12.56% | 8.46% | 10.40% | 10.94% |
| Pinnacle West Capital Corporation | PNW | 4.10% | 0.74 | 12.56% | 8.46% | 10.32% | 10.88% |
| Portland General Electric Company | POR | 4.10% | 0.75 | 12.56% | 8.46% | 10.44% | 10.97% |
| Southern Company | SO | 4.10% | 0.66 | 12.56% | 8.46% | 9.64% | 10.37% |
| Xcel Energy Inc. | XEL | 4.10% | 0.66 | 12.56% | 8.46% | 9.64% | 10.37% |
| Mean | | | | | | 10.32% | 10.88% |

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 14
[2] Exhibit AEB-6
[3] Exhibit AEB-7
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

HISTORICAL BETA - 2011 - 2020

| 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] Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALLETE, Inc. | ALE | 0.75 | 0.80 | 0.80 | 0.75 | 0.80 | 0.65 | 0.65 | 0.85 | 0.90 | 0.90 | 0.79 |
| Alliant Energy Corporation | LNT | 0.75 | 0.80 | 0.80 | 0.70 | 0.70 | 0.60 | 0.60 | 0.85 | 0.85 | 0.85 | 0.75 |
| Ameren Corporation | AEE | 0.80 | 0.75 | 0.75 | 0.65 | 0.70 | 0.55 | 0.55 | 0.85 | 0.80 | 0.85 | 0.73 |
| American Electric Power Company, Inc | AEP | 0.70 | 0.70 | 0.70 | 0.65 | 0.65 | 0.55 | 0.55 | 0.75 | 0.75 | 0.75 | 0.68 |
| Avista Corporation | AVA | 0.75 | 0.80 | 0.80 | 0.70 | 0.75 | 0.65 | 0.60 | 0.95 | 0.95 | 0.90 | 0.79 |
| CMS Energy Corporation | CMS | 0.70 | 0.70 | 0.75 | 0.65 | 0.65 | 0.55 | 0.50 | 0.80 | 0.80 | 0.80 | 0.69 |
| Duke Energy Corporation | DUK | 0.65 | 0.60 | 0.65 | 0.60 | 0.60 | 0.50 | 0.50 | 0.85 | 0.85 | 0.85 | 0.67 |
| Entergy Corporation | ETR | 0.70 | 0.70 | 0.70 | 0.65 | 0.65 | 0.60 | 0.60 | 0.95 | 0.95 | 0.95 | 0.75 |
| Evergy, Inc. | EVRG | | | | | | NMF | NMF | 1.00 | 0.95 | 0.90 | 0.95 |
| IDACORP, Inc. | IDA | 0.75 | 0.80 | 0.80 | 0.75 | 0.70 | 0.55 | 0.55 | 0.80 | 0.80 | 0.80 | 0.73 |
| NextEra Energy, Inc. | NEE | 0.70 | 0.70 | 0.75 | 0.65 | 0.65 | 0.55 | 0.55 | 0.90 | 0.90 | 0.95 | 0.73 |
| NorthWestern Corporation | NWE | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.55 | 0.60 | 0.95 | 0.95 | 0.90 | 0.75 |
| Pinnacle West Capital Corporation | PNW | 0.75 | 0.70 | 0.75 | 0.70 | 0.70 | 0.55 | 0.50 | 0.90 | 0.90 | 0.90 | 0.74 |
| Portland General Electric Company | POR | 0.75 | 0.80 | 0.80 | 0.70 | 0.70 | 0.60 | 0.55 | 0.85 | 0.90 | 0.85 | 0.75 |
| Southern Company | SO | 0.55 | 0.55 | 0.60 | 0.55 | 0.55 | 0.50 | 0.50 | 0.90 | 0.95 | 0.90 | 0.66 |
| Xcel Energy Inc. | XEL | 0.65 | 0.65 | 0.65 | 0.60 | 0.60 | 0.50 | 0.50 | 0.80 | 0.80 | 0.80 | 0.66 |
| Mean | | 0.71 | 0.72 | 0.73 | 0.67 | 0.67 | 0.56 | 0.55 | 0.87 | 0.88 | 0.87 | 0.74 |

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.
[10] Value Line, dated December 30, 2022.
[11] Average ([1] - [10])

MARKET RISK PREMIUM DERIVED FROM ANALYSTS' LONG-TERM GROWTH ESTIMATES

| | |
|---|---|
| [1] Estimated Weighted Average Dividend Yield | 1.69% |
| [2] Estimated Weighted Average Long-Term Growth Rate | 10.78% |
| [3] S&P 500 Estimated Required Market Return | 12.56% |

STANDARD AND POOR'S 500 INDEX

| | | [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 | 324.36 | 95.10 | 30,846.83 | 0.11% | 5.26% | 0.01% | 8.00% | 0.01% |
| American Express Co | AXP | 728.75 | 170.77 | 124,447.95 | 0.42% | 1.41% | 0.01% | 14.01% | 0.06% |
| Verizon Communications Inc | VZ | 4,204.10 | 38.33 | 161,143.23 | | 6.94% | | | |
| Broadcom Inc | AVGO | 469.43 | 925.73 | 434,561.73 | 1.48% | 1.99% | 0.03% | 13.89% | 0.21% |
| Boeing Co/The | BA | 604.98 | 231.63 | 140,130.82 | | | | 183.61% | |
| Caterpillar Inc | CAT | 509.09 | 250.72 | 127,637.79 | 0.43% | 2.07% | 0.01% | 20.00% | 0.09% |
| JPMorgan Chase & Co | JPM | 2,891.01 | 156.08 | 451,228.53 | 1.54% | 2.69% | 0.04% | 1.00% | 0.02% |
| Chevron Corp | CVX | 1,887.75 | 143.60 | 271,080.76 | 0.92% | 4.21% | 0.04% | 7.27% | 0.07% |
| Coca-Cola Co/The | KO | 4,323.41 | 58.44 | 252,660.31 | 0.86% | 3.15% | 0.03% | 6.51% | 0.06% |
| AbbVie Inc | ABBV | 1,765.54 | 142.39 | 251,394.81 | 0.86% | 4.35% | 0.04% | 0.19% | 0.00% |
| Walt Disney Co/The | DIS | 1,830.32 | 92.69 | 169,651.99 | 0.58% | 0.65% | 0.00% | 18.88% | 0.11% |
| FleetCor Technologies Inc | FLT | 72.20 | 240.50 | 17,365.06 | 0.06% | | | 12.92% | 0.01% |
| Extra Space Storage Inc | EXR | 211.28 | 130.17 | 27,502.06 | 0.09% | 4.98% | 0.00% | 1.10% | 0.00% |
| Exxon Mobil Corp | XOM | 4,006.13 | 102.74 | 411,590.10 | | 3.70% | | 45.59% | |
| Phillips 66 | PSX | 439.96 | 128.89 | 56,705.93 | 0.19% | 3.26% | 0.01% | 15.21% | 0.03% |
| General Electric Co | GE | 1,088.39 | 121.80 | 132,565.41 | | 0.26% | | 22.50% | |
| HP Inc | HPQ | 988.27 | 29.34 | 28,995.81 | 0.10% | 3.76% | 0.00% | 3.00% | 0.00% |
| Home Depot Inc/The | HD | 995.26 | 313.49 | 312,004.68 | 1.06% | 2.67% | 0.03% | 1.69% | 0.02% |
| Monolithic Power Systems Inc | MPWR | 47.91 | 548.72 | 26,290.27 | 0.09% | 0.73% | 0.00% | 8.00% | 0.01% |
| International Business Machines Corp | IBM | 913.12 | 158.56 | 144,784.15 | 0.49% | 4.19% | 0.02% | 2.77% | 0.01% |
| Johnson & Johnson | JNJ | 2,407.28 | 154.66 | 372,309.77 | 1.27% | 3.08% | 0.04% | 3.86% | 0.05% |
| Lululemon Athletica Inc | LULU | 121.43 | 446.80 | 54,252.69 | 0.18% | | | 16.00% | 0.03% |
| McDonald's Corp | MCD | 725.34 | 281.84 | 204,430.39 | 0.70% | 2.37% | 0.02% | 9.34% | 0.07% |
| Merck & Co Inc | MRK | 2,534.02 | 102.48 | 259,686.68 | 0.88% | 3.01% | 0.03% | 9.08% | 0.08% |
| 3M Co | MMM | 552.32 | 99.07 | 54,718.05 | 0.19% | 6.06% | 0.01% | 4.00% | 0.01% |
| American Water Works Co Inc | AWK | 194.71 | 131.84 | 25,669.91 | 0.09% | 2.15% | 0.00% | 8.00% | 0.01% |
| Bank of America Corp | BAC | 7,913.73 | 30.49 | 241,289.69 | | 3.15% | | -5.00% | |
| Pfizer Inc | PFE | 5,646.41 | 30.47 | 172,046.20 | | 5.38% | | 50.40% | |
| Procter & Gamble Co/The | PG | 2,356.89 | 153.52 | 361,829.14 | 1.23% | 2.45% | 0.03% | 7.51% | 0.09% |
| AT&T Inc | T | 7,150.02 | 16.57 | 118,475.83 | 0.40% | 6.70% | 0.03% | 3.36% | 0.01% |
| Travelers Cos Inc/The | TRV | 228.40 | 180.62 | 41,253.43 | 0.14% | 2.21% | 0.00% | 15.33% | 0.02% |
| RTX Corp | RTX | 1,437.90 | 81.48 | 117,160.17 | 0.40% | 2.90% | 0.01% | 8.61% | 0.03% |
| Analog Devices Inc | ADI | 496.26 | 182.52 | 90,577.69 | 0.31% | 1.88% | 0.01% | 4.50% | 0.01% |
| Walmart Inc | WMT | 2,692.23 | 155.69 | 419,153.91 | 1.43% | 1.46% | 0.02% | 3.00% | 0.04% |
| Cisco Systems Inc | CSCO | 4,063.48 | 48.38 | 196,590.97 | 0.67% | 3.22% | 0.02% | 10.00% | 0.07% |
| Intel Corp | INTC | 4,216.00 | 44.70 | 188,455.20 | | 1.12% | | -1.82% | |
| General Motors Co | GM | 1,369.48 | 31.60 | 43,275.60 | | 1.14% | | -4.65% | |
| Microsoft Corp | MSFT | 7,432.26 | 378.91 | 2,816,158.39 | 9.59% | 0.79% | 0.08% | 15.72% | 1.51% |
| Dollar General Corp | DG | 219.48 | 131.12 | 28,777.69 | | 1.80% | | -2.50% | |
| Cigna Group/The | CI | 292.62 | 262.88 | 76,923.95 | 0.26% | 1.87% | 0.00% | 9.80% | 0.03% |
| Kinder Morgan Inc | KMI | 2,222.77 | 17.57 | 39,054.14 | 0.13% | 6.43% | 0.01% | 2.00% | 0.00% |
| Citigroup Inc | C | 1,913.88 | 46.10 | 88,229.96 | | 4.60% | | -9.70% | |
| American International Group Inc | AIG | 702.04 | 65.81 | 46,201.25 | 0.16% | 2.19% | 0.00% | 10.00% | 0.02% |
| Altria Group Inc | MO | 1,768.65 | 42.04 | 74,353.92 | 0.25% | 9.32% | 0.02% | 4.50% | 0.01% |
| HCA Healthcare Inc | HCA | 267.66 | 250.48 | 67,043.73 | 0.23% | 0.96% | 0.00% | 7.56% | 0.02% |
| International Paper Co | IP | 346.02 | 36.94 | 12,781.87 | | 5.01% | | -2.00% | |
| Hewlett Packard Enterprise Co | HPE | 1,283.00 | 16.91 | 21,695.53 | 0.07% | 3.08% | 0.00% | 3.03% | 0.00% |
| Abbott Laboratories | ABT | 1,736.06 | 104.29 | 181,053.59 | 0.62% | 1.96% | 0.01% | 3.27% | 0.02% |
| Aflac Inc | AFL | 584.38 | 82.71 | 48,334.07 | 0.16% | 2.42% | 0.00% | 8.04% | 0.01% |
| Air Products and Chemicals Inc | APD | 222.21 | 270.55 | 60,118.37 | 0.20% | 2.59% | 0.01% | 12.55% | 0.03% |
| Royal Caribbean Cruises Ltd | RCL | 256.24 | 107.46 | 27,535.01 | | | | | |
| Hess Corp | HES | 307.15 | 140.56 | 43,173.29 | 0.15% | 1.25% | 0.00% | 13.00% | 0.02% |
| Archer-Daniels-Midland Co | ADM | 533.38 | 73.73 | 39,326.18 | | 2.44% | | -7.07% | |
| Automatic Data Processing Inc | ADP | 411.31 | 229.92 | 94,567.25 | 0.32% | 2.44% | 0.01% | 16.00% | 0.05% |
| Verisk Analytics Inc | VRSK | 144.99 | 241.43 | 35,004.21 | 0.12% | 0.56% | 0.00% | 12.15% | 0.01% |
| AutoZone Inc | AZO | 17.63 | 2,609.93 | 46,023.51 | 0.16% | | | 13.72% | 0.02% |
| Avery Dennison Corp | AVY | 484.89 | 412.50 | 200,014.80 | 0.68% | 1.24% | 0.01% | 14.00% | 0.10% |
| Enphase Energy Inc | ENPH | 80.53 | 194.50 | 15,663.28 | 0.05% | 1.67% | 0.00% | 7.00% | 0.00% |
| MSCI Inc | MSCI | 136.55 | 101.02 | 13,794.38 | | | | 28.59% | |
| Ball Corp | BALL | 79.09 | 520.85 | 41,194.55 | 0.14% | 1.06% | 0.00% | 14.48% | 0.02% |
| Axon Enterprise Inc | AXON | 315.30 | 55.29 | 17,432.99 | 0.06% | 1.45% | 0.00% | 10.30% | 0.01% |
| Ceridian HCM Holding Inc | CDAY | 74.93 | 229.87 | 17,225.08 | | | | | |
| Carrier Global Corp | CARR | 156.13 | 68.90 | 10,757.15 | | | | | |
| Bank of New York Mellon Corp/The | BK | 839.05 | 51.96 | 43,596.88 | 0.15% | 1.42% | 0.00% | 10.80% | 0.02% |
| Otis Worldwide Corp | OTIS | 769.07 | 48.32 | 37,161.61 | 0.13% | 3.48% | 0.00% | 10.00% | 0.01% |
| Baxter International Inc | BAX | 409.26 | 85.79 | 35,110.33 | 0.12% | 1.59% | 0.00% | 9.00% | 0.01% |
| Becton Dickinson & Co | BDX | 507.32 | 36.08 | 18,304.25 | | 3.22% | | -1.17% | |
| Berkshire Hathaway Inc | BRK/B | 290.41 | 236.18 | 68,587.85 | | 1.61% | | -2.02% | |
| Best Buy Co Inc | BBY | 1,308.41 | 360.00 | 471,029.04 | | | | | |
| Boston Scientific Corp | BSX | 217.64 | 70.94 | 15,439.24 | 0.05% | 5.19% | 0.00% | 2.93% | 0.00% |
| Bristol-Myers Squibb Co | BMY | 1,464.98 | 55.89 | 81,877.90 | 0.28% | | | 12.10% | 0.03% |
| Brown-Forman Corp | BF/B | 2,034.76 | 49.38 | 100,476.35 | 0.34% | 4.62% | 0.02% | 9.92% | 0.03% |
| Coterra Energy Inc | CTRA | 310.14 | 58.74 | 18,217.39 | 0.06% | 1.48% | 0.00% | 6.42% | 0.00% |
| Campbell Soup Co | CPB | 752.19 | 26.25 | 19,745.04 | | 3.05% | | 55.04% | |
| Hilton Worldwide Holdings Inc | HLT | 297.62 | 40.18 | 11,958.45 | 0.04% | 3.68% | 0.00% | 2.81% | 0.00% |
| Carnival Corp | CCL | 256.44 | 167.52 | 42,958.83 | 0.15% | 0.36% | 0.00% | 17.09% | 0.03% |
| Qorvo Inc | QRVO | 1,119.45 | 15.06 | 16,858.84 | | | | | |
| UDR Inc | UDR | 97.35 | 96.50 | 9,393.89 | 0.03% | | | 10.04% | 0.00% |
| Clorox Co/The | CLX | 328.93 | 33.40 | 10,986.20 | 0.04% | 5.03% | 0.00% | 6.08% | 0.00% |
| Paycom Software Inc | PAYC | 124.06 | 143.35 | 17,783.86 | 0.06% | 3.35% | 0.00% | 11.53% | 0.01% |

STANDARD AND POOR'S 500 INDEX

| 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 | 60.23 | 181.66 | 10,941.02 | 0.04% | 0.83% | 0.00% | 15.19% | 0.01% |
| Colgate-Palmolive Co | CL | 291.76 | 56.76 | 16,560.52 | 0.06% | 3.44% | 0.00% | 7.75% | 0.00% |
| EPAM Systems Inc | EPAM | 823.37 | 78.77 | 64,857.01 | 0.22% | 2.44% | 0.01% | 7.21% | 0.02% |
| Comerica Inc | CMA | 57.70 | 258.19 | 14,897.56 | 0.05% | | | 4.87% | 0.00% |
| Conagra Brands Inc | CAG | 131.87 | 45.22 | 5,963.30 | 0.02% | 6.28% | 0.00% | 10.63% | 0.00% |
| Airbnb Inc | ABNB | 477.97 | 28.29 | 13,521.71 | 0.05% | 4.95% | 0.00% | 0.84% | 0.00% |
| Consolidated Edison Inc | ED | 434.75 | 126.34 | 54,925.68 | 0.19% | | | 18.20% | 0.03% |
| Corning Inc | GLW | 344.92 | 90.11 | 31,081.10 | 0.11% | 3.60% | 0.00% | 4.88% | 0.01% |
| Cummins Inc | CMI | 853.18 | 28.49 | 24,306.96 | 0.08% | 3.93% | 0.00% | 1.57% | 0.00% |
| Caesars Entertainment Inc | CZR | 141.75 | 224.16 | 31,773.56 | 0.11% | 3.00% | 0.00% | 9.15% | 0.01% |
| Danaher Corp | DHR | 215.71 | 44.72 | 9,646.60 | | | | 110.92% | |
| Target Corp | TGT | 738.93 | 223.31 | 165,009.79 | | 0.48% | | -7.03% | |
| Deere & Co | DE | 461.66 | 133.81 | 61,774.99 | 0.21% | 3.29% | 0.01% | 0.15% | 0.00% |
| Dominion Energy Inc | D | 288.00 | 364.41 | 104,950.44 | 0.36% | 1.48% | 0.01% | 3.96% | 0.01% |
| Dover Corp | DOV | 836.77 | 45.34 | 37,939.29 | | 5.89% | | -0.72% | |
| Alliant Energy Corp | LNT | 139.89 | 141.16 | 19,746.87 | 0.07% | 1.45% | 0.00% | 10.00% | 0.01% |
| Steel Dynamics Inc | STLD | 252.72 | 50.57 | 12,780.00 | 0.04% | 3.58% | 0.00% | 6.26% | 0.00% |
| Duke Energy Corp | DUK | 161.82 | 119.13 | 19,277.14 | | 1.43% | | -13.17% | |
| Regency Centers Corp | REG | 771.00 | 92.28 | 71,147.88 | 0.24% | 4.44% | 0.01% | 6.06% | 0.01% |
| Eaton Corp PLC | ETN | 184.58 | 62.78 | 11,587.68 | 0.04% | 4.27% | 0.00% | 4.64% | 0.00% |
| Ecolab Inc | ECL | 399.30 | 227.69 | 90,916.62 | 0.31% | 1.51% | 0.00% | 15.00% | 0.05% |
| Revvity Inc | RVTY | 285.14 | 191.73 | 54,669.89 | 0.19% | 1.11% | 0.00% | 16.00% | 0.03% |
| Emerson Electric Co | EMR | 123.41 | 88.90 | 10,970.88 | | 0.31% | | -26.69% | |
| EOG Resources Inc | EOG | 570.10 | 88.90 | 50,681.89 | 0.17% | 2.36% | 0.00% | 12.01% | 0.02% |
| Aon PLC | AON | 583.15 | 123.07 | 71,768.27 | 0.24% | 2.96% | 0.01% | 17.83% | 0.04% |
| Entergy Corp | ETR | 200.22 | 328.49 | 65,768.95 | 0.22% | 0.75% | 0.00% | 11.58% | 0.03% |
| Equifax Inc | EFX | 211.46 | 101.41 | 21,443.75 | 0.07% | 4.46% | 0.00% | 6.22% | 0.00% |
| EQT Corp | EQT | 123.22 | 217.71 | 26,825.57 | 0.09% | 0.72% | 0.00% | 12.33% | 0.01% |
| IQVIA Holdings Inc | IQV | 411.33 | 39.96 | 16,436.83 | | 1.58% | | 20.04% | |
| Gartner Inc | IT | 182.50 | 214.10 | 39,073.25 | | | | -13.67% | |
| FedEx Corp | FDX | 77.95 | 434.84 | 33,895.34 | 0.12% | | | 7.35% | 0.01% |
| FMC Corp | FMC | 251.42 | 258.83 | 65,075.04 | 0.22% | 1.95% | 0.00% | 14.50% | 0.03% |
| Brown & Brown Inc | BRO | 124.76 | 53.66 | 6,694.57 | | 4.32% | | -4.00% | |
| Ford Motor Co | F | 284.60 | 74.74 | 21,270.85 | 0.07% | 0.70% | 0.00% | 11.00% | 0.01% |
| NextEra Energy Inc | NEE | 3,932.10 | 10.26 | 40,343.37 | | 5.85% | | -2.52% | |
| Franklin Resources Inc | BEN | 2,023.71 | 58.51 | 118,407.51 | 0.40% | 3.20% | 0.01% | 8.10% | 0.03% |
| Garmin Ltd | GRMN | 494.58 | 24.80 | 12,265.68 | | 4.84% | | -9.00% | |
| Freeport-McMoRan Inc | FCX | 191.33 | 122.24 | 23,388.30 | 0.08% | 2.39% | 0.00% | 5.60% | 0.00% |
| Dexcom Inc | DXCM | 1,433.98 | 37.32 | 53,516.02 | | 1.61% | | -15.66% | |
| General Dynamics Corp | GD | 386.37 | 115.52 | 44,633.92 | | | | 30.59% | |
| General Mills Inc | GIS | 272.90 | 246.97 | 67,397.37 | 0.23% | 2.14% | 0.00% | 10.40% | 0.02% |
| Genuine Parts Co | GPC | 581.28 | 63.66 | 37,004.22 | 0.13% | 3.71% | 0.00% | 8.00% | 0.01% |
| Atmos Energy Corp | ATO | 140.20 | 132.78 | 18,615.36 | 0.06% | 2.86% | 0.00% | 9.49% | 0.01% |
| WW Grainger Inc | GWW | 148.50 | 113.81 | 16,900.33 | 0.06% | 2.83% | 0.00% | 7.25% | 0.00% |
| Halliburton Co | HAL | 49.63 | 786.19 | 39,021.75 | | 0.95% | | | |
| L3Harris Technologies Inc | LHX | 895.05 | 37.03 | 33,143.78 | | 1.73% | | 24.14% | |
| Healthpeak Properties Inc | PEAK | 189.54 | 190.81 | 36,166.13 | 0.12% | 2.39% | 0.00% | 3.50% | 0.00% |
| Insulet Corp | PODD | 547.07 | 17.32 | 9,475.32 | 0.03% | 6.93% | 0.00% | 1.24% | 0.00% |
| Catalent Inc | CTLT | 69.83 | 189.09 | 13,203.78 | | | | 41.08% | |
| Fortive Corp | FTV | 180.27 | 38.85 | 7,003.57 | 0.02% | | | 9.24% | 0.00% |
| Hershey Co/The | HSY | 351.43 | 68.98 | 24,241.92 | 0.08% | 0.46% | 0.00% | 8.68% | 0.01% |
| Synchrony Financial | SYF | 149.89 | 187.92 | 28,166.39 | 0.10% | 2.54% | 0.00% | 9.00% | 0.01% |
| Hormel Foods Corp | HRL | 413.80 | 32.36 | 13,390.70 | | 3.09% | | | |
| Arthur J Gallagher & Co | AJG | 546.48 | 30.59 | 16,716.85 | 0.06% | 3.69% | 0.00% | 1.08% | 0.00% |
| Mondelez International Inc | MDLZ | 215.90 | 249.00 | 53,759.10 | 0.18% | 0.88% | 0.00% | 14.11% | 0.03% |
| CenterPoint Energy Inc | CNP | 1,360.90 | 71.06 | 96,705.27 | 0.33% | 2.39% | 0.01% | 9.17% | 0.03% |
| Humana Inc | HUM | 629.43 | 28.27 | 17,794.04 | 0.06% | 2.83% | 0.00% | 8.02% | 0.00% |
| Willis Towers Watson PLC | WTW | 123.11 | 484.86 | 59,691.60 | 0.20% | 0.73% | 0.00% | 12.32% | 0.03% |
| Illinois Tool Works Inc | ITW | 103.26 | 246.30 | 25,432.94 | 0.09% | 1.36% | 0.00% | 11.19% | 0.01% |
| CDW Corp/DE | CDW | 300.89 | 242.21 | 72,877.60 | 0.25% | 2.31% | 0.01% | 3.91% | 0.01% |
| Trane Technologies PLC | TT | 133.96 | 210.88 | 28,249.48 | 0.10% | 1.18% | 0.00% | 13.10% | 0.01% |
| Interpublic Group of Cos Inc/The | IPG | 227.56 | 225.41 | 51,293.62 | 0.17% | 1.33% | 0.00% | 13.29% | 0.02% |
| International Flavors & Fragrances Inc | IFF | 383.00 | 30.74 | 11,773.54 | 0.04% | 4.03% | 0.00% | 5.71% | 0.00% |
| Generac Holdings Inc | GNRC | 255.28 | 75.38 | 19,242.93 | 0.07% | 4.30% | 0.00% | 5.50% | 0.00% |
| NXP Semiconductors NV | NXPI | 61.43 | 117.07 | 7,191.84 | 0.02% | | | 5.00% | 0.00% |
| Kellanova | K | 257.76 | 204.08 | 52,604.27 | | 1.99% | | 34.00% | |
| Broadridge Financial Solutions Inc | BR | 342.52 | 52.54 | 17,996.00 | 0.06% | 4.26% | 0.00% | 1.69% | 0.00% |
| Kimberly-Clark Corp | KMB | 117.65 | 193.82 | 22,802.34 | | 1.65% | | | |
| Kimco Realty Corp | KIM | 337.94 | 123.73 | 41,813.44 | 0.14% | 3.81% | 0.01% | 9.64% | 0.01% |
| Oracle Corp | ORCL | 619.89 | 19.32 | 11,976.31 | 0.04% | 4.97% | 0.00% | 4.35% | 0.00% |
| Kroger Co/The | KR | 2,739.38 | 116.21 | 318,342.88 | 1.08% | 1.38% | 0.01% | 14.45% | 0.16% |
| Lennar Corp | LEN | 719.32 | 44.27 | 31,844.12 | 0.11% | 2.62% | 0.00% | 4.21% | 0.00% |
| Eli Lilly & Co | LLY | 250.15 | 127.92 | 31,999.44 | 0.11% | 1.17% | 0.00% | 1.00% | 0.00% |
| Bath & Body Works Inc | BBWI | 949.31 | 591.04 | 561,078.41 | | 0.76% | | 21.47% | |
| Charter Communications Inc | CHTR | 227.38 | 32.62 | 7,417.17 | 0.03% | 2.45% | 0.00% | 6.51% | 0.00% |
| Loews Corp | L | 147.92 | 400.13 | 59,187.23 | 0.20% | | | 12.31% | 0.02% |
| Lowe's Cos Inc | LOW | 223.25 | 70.29 | 15,692.31 | | 0.36% | | | |
| Hubbell Inc | HUBB | 575.11 | 198.83 | 114,349.72 | | 2.21% | | 20.20% | |
| IDEX Corp | IEX | 53.62 | 300.00 | 16,086.60 | | 1.63% | | | |
| Marsh & McLennan Cos Inc | MMC | 75.63 | 201.68 | 15,252.25 | 0.05% | 1.27% | 0.00% | 11.00% | 0.01% |
| Masco Corp | MAS | 493.07 | 199.42 | 98,328.42 | 0.33% | 1.42% | 0.00% | 11.53% | 0.04% |
| S&P Global Inc | SPGI | 224.50 | 60.55 | 13,593.54 | 0.05% | 1.88% | 0.00% | 4.36% | 0.00% |
| Medtronic PLC | MDT | 316.80 | 415.83 | 131,734.94 | 0.45% | 0.87% | 0.00% | 13.66% | 0.06% |
| Viatris Inc | VTRS | 1,329.65 | 79.27 | 105,401.67 | 0.36% | 3.48% | 0.01% | 4.33% | 0.02% |
| CVS Health Corp | CVS | 1,199.67 | 9.18 | 11,012.98 | | 5.23% | | -2.58% | |
| DuPont de Nemours Inc | DD | 1,286.90 | 67.95 | 87,444.65 | 0.30% | 3.56% | 0.01% | 6.99% | 0.02% |
| Micron Technology Inc | MU | 430.04 | 71.54 | 30,765.20 | 0.10% | 2.01% | 0.00% | 11.43% | 0.01% |
| Motorola Solutions Inc | MSI | 1,098.03 | 76.12 | 83,582.35 | | 0.60% | | -11.00% | |
| Cboe Global Markets Inc | CBOE | 165.97 | 322.87 | 53,586.09 | 0.18% | 1.21% | 0.00% | 10.82% | 0.02% |
| Laboratory Corp of America Holdings | LH | 105.56 | 182.19 | 19,231.25 | 0.07% | 1.21% | 0.00% | 10.21% | 0.01% |
| Newmont Corp | NEM | 84.90 | 216.91 | 18,415.66 | | 1.33% | | -32.45% | |

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| | | [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. |
| NIKE Inc | NKE | 1,152.49 | 40.19 | 46,318.65 | 0.16% | 3.98% | 0.01% | 11.58% | 0.02% |
| NiSource Inc | NI | 1,224.01 | 109.90 | 134,519.03 | 0.46% | 1.35% | 0.01% | 16.07% | 0.07% |
| Norfolk Southern Corp | NSC | 413.42 | 25.64 | 10,599.96 | 0.04% | 3.90% | 0.00% | 7.65% | 0.00% |
| Principal Financial Group Inc | PFG | 226.14 | 218.16 | 49,333.83 | 0.17% | 2.48% | 0.00% | 0.73% | 0.00% |
| Eversource Energy | ES | 238.41 | 73.83 | 17,601.96 | 0.06% | 3.63% | 0.00% | 8.98% | 0.01% |
| Northrop Grumman Corp | NOC | 349.09 | 59.41 | 20,739.20 | 0.07% | 4.54% | 0.00% | 5.21% | 0.00% |
| Wells Fargo & Co | WFC | 150.79 | 475.16 | 71,650.80 | 0.24% | 1.57% | 0.00% | 2.53% | 0.01% |
| Nucor Corp | NUE | 3,631.64 | 44.59 | 161,934.83 | 0.55% | 3.14% | 0.02% | 13.41% | 0.07% |
| Occidental Petroleum Corp | OXY | 245.84 | 169.97 | 41,785.25 | | 1.20% | | -10.84% | |
| Omnicom Group Inc | OMC | 880.37 | 59.15 | 52,073.94 | | 1.22% | | | |
| ONEOK Inc | OKE | 197.93 | 80.63 | 15,959.42 | 0.05% | 3.47% | 0.00% | 4.72% | 0.00% |
| Raymond James Financial Inc | RJF | 582.55 | 68.85 | 40,108.64 | 0.14% | 5.55% | 0.01% | 6.93% | 0.01% |
| PG&E Corp | PCG | 208.61 | 105.15 | 21,935.03 | | 1.71% | | | |
| Parker-Hannifin Corp | PH | 2,133.51 | 17.17 | 36,632.33 | 0.12% | 0.23% | 0.00% | 6.26% | 0.01% |
| Rollins Inc | ROL | 128.48 | 433.18 | 55,653.23 | 0.19% | 1.37% | 0.00% | 15.28% | 0.03% |
| PPL Corp | PPL | 484.04 | 40.74 | 19,719.71 | 0.07% | 1.47% | 0.00% | 14.86% | 0.01% |
| ConocoPhillips | COP | 737.09 | 26.12 | 19,252.76 | 0.07% | 3.68% | 0.00% | 4.20% | 0.00% |
| PulteGroup Inc | PHM | 1,187.41 | 115.57 | 137,228.74 | 0.47% | 0.50% | 0.00% | 6.00% | 0.03% |
| Pinnacle West Capital Corp | PNW | 215.60 | 88.42 | 19,062.91 | 0.06% | 0.90% | 0.00% | 2.04% | 0.00% |
| PNC Financial Services Group Inc/The | PNC | 113.31 | 74.94 | 8,491.60 | 0.03% | 4.70% | 0.00% | 5.95% | 0.00% |
| PPG Industries Inc | PPG | 398.34 | 133.96 | 53,361.76 | 0.18% | 4.63% | 0.01% | 12.87% | 0.02% |
| Progressive Corp/The | PGR | 235.80 | 141.99 | 33,481.24 | 0.11% | 1.83% | 0.00% | 12.91% | 0.01% |
| Veralto Corp | VLTO | 585.04 | 164.03 | 95,964.28 | | 0.24% | | 39.34% | |
| Public Service Enterprise Group Inc | PEG | 246.31 | 77.25 | 19,027.29 | | | | | |
| Robert Half Inc | RHI | 499.11 | 62.43 | 31,159.50 | 0.11% | 3.65% | 0.00% | 5.47% | 0.01% |
| Cooper Cos Inc/The | COO | 105.90 | 81.98 | 8,681.27 | 0.03% | 2.34% | 0.00% | 1.26% | 0.00% |
| Edison International | EIX | 49.52 | 336.92 | 16,685.63 | 0.06% | 0.02% | 0.00% | 7.54% | 0.00% |
| Schlumberger NV | SLB | 383.57 | 66.99 | 25,695.22 | 0.09% | 4.40% | 0.00% | 4.80% | 0.00% |
| Charles Schwab Corp/The | SCHW | 1,423.42 | 52.04 | 74,074.83 | | 1.92% | | 33.41% | |
| Sherwin-Williams Co/The | SHW | 1,771.68 | 61.32 | 108,639.54 | 0.37% | 1.63% | 0.01% | 3.60% | 0.01% |
| West Pharmaceutical Services Inc | WST | 255.97 | 278.80 | 71,363.32 | 0.24% | 0.87% | 0.00% | 10.90% | 0.03% |
| J M Smucker Co/The | SJM | 73.99 | 350.76 | 25,952.73 | 0.09% | 0.23% | 0.00% | 5.80% | 0.01% |
| Snap-on Inc | SNA | 106.13 | 109.73 | 11,645.97 | 0.04% | 3.86% | 0.00% | 5.95% | 0.00% |
| AMETEK Inc | AME | 52.78 | 274.69 | 14,498.14 | 0.05% | 2.71% | 0.00% | 4.85% | 0.00% |
| Southern Co/The | SO | 230.80 | 155.23 | 35,826.93 | 0.12% | 0.64% | 0.00% | 6.36% | 0.01% |
| Truist Financial Corp | TFC | 1,091.52 | 70.98 | 77,475.73 | 0.26% | 3.94% | 0.01% | 5.05% | 0.01% |
| Southwest Airlines Co | LUV | 1,333.67 | 32.14 | 42,864.09 | 0.15% | 6.47% | 0.01% | 16.00% | 0.02% |
| W R Berkley Corp | WRB | 596.12 | 25.57 | 15,242.66 | 0.05% | 2.82% | 0.00% | 10.15% | 0.01% |
| Stanley Black & Decker Inc | SWK | 257.87 | 72.55 | 18,708.61 | 0.06% | 0.61% | 0.00% | 13.00% | 0.01% |
| Public Storage | PSA | 153.31 | 90.90 | 13,935.97 | 0.05% | 3.56% | 0.00% | 9.00% | 0.00% |
| Arista Networks Inc | ANET | 175.83 | 258.76 | 45,497.51 | 0.15% | 4.64% | 0.01% | 3.77% | 0.01% |
| Sysco Corp | SYY | 311.10 | 219.71 | 68,351.78 | 0.23% | | | 19.72% | 0.05% |
| Corteva Inc | CTVA | 504.37 | 72.17 | 36,400.53 | 0.12% | 2.77% | 0.00% | 13.00% | 0.02% |
| Texas Instruments Inc | TXN | 704.88 | 45.20 | 31,860.58 | 0.11% | 1.42% | 0.00% | 16.17% | 0.02% |
| Textron Inc | TXT | 908.20 | 152.71 | 138,691.83 | 0.47% | 3.41% | 0.02% | 10.00% | 0.05% |
| Thermo Fisher Scientific Inc | TMO | 196.01 | 76.66 | 15,025.74 | 0.05% | 0.10% | 0.00% | 11.73% | 0.01% |
| TJX Cos Inc/The | TJX | 386.37 | 495.76 | 191,547.78 | | 0.28% | | -5.00% | |
| Globe Life Inc | GL | 1,139.68 | 88.11 | 100,416.94 | 0.34% | 1.51% | 0.01% | 6.38% | 0.02% |
| Johnson Controls International plc | JCI | 94.12 | 123.13 | 11,588.87 | | 0.73% | | | |
| Ulta Beauty Inc | ULTA | 680.32 | 52.80 | 35,920.90 | 0.12% | 2.80% | 0.00% | 13.36% | 0.02% |
| Union Pacific Corp | UNP | 48.56 | 425.99 | 20,686.93 | 0.07% | | | 6.41% | 0.00% |
| Keysight Technologies Inc | KEYS | 609.60 | 225.27 | 137,323.92 | 0.47% | 2.31% | 0.01% | 11.00% | 0.05% |
| UnitedHealth Group Inc | UNH | 174.60 | 135.89 | 23,726.39 | 0.08% | | | 1.81% | 0.00% |
| Blackstone Inc | BX | 924.93 | 551.09 | 509,716.92 | 1.74% | 1.36% | 0.02% | 13.40% | 0.23% |
| Marathon Oil Corp | MRO | 710.55 | 112.37 | 79,843.94 | 0.27% | 2.85% | 0.01% | 7.63% | 0.02% |
| Bio-Rad Laboratories Inc | BIO | 585.25 | 25.43 | 14,882.83 | 0.05% | 1.73% | 0.00% | 8.00% | 0.00% |
| Ventas Inc | VTR | 24.06 | 304.92 | 7,336.07 | 0.02% | | | 4.00% | 0.00% |
| VF Corp | VFC | 402.38 | 45.84 | 18,445.15 | 0.06% | 3.93% | 0.00% | 8.02% | 0.01% |
| Vulcan Materials Co | VMC | 388.88 | 16.73 | 6,506.01 | 0.02% | 2.15% | 0.00% | 3.10% | 0.00% |
| Weyerhaeuser Co | WY | 132.87 | 213.56 | 28,376.36 | | 0.81% | | 23.22% | |
| Whirlpool Corp | WHR | 730.00 | 31.35 | 22,885.53 | | 2.42% | | | |
| Williams Cos Inc/The | WMB | 54.85 | 108.90 | 5,973.49 | | 6.43% | | -2.33% | |
| Constellation Energy Corp | CEG | 1,216.50 | 36.79 | 44,755.00 | 0.15% | 4.87% | 0.01% | 3.50% | 0.01% |
| WEC Energy Group Inc | WEC | 319.38 | 121.04 | 38,658.00 | | 0.93% | | 26.33% | |
| Adobe Inc | ADBE | 315.44 | 83.62 | 26,376.67 | 0.09% | 3.73% | 0.00% | 6.41% | 0.01% |
| AES Corp/The | AES | 455.30 | 611.01 | 278,192.85 | 0.95% | | | 17.33% | 0.16% |
| Amgen Inc | AMGN | 669.63 | 17.21 | 11,524.32 | 0.04% | 3.86% | 0.00% | 10.12% | 0.00% |
| Apple Inc | AAPL | 145.39 | 120.34 | 17,496.11 | | 1.15% | | -16.00% | |
| Autodesk Inc | ADSK | 535.18 | 269.64 | 144,305.40 | 0.49% | 3.16% | 0.02% | 4.88% | 0.02% |
| Cintas Corp | CTAS | 15,552.75 | 189.95 | 2,954,245.24 | 10.06% | 0.51% | 0.05% | 13.00% | 1.31% |
| Comcast Corp | CMCSA | 213.76 | 218.43 | 46,692.47 | 0.16% | | | 12.48% | 0.02% |
| Molson Coors Beverage Co | TAP | 101.85 | 553.25 | 56,350.73 | 0.19% | 0.98% | 0.00% | 11.84% | 0.02% |
| KLA Corp | KLAC | 4,015.64 | 41.89 | 168,214.95 | 0.57% | 2.77% | 0.02% | 9.26% | 0.05% |
| Marriott International Inc/MD | MAR | 200.96 | 61.54 | 12,366.77 | 0.04% | 2.66% | 0.00% | 12.99% | 0.01% |
| Fiserv Inc | FI | 135.93 | 544.62 | 74,031.29 | 0.25% | 1.06% | 0.00% | 9.93% | 0.03% |
| McCormick & Co Inc/MD | MKC | 293.69 | 202.70 | 59,531.17 | 0.20% | 1.03% | 0.00% | 17.38% | 0.04% |
| PACCAR Inc | PCAR | 600.19 | 130.61 | 78,390.29 | 0.27% | | | 14.08% | 0.04% |
| Costco Wholesale Corp | COST | 251.29 | 64.83 | 16,291.20 | 0.06% | 2.59% | 0.00% | 7.01% | 0.00% |
| Stryker Corp | SYK | 523.08 | 91.82 | 48,028.84 | 0.16% | 1.18% | 0.00% | 12.00% | 0.02% |
| Tyson Foods Inc | TSN | 442.74 | 592.74 | 262,430.30 | 0.89% | 0.69% | 0.01% | 13.06% | 0.12% |
| Lamb Weston Holdings Inc | LW | 379.90 | 296.33 | 112,574.29 | 0.38% | 1.01% | 0.00% | 7.62% | 0.03% |
| Applied Materials Inc | AMAT | 285.23 | 46.84 | 13,360.22 | | 4.18% | | 46.71% | |
| American Airlines Group Inc | AAL | 144.93 | 100.03 | 14,497.05 | 0.05% | 1.12% | 0.00% | 13.32% | 0.01% |
| Cardinal Health Inc | CAH | 836.53 | 149.78 | 125,296.06 | 0.43% | 0.85% | 0.00% | 5.50% | 0.02% |
| Cincinnati Financial Corp | CINF | 653.54 | 12.43 | 8,123.51 | | | | 54.64% | |
| Paramount Global | PARA | 246.47 | 107.08 | 26,391.79 | 0.09% | 1.87% | 0.00% | 13.32% | 0.01% |
| DR Horton Inc | DHI | 156.91 | 102.79 | 16,128.57 | 0.05% | 2.92% | 0.00% | 18.21% | 0.01% |
| Electronic Arts Inc | EA | 610.70 | 14.37 | 8,775.82 | | 1.39% | | -20.36% | |
| Fair Isaac Corp | FICO | 333.18 | 127.67 | 42,537.60 | 0.14% | 0.94% | 0.00% | 1.70% | 0.00% |
| Expeditors International of Washington Inc | EXPD | 268.97 | 138.01 | 37,120.00 | 0.13% | 0.55% | 0.00% | 10.32% | 0.01% |
| Fastenal Co | FAST | 24.71 | 1,087.60 | 26,878.95 | | | | 22.00% | |

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| 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. |
|---|---|---|---|---|---|---|---|---|---|
| M&T Bank Corp | MTB | 571.41 | 59.97 | 34,267.64 | | 2.33% | | | |
| Xcel Energy Inc | XEL | 165.96 | 128.17 | 21,271.09 | 0.07% | 4.06% | 0.00% | 11.59% | 0.01% |
| Fifth Third Bancorp | FITB | 551.82 | 60.84 | 33,572.49 | 0.11% | 3.42% | 0.00% | 6.12% | 0.01% |
| Gilead Sciences Inc | GILD | 681.02 | 28.95 | 19,715.44 | | 4.84% | | 25.00% | |
| Hasbro Inc | HAS | 1,246.04 | 76.60 | 95,446.82 | 0.33% | 3.92% | 0.01% | 2.10% | 0.01% |
| Huntington Bancshares Inc/OH | HBAN | 138.76 | 46.41 | 6,440.04 | | 6.03% | | -3.49% | |
| Welltower Inc | WELL | 1,448.08 | 11.26 | 16,305.32 | | 5.51% | | -7.69% | |
| Biogen Inc | BIIB | 556.09 | 89.10 | 49,547.98 | 0.17% | 2.74% | 0.00% | 10.96% | 0.02% |
| Northern Trust Corp | NTRS | 144.90 | 234.08 | 33,917.72 | 0.12% | | | 0.87% | 0.00% |
| Packaging Corp of America | PKG | 207.04 | 79.25 | 16,407.60 | 0.06% | 3.79% | 0.00% | 5.93% | 0.00% |
| Paychex Inc | PAYX | 89.62 | 168.01 | 15,057.73 | 0.05% | 2.98% | 0.00% | 5.00% | 0.00% |
| QUALCOMM Inc | QCOM | 361.23 | 121.97 | 44,059.47 | 0.15% | 2.92% | 0.00% | 7.00% | 0.01% |
| Ross Stores Inc | ROST | 1,113.00 | 129.05 | 143,632.65 | 0.49% | 2.48% | 0.01% | 11.61% | 0.06% |
| IDEXX Laboratories Inc | IDXX | 338.63 | 130.38 | 44,150.84 | 0.15% | 1.03% | 0.00% | 10.00% | 0.02% |
| Starbucks Corp | SBUX | 83.05 | 465.82 | 38,687.28 | 0.13% | | | 17.98% | 0.02% |
| KeyCorp | KEY | 1,136.70 | 99.30 | 112,874.31 | 0.38% | 2.30% | 0.01% | 17.41% | 0.07% |
| Fox Corp | FOXA | 936.26 | 12.39 | 11,600.26 | 0.04% | 6.62% | 0.00% | 7.08% | 0.00% |
| Fox Corp | FOX | 247.23 | 29.54 | 7,303.09 | 0.02% | 1.76% | 0.00% | 6.24% | 0.00% |
| State Street Corp | STT | 235.58 | 27.66 | 6,516.17 | 0.02% | 1.88% | 0.00% | 6.24% | 0.00% |
| Norwegian Cruise Line Holdings Ltd | NCLH | 308.58 | 72.82 | 22,471.09 | 0.08% | 3.79% | 0.00% | 6.92% | 0.01% |
| US Bancorp | USB | 425.43 | 15.27 | 6,496.24 | | | | | |
| A O Smith Corp | AOS | 1,557.01 | 38.12 | 59,353.30 | 0.20% | 5.04% | 0.01% | 7.50% | 0.02% |
| Gen Digital Inc | GEN | 122.83 | 75.36 | 9,256.32 | | 1.70% | | | |
| T Rowe Price Group Inc | TROW | 640.72 | 22.08 | 14,146.99 | 0.05% | 2.26% | 0.00% | 12.98% | 0.01% |
| Waste Management Inc | WM | 223.47 | 100.13 | 22,376.05 | | 4.87% | | -4.09% | |
| Constellation Brands Inc | STZ | 402.78 | 170.99 | 68,870.50 | 0.23% | 1.64% | 0.00% | 10.05% | 0.02% |
| DENTSPLY SIRONA Inc | XRAY | 183.66 | 240.49 | 44,169.11 | 0.15% | 1.48% | 0.00% | 9.75% | 0.01% |
| Zions Bancorp NA | ZION | 211.86 | 31.75 | 6,726.56 | 0.02% | 1.76% | 0.00% | 7.93% | 0.00% |
| Alaska Air Group Inc | ALK | 148.15 | 35.63 | 5,278.55 | | 4.60% | | -9.73% | |
| Invesco Ltd | IVZ | 128.05 | 37.81 | 4,841.68 | 0.02% | | | 3.56% | 0.00% |
| Intuit Inc | INTU | 449.55 | 14.27 | 6,415.14 | | 5.61% | | -0.68% | |
| Morgan Stanley | MS | 279.94 | 571.46 | 159,972.23 | 0.54% | 0.63% | 0.00% | 18.96% | 0.10% |
| Microchip Technology Inc | MCHP | 1,641.31 | 79.34 | 130,221.69 | 0.44% | 4.29% | 0.02% | 3.64% | 0.02% |
| Chubb Ltd | CB | 541.05 | 83.44 | 45,144.79 | | 2.10% | | -1.00% | |
| Hologic Inc | HOLX | 407.99 | 229.43 | 93,605.15 | 0.32% | 1.50% | 0.00% | 15.50% | 0.05% |
| Citizens Financial Group Inc | CFG | 240.00 | 71.30 | 17,112.21 | | | | -8.76% | |
| O'Reilly Automotive Inc | ORLY | 466.22 | 27.27 | 12,713.90 | | 6.16% | | -10.63% | |
| Allstate Corp/The | ALL | 59.16 | 982.38 | 58,119.57 | 0.20% | | | 11.39% | 0.02% |
| Equity Residential | EQR | 261.69 | 137.87 | 36,078.79 | | 2.58% | | 50.02% | |
| BorgWarner Inc | BWA | 379.72 | 56.84 | 21,583.51 | 0.07% | 4.66% | 0.00% | 4.75% | 0.00% |
| Keurig Dr Pepper Inc | KDP | 235.06 | 33.69 | 7,919.00 | 0.03% | 1.31% | 0.00% | 4.33% | 0.00% |
| Host Hotels & Resorts Inc | HST | 1,398.34 | 31.57 | 44,145.47 | 0.15% | 2.72% | 0.00% | 6.85% | 0.01% |
| Incyte Corp | INCY | 705.40 | 17.47 | 12,323.34 | | 4.12% | | | |
| Simon Property Group Inc | SPG | 224.11 | 54.34 | 12,178.08 | | | | 36.36% | |
| Eastman Chemical Co | EMN | 326.25 | 124.89 | 40,744.99 | 0.14% | 6.09% | 0.01% | 1.71% | 0.00% |
| AvalonBay Communities Inc | AVB | 118.56 | 83.83 | 9,939.22 | 0.03% | 3.77% | 0.00% | 4.75% | 0.00% |
| Prudential Financial Inc | PRU | 142.02 | 172.94 | 24,560.07 | 0.08% | 3.82% | 0.00% | 6.27% | 0.01% |
| United Parcel Service Inc | UPS | 361.00 | 97.78 | 35,298.58 | 0.12% | 5.11% | 0.01% | 10.47% | 0.01% |
| Walgreens Boots Alliance Inc | WBA | 723.26 | 151.61 | 109,652.99 | 0.37% | 4.27% | 0.02% | 1.64% | 0.01% |
| STERIS PLC | STE | 863.92 | 19.94 | 17,226.47 | 0.06% | 9.63% | 0.01% | 0.25% | 0.00% |
| McKesson Corp | MCK | 98.80 | 200.94 | 19,852.87 | | 1.04% | | | |
| Lockheed Martin Corp | LMT | 133.06 | 470.56 | 62,613.65 | 0.21% | 0.53% | 0.00% | 10.04% | 0.02% |
| Cencora Inc | COR | 248.10 | 447.77 | 111,091.29 | 0.38% | 2.81% | 0.01% | 7.04% | 0.03% |
| Capital One Financial Corp | COF | 199.43 | 203.37 | 40,558.69 | 0.14% | 1.00% | 0.00% | 9.04% | 0.01% |
| Waters Corp | WAT | 380.85 | 111.66 | 42,525.38 | | 2.15% | | -6.30% | |
| Nordson Corp | NDSN | 59.13 | 280.61 | 16,591.63 | 0.06% | | | 4.44% | 0.00% |
| Dollar Tree Inc | DLTR | 57.01 | 235.34 | 13,417.67 | | 1.16% | | | |
| Darden Restaurants Inc | DRI | 217.87 | 123.59 | 26,926.80 | 0.09% | | | 7.77% | 0.01% |
| Evergy Inc | EVRG | 120.32 | 156.47 | 18,825.69 | 0.06% | 3.35% | 0.00% | 10.45% | 0.01% |
| Match Group Inc | MTCH | 229.58 | 51.04 | 11,717.92 | 0.04% | 5.04% | 0.00% | 4.82% | 0.00% |
| Domino's Pizza Inc | DPZ | 271.81 | 32.38 | 8,801.27 | | | | 43.48% | |
| NVR Inc | NVR | 34.88 | 392.89 | 13,704.40 | 0.05% | 1.23% | 0.00% | 13.97% | 0.01% |
| NetApp Inc | NTAP | 3.18 | 6,155.39 | 19,567.98 | | | | -4.57% | |
| Old Dominion Freight Line Inc | ODFL | 206.03 | 91.39 | 18,829.17 | 0.06% | 2.19% | 0.00% | 7.40% | 0.00% |
| DaVita Inc | DVA | 109.11 | 389.06 | 42,451.89 | 0.14% | 0.41% | 0.00% | 5.83% | 0.01% |
| Hartford Financial Services Group Inc/The | HIG | 91.30 | 101.46 | 9,263.30 | | | | 21.67% | |
| Iron Mountain Inc | IRM | 300.77 | 78.16 | 23,508.18 | 0.08% | 2.41% | 0.00% | 7.00% | 0.01% |
| Estee Lauder Cos Inc/The | EL | 291.99 | 64.15 | 18,731.16 | 0.06% | 4.05% | 0.00% | 4.00% | 0.00% |
| Cadence Design Systems Inc | CDNS | 232.31 | 127.69 | 29,663.03 | 0.10% | 2.07% | 0.00% | 13.86% | 0.01% |
| Tyler Technologies Inc | TYL | 272.06 | 273.27 | 74,346.38 | 0.25% | | | 18.56% | 0.05% |
| Universal Health Services Inc | UHS | 42.12 | 408.84 | 17,221.98 | | | | | |
| Skyworks Solutions Inc | SWKS | 61.01 | 137.48 | 8,387.24 | 0.03% | 0.58% | 0.00% | 9.41% | 0.00% |
| Quest Diagnostics Inc | DGX | 159.96 | 96.93 | 15,504.44 | | 2.81% | | -7.11% | |
| Rockwell Automation Inc | ROK | 112.44 | 137.23 | 15,429.46 | | 2.07% | | -1.27% | |
| Kraft Heinz Co/The | KHC | 114.67 | 275.44 | 31,585.53 | 0.11% | 1.82% | 0.00% | 12.16% | 0.01% |
| American Tower Corp | AMT | 1,226.54 | 35.11 | 43,063.78 | 0.15% | 4.56% | 0.01% | 4.03% | 0.01% |
| Regeneron Pharmaceuticals Inc | REGN | 466.17 | 208.78 | 97,325.93 | 0.33% | 3.10% | 0.01% | 10.93% | 0.04% |
| Amazon.com Inc | AMZN | 107.13 | 823.81 | 88,253.94 | 0.30% | | | 4.00% | 0.01% |
| Jack Henry & Associates Inc | JKHY | 10,334.03 | 146.09 | 1,509,698.59 | | | | 86.99% | |
| Ralph Lauren Corp | RL | 72.83 | 158.69 | 11,557.08 | 0.04% | 1.31% | 0.00% | 7.06% | 0.00% |
| Boston Properties Inc | BXP | 39.75 | 129.38 | 5,143.11 | 0.02% | 2.32% | 0.00% | 10.38% | 0.00% |
| Amphenol Corp | APH | 156.94 | 56.93 | 8,934.54 | 0.03% | 6.89% | 0.00% | 2.82% | 0.00% |
| Howmet Aerospace Inc | HWM | 598.31 | 90.99 | 54,440.23 | 0.19% | 0.97% | 0.00% | 4.04% | 0.01% |
| Pioneer Natural Resources Co | PXD | 411.74 | 52.60 | 21,657.73 | | 0.38% | | 20.41% | |
| Valero Energy Corp | VLO | 233.31 | 231.64 | 54,043.70 | | 5.53% | | -3.00% | |
| Synopsys Inc | SNPS | 340.45 | 125.36 | 42,679.19 | | 3.25% | | 35.66% | |
| Etsy Inc | ETSY | 152.05 | 543.23 | 82,599.75 | 0.28% | | | 16.68% | 0.05% |
| CH Robinson Worldwide Inc | CHRW | 119.75 | 75.81 | 9,077.94 | 0.03% | | | 2.74% | 0.00% |
| Accenture PLC | ACN | 116.65 | 82.05 | 9,571.21 | 0.03% | 2.97% | 0.00% | 5.00% | 0.00% |
| TransDigm Group Inc | TDG | 664.79 | 333.14 | 221,467.14 | 0.75% | 1.55% | 0.01% | 10.00% | 0.08% |
| Yum! Brands Inc | YUM | 55.31 | 962.87 | 53,260.19 | 0.18% | | | 15.56% | 0.03% |

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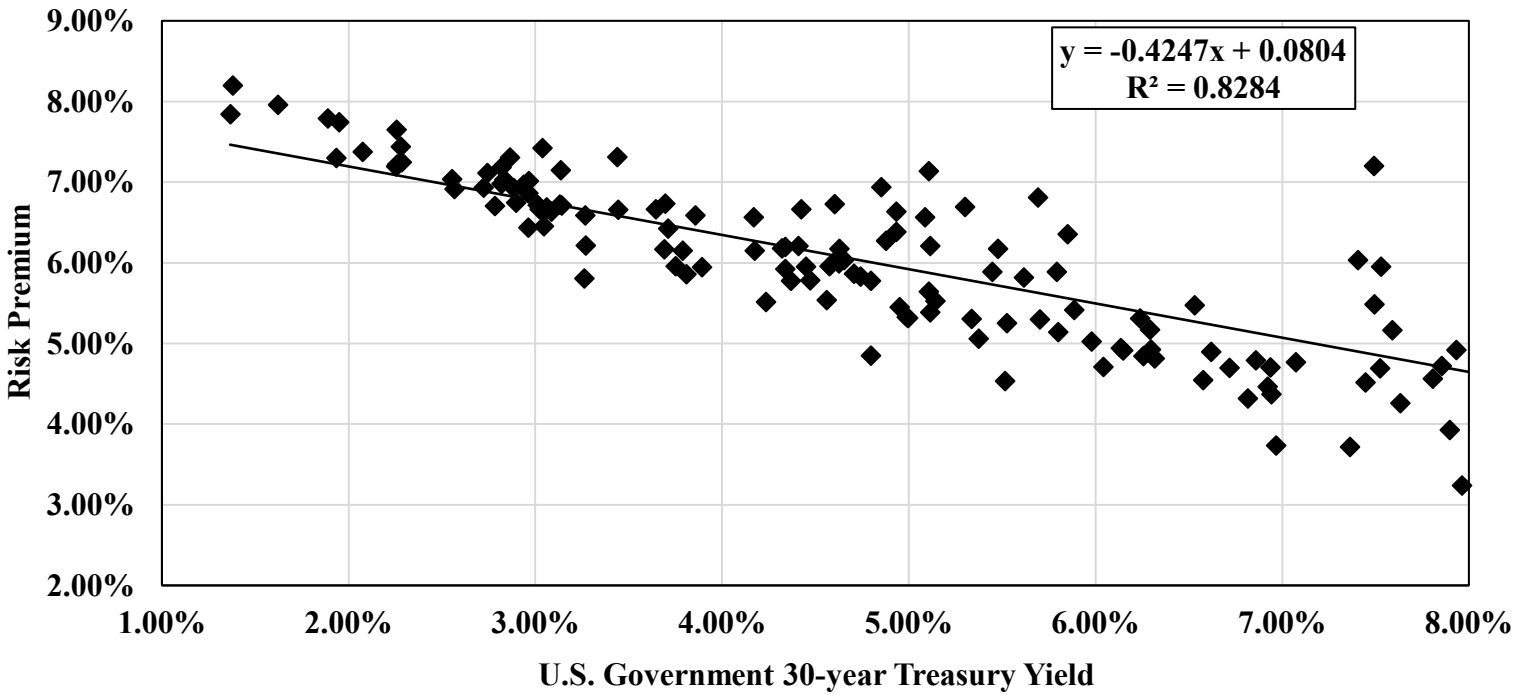
| | | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] |
|---|---|---|---|---|---|---|---|---|---|
| Name | Ticker | Shares Outst'g | Price | Market Capitalization | Weight in Index | Estimated Dividend Yield | Cap-Weighted Dividend Yield | Bloomberg Long-Term Growth Est. | Cap-Weighted Long-Term Growth Est. |
| Prologis Inc | PLD | 280.31 | 125.55 | 35,192.67 | 0.12% | 1.93% | 0.00% | 11.93% | 0.01% |
| FirstEnergy Corp | FE | 923.86 | 114.93 | 106,179.46 | 0.36% | 3.03% | 0.01% | 8.00% | 0.03% |
| VeriSign Inc | VRSN | 573.82 | 36.94 | 21,196.73 | | 4.44% | | -0.33% | |
| Quanta Services Inc | PWR | 102.10 | 212.20 | 21,665.62 | 0.07% | | | 11.50% | 0.01% |
| Henry Schein Inc | HSIC | 145.29 | 188.31 | 27,358.62 | 0.09% | 0.17% | 0.00% | 8.00% | 0.01% |
| Ameren Corp | AEE | 130.59 | 66.73 | 8,713.94 | 0.03% | | | 3.44% | 0.00% |
| ANSYS Inc | ANSS | 262.48 | 77.59 | 20,365.44 | 0.07% | 3.25% | 0.00% | 7.11% | 0.00% |
| FactSet Research Systems Inc | FDS | 86.87 | 293.36 | 25,485.06 | 0.09% | | | 10.77% | 0.01% |
| NVIDIA Corp | NVDA | 37.99 | 453.46 | 17,226.04 | 0.06% | 0.86% | 0.00% | 10.45% | 0.01% |
| Sealed Air Corp | SEE | 2,470.00 | 467.70 | 1,155,219.00 | | 0.03% | | 50.82% | |
| Cognizant Technology Solutions Corp | CTSH | 144.44 | 33.38 | 4,821.27 | 0.02% | 2.40% | 0.00% | 0.01% | 0.00% |
| Intuitive Surgical Inc | ISRG | 501.41 | 70.38 | 35,289.45 | 0.12% | 1.65% | 0.00% | 12.00% | 0.01% |
| Take-Two Interactive Software Inc | TTWO | 352.07 | 310.84 | 109,438.06 | 0.37% | | | 11.57% | 0.04% |
| Republic Services Inc | RSG | 170.07 | 158.20 | 26,904.76 | | | | 58.00% | |
| eBay Inc | EBAY | 314.64 | 161.84 | 50,920.85 | 0.17% | 1.32% | 0.00% | 9.97% | 0.02% |
| Goldman Sachs Group Inc/The | GS | 519.00 | 41.01 | 21,284.19 | 0.07% | 2.44% | 0.00% | 0.32% | 0.00% |
| SBA Communications Corp | SBAC | 326.11 | 341.54 | 111,380.29 | 0.38% | 3.22% | 0.01% | 7.71% | 0.03% |
| Sempra | SRE | 107.89 | 246.96 | 26,643.77 | 0.09% | 1.38% | 0.00% | 8.00% | 0.01% |
| Moody's Corp | MCO | 629.33 | 72.87 | 45,859.13 | 0.16% | 3.27% | 0.01% | 5.49% | 0.01% |
| ON Semiconductor Corp | ON | 183.00 | 364.96 | 66,787.68 | 0.23% | 0.84% | 0.00% | 14.08% | 0.03% |
| Booking Holdings Inc | BKNG | 430.70 | 71.33 | 30,721.69 | 0.10% | | | 3.72% | 0.00% |
| F5 Inc | FFIV | 34.89 | 3,125.70 | 109,055.67 | 0.37% | | | 15.00% | 0.06% |
| Akamai Technologies Inc | AKAM | 59.71 | 171.19 | 10,221.24 | 0.03% | | | 5.45% | 0.00% |
| Charles River Laboratories International Inc | CRL | 150.83 | 115.53 | 17,425.62 | | | | | |
| MarketAxess Holdings Inc | MKTX | 51.30 | 197.08 | 10,109.61 | 0.03% | | | 9.00% | 0.00% |
| Devon Energy Corp | DVN | 37.91 | 240.12 | 9,101.75 | | 1.20% | | | |
| Bio-Techne Corp | TECH | 640.70 | 44.97 | 28,812.28 | | 6.85% | | 51.35% | |
| Alphabet Inc | GOOGL | 158.15 | 62.90 | 9,947.64 | 0.03% | 0.51% | 0.00% | 4.50% | 0.00% |
| Teleflex Inc | TFX | 5,918.00 | 132.53 | 784,312.54 | 2.67% | | | 16.65% | 0.44% |
| Bunge Ltd | 6369743D | 46.99 | 225.69 | 10,605.85 | 0.04% | 0.60% | 0.00% | 7.00% | 0.00% |
| Netflix Inc | NFLX | 437.68 | 473.97 | 207,447.19 | | | | 30.96% | |
| Allegion plc | ALLE | 87.79 | 106.09 | 9,313.43 | 0.03% | 1.70% | 0.00% | 5.93% | 0.00% |
| Agilent Technologies Inc | A | 292.12 | 127.80 | 37,333.32 | 0.13% | 0.74% | 0.00% | 8.00% | 0.01% |
| Warner Bros Discovery Inc | WBD | 2,438.57 | 10.45 | 25,483.01 | | | | 91.04% | |
| Elevance Health Inc | ELV | 234.96 | 479.49 | 112,660.49 | 0.38% | 1.23% | 0.00% | 10.85% | 0.04% |
| Trimble Inc | TRMB | 248.77 | 46.40 | 11,542.84 | | | | | |
| CME Group Inc | CME | 359.99 | 218.36 | 78,607.42 | 0.27% | 2.02% | 0.01% | 11.10% | 0.03% |
| Juniper Networks Inc | JNPR | 318.87 | 28.45 | 9,071.79 | 0.03% | 3.09% | 0.00% | 7.96% | 0.00% |
| BlackRock Inc | BLK | 148.76 | 751.23 | 111,754.48 | 0.38% | 2.66% | 0.01% | 6.72% | 0.03% |
| DTE Energy Co | DTE | 206.11 | 104.11 | 21,458.01 | 0.07% | 3.66% | 0.00% | 7.00% | 0.01% |
| Nasdaq Inc | NDAQ | 576.97 | 55.84 | 32,217.73 | 0.11% | 1.58% | 0.00% | 2.68% | 0.00% |
| Celanese Corp | CE | 108.86 | 138.66 | 15,093.83 | 0.05% | 2.02% | 0.00% | 2.27% | 0.00% |
| Philip Morris International Inc | PM | 1,552.41 | 93.36 | 144,932.62 | 0.49% | 5.57% | 0.03% | 9.19% | 0.05% |
| Salesforce Inc | CRM | 968.00 | 251.90 | 243,839.20 | | | | 21.67% | |
| Ingersoll Rand Inc | IR | 404.80 | 71.43 | 28,914.65 | 0.10% | 0.11% | 0.00% | 14.00% | 0.01% |
| Roper Technologies Inc | ROP | 39.72 | 237.02 | 9,415.15 | | 2.19% | | 40.00% | |
| Huntington Ingalls Industries Inc | HII | 106.82 | 538.25 | 57,496.94 | | 0.56% | | -1.00% | |
| MetLife Inc | MET | 740.19 | 63.63 | 47,098.29 | 0.16% | 3.27% | 0.01% | 9.17% | 0.01% |
| Tapestry Inc | TPR | 229.19 | 31.67 | 7,258.32 | 0.02% | 4.42% | 0.00% | 11.00% | 0.00% |
| CSX Corp | CSX | 1,976.13 | 32.30 | 63,829.03 | 0.22% | 1.36% | 0.00% | 6.39% | 0.01% |
| Edwards Lifesciences Corp | EW | 606.50 | 67.71 | 41,066.12 | 0.14% | | | 9.23% | 0.01% |
| Ameriprise Financial Inc | AMP | 101.20 | 353.51 | 35,773.80 | 0.12% | 1.53% | 0.00% | 15.82% | 0.02% |
| Zebra Technologies Corp | ZBRA | 51.36 | 236.98 | 12,171.29 | | | | | |
| Zimmer Biomet Holdings Inc | ZBH | 208.98 | 116.31 | 24,306.58 | 0.08% | 0.83% | 0.00% | 7.12% | 0.01% |
| CBRE Group Inc | CBRE | 304.79 | 78.96 | 24,066.46 | | | | | |
| Camden Property Trust | CPT | 106.77 | 90.26 | 9,637.15 | 0.03% | 4.43% | 0.00% | 6.17% | 0.00% |
| Mastercard Inc | MA | 930.44 | 413.83 | 385,043.16 | 1.31% | 0.55% | 0.01% | 17.35% | 0.23% |
| CarMax Inc | KMX | 158.67 | 63.94 | 10,145.23 | 0.03% | | | 16.34% | 0.01% |
| Intercontinental Exchange Inc | ICE | 572.36 | 113.84 | 65,157.92 | 0.22% | 1.48% | 0.00% | 8.66% | 0.02% |
| Fidelity National Information Services Inc | FIS | 592.48 | 58.64 | 34,743.26 | 0.12% | 3.55% | 0.00% | 5.51% | 0.01% |
| Chipotle Mexican Grill Inc | CMG | 27.45 | 2,202.25 | 60,440.75 | | | | 25.41% | |
| Wynn Resorts Ltd | WYNN | 112.95 | 84.42 | 9,534.90 | | 1.18% | | 153.24% | |
| Live Nation Entertainment Inc | LYV | 230.33 | 84.22 | 19,397.97 | | | | | |
| Assurant Inc | AIZ | 52.59 | 168.02 | 8,836.34 | 0.03% | 1.71% | 0.00% | 14.60% | 0.00% |
| NRG Energy Inc | NRG | 225.76 | 47.84 | 10,800.55 | | 3.16% | | | |
| Regions Financial Corp | RF | 930.07 | 16.68 | 15,513.48 | 0.05% | 5.76% | 0.00% | 0.99% | 0.00% |
| Monster Beverage Corp | MNST | 1,040.44 | 55.15 | 57,380.32 | | | | 21.32% | |
| Mosaic Co/The | MOS | 326.84 | 35.89 | 11,730.11 | 0.04% | 2.23% | 0.00% | 7.00% | 0.00% |
| Baker Hughes Co | BKR | 1,006.23 | 33.75 | 33,960.40 | 0.12% | 2.37% | 0.00% | 16.00% | 0.02% |
| Expedia Group Inc | EXPE | 133.33 | 136.18 | 18,156.20 | 0.06% | | | 17.50% | 0.01% |
| CF Industries Holdings Inc | CF | 191.06 | 75.15 | 14,357.93 | | 2.13% | | 46.00% | |
| Leidos Holdings Inc | LDOS | 137.51 | 107.32 | 14,757.14 | 0.05% | 1.42% | 0.00% | 8.12% | 0.00% |
| APA Corp | APA | 306.72 | 36.00 | 11,041.88 | 0.04% | 2.78% | 0.00% | 0.72% | 0.00% |
| Alphabet Inc | GOOG | 5,725.00 | 133.92 | 766,692.00 | 2.61% | | | 16.65% | 0.43% |
| First Solar Inc | FSLR | 106.84 | 157.78 | 16,857.85 | | | | 43.22% | |
| TE Connectivity Ltd | TEL | 310.78 | 131.00 | 40,712.05 | | 1.80% | | | |
| Discover Financial Services | DFS | 250.06 | 93.00 | 23,255.39 | | 3.01% | | 56.16% | |
| Linde PLC | LIN | 1,580.68 | 256.68 | 405,728.94 | 1.38% | 0.81% | 0.01% | 14.32% | 0.20% |
| Visa Inc | V | 116.69 | 124.48 | 14,525.32 | 0.05% | 4.50% | 0.00% | 1.77% | 0.00% |
| Mid-America Apartment Communities Inc | MAA | 241.08 | 105.13 | 25,344.53 | | 1.26% | | | |
| Xylem Inc/NY | XYL | 379.70 | 149.19 | 56,647.00 | | 2.21% | | | |
| Marathon Petroleum Corp | MPC | 1,615.50 | 121.16 | 195,733.86 | | | | 30.65% | |
| Tractor Supply Co | TSCO | 108.11 | 203.01 | 21,948.22 | 0.07% | 2.03% | 0.00% | 3.81% | 0.00% |
| Advanced Micro Devices Inc | AMD | 147.09 | 157.73 | 23,200.82 | | 1.22% | | | |
| ResMed Inc | RMD | 21.68 | 1,091.93 | 23,677.41 | 0.08% | | | 5.01% | 0.00% |
| Mettler-Toledo International Inc | MTD | 126.02 | 127.18 | 16,027.73 | 0.05% | 0.82% | 0.00% | 12.31% | 0.01% |
| Jacobs Solutions Inc | J | 960.23 | 50.22 | 48,222.80 | | | | | |
| Copart Inc | CPRT | 1,034.53 | 29.89 | 30,922.16 | 0.11% | 5.55% | 0.01% | 7.09% | 0.01% |
| VICI Properties Inc | VICI | 767.91 | 52.56 | 40,361.35 | 0.14% | | | 15.03% | 0.02% |
| Albemarle Corp | ALB | 117.35 | 121.27 | 14,231.40 | 0.05% | 1.32% | 0.00% | 18.79% | 0.01% |
| Fortinet Inc | FTNT | 381.28 | 77.70 | 29,625.77 | | | | -29.33% | |

STANDARD AND POOR'S 500 INDEX

| | | [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. |
| Moderna Inc | MRNA | 64.18 | 213.46 | 13,700.50 | 0.05% | 4.33% | 0.00% | 5.71% | 0.00% |
| Essex Property Trust Inc | ESS | 408.36 | 83.04 | 33,910.46 | 0.12% | | | 20.00% | 0.02% |
| CoStar Group Inc | CSGP | 723.92 | 53.96 | 39,062.94 | 0.13% | 5.69% | 0.01% | 0.68% | 0.00% |
| Realty Income Corp | O | 256.47 | 41.17 | 10,558.83 | 0.04% | 2.94% | 0.00% | 4.20% | 0.00% |
| Westrock Co | WRK | 179.16 | 116.56 | 20,882.77 | 0.07% | 0.58% | 0.00% | 12.86% | 0.01% |
| Westinghouse Air Brake Technologies Corp | WAB | 38.68 | 347.32 | 13,433.99 | | 1.27% | | -5.49% | |
| Pool Corp | POOL | 324.24 | 48.31 | 15,664.18 | | | | -11.96% | |
| Western Digital Corp | WDC | 1,374.86 | 168.29 | 231,375.86 | 0.79% | 3.01% | 0.02% | 8.70% | 0.07% |
| PepsiCo Inc | PEP | 178.99 | 154.41 | 27,637.07 | | 8.73% | | 21.94% | |
| Diamondback Energy Inc | FANG | 315.30 | 295.09 | 93,041.88 | | | | 30.00% | |
| Palo Alto Networks Inc | PANW | 205.00 | 685.74 | 140,576.70 | | | | | |
| ServiceNow Inc | NOW | 246.38 | 96.63 | 23,807.89 | 0.08% | 1.13% | 0.00% | 5.95% | 0.00% |
| Church & Dwight Co Inc | CHD | 81.62 | 95.59 | 7,801.86 | 0.03% | 4.56% | 0.00% | 5.77% | 0.00% |
| Federal Realty Investment Trust | FRT | 341.58 | 39.44 | 13,472.03 | | | | | |
| MGM Resorts International | MGM | 515.18 | 79.55 | 40,982.25 | 0.14% | 4.42% | 0.01% | 4.83% | 0.01% |
| American Electric Power Co Inc | AEP | 56.81 | 79.38 | 4,509.66 | | | | 27.00% | |
| SolarEdge Technologies Inc | SEDG | 611.96 | 33.36 | 20,414.92 | 0.07% | 3.12% | 0.00% | 3.15% | 0.00% |
| Invitation Homes Inc | INVH | 119.25 | 157.36 | 18,764.39 | 0.06% | | | 19.31% | 0.01% |
| PTC Inc | PTC | 103.14 | 185.27 | 19,109.30 | | 0.91% | | 27.00% | |
| JB Hunt Transport Services Inc | JBHT | 131.79 | 715.92 | 94,352.53 | 0.32% | 1.12% | 0.00% | 5.44% | 0.02% |
| Lam Research Corp | LRCX | 63.68 | 88.31 | 5,623.76 | | | | -3.08% | |
| Mohawk Industries Inc | MHK | 165.30 | 64.54 | 10,668.40 | 0.04% | 1.36% | 0.00% | 6.22% | 0.00% |
| GE HealthCare Technologies Inc | GEHC | 455.24 | 68.46 | 31,165.94 | 0.11% | 0.18% | 0.00% | 12.70% | 0.01% |
| Pentair PLC | PNR | 257.68 | 354.81 | 91,428.51 | 0.31% | | | 13.38% | 0.04% |
| Vertex Pharmaceuticals Inc | VRTX | 1,445.34 | 9.48 | 13,701.85 | 0.05% | 5.27% | 0.00% | 1.33% | 0.00% |
| Amcor PLC | AMCR | 2,219.61 | 327.15 | 726,144.43 | | | | 24.05% | |
| Meta Platforms Inc | META | 1,156.48 | 150.45 | 173,991.66 | | 1.73% | | 38.46% | |
| T-Mobile US Inc | TMUS | 67.78 | 476.02 | 32,265.11 | 0.11% | 1.24% | 0.00% | 17.87% | 0.02% |
| United Rentals Inc | URI | 659.25 | 195.92 | 129,160.46 | 0.44% | 2.20% | 0.01% | 7.69% | 0.03% |
| Honeywell International Inc | HON | 173.78 | 109.40 | 19,010.99 | 0.06% | 4.53% | 0.00% | 5.28% | 0.00% |
| Alexandria Real Estate Equities Inc | ARE | 643.46 | 36.93 | 23,763.09 | | 1.08% | | 30.85% | |
| Delta Air Lines Inc | DAL | 209.18 | 79.10 | 16,546.45 | 0.06% | 3.54% | 0.00% | 6.11% | 0.00% |
| Seagate Technology Holdings PLC | STX | 328.02 | 39.40 | 12,923.87 | | | | 46.54% | |
| United Airlines Holdings Inc | UAL | 191.39 | 23.04 | 4,409.51 | | 0.87% | | | |
| News Corp | NWS | 534.20 | 73.68 | 39,359.93 | 0.13% | | | 8.43% | 0.01% |
| Centene Corp | CNC | 61.81 | 464.59 | 28,714.91 | | 0.64% | | 21.60% | |
| Martin Marietta Materials Inc | MLM | 152.88 | 92.23 | 14,100.03 | 0.05% | 0.48% | 0.00% | 7.82% | 0.00% |
| Teradyne Inc | TER | 1,078.14 | 57.61 | 62,111.65 | 0.21% | | | 6.26% | 0.01% |
| PayPal Holdings Inc | PYPL | 3,178.92 | 240.08 | 763,195.35 | 2.60% | | | 11.00% | 0.29% |
| Tesla Inc | TSLA | 373.17 | 83.69 | 31,230.76 | 0.11% | | | 10.00% | 0.01% |
| Arch Capital Group Ltd | ACGL | 701.40 | 51.75 | 36,297.29 | | 5.41% | | -4.72% | |
| Dow Inc | DOW | 43.39 | 410.55 | 17,813.76 | | 1.71% | | 37.66% | |
| Everest Group Ltd | EG | 47.19 | 402.96 | 19,013.67 | 0.06% | | | 8.03% | 0.01% |
| Teledyne Technologies Inc | TDY | 380.67 | 22.04 | 8,389.97 | | 0.91% | | | |
| News Corp | NWSA | 994.30 | 38.51 | 38,290.45 | 0.13% | 3.74% | 0.00% | 4.00% | 0.01% |
| Exelon Corp | EXC | 260.39 | 116.44 | 30,319.70 | 0.10% | 0.86% | 0.00% | 13.33% | 0.01% |
| Global Payments Inc | GPN | 433.69 | 117.28 | 50,863.05 | 0.17% | 5.34% | 0.01% | 7.00% | 0.01% |
| Crown Castle Inc | CCI | 282.86 | 82.84 | 23,432.29 | 0.08% | | | 11.44% | 0.01% |
| Aptiv PLC | APTV | 76.59 | 213.80 | 16,374.73 | | | | | |
| Align Technology Inc | ALGN | 158.80 | 101.95 | 16,189.66 | | | | -51.00% | |
| Illumina Inc | ILMN | 1,915.00 | 20.44 | 39,142.50 | | 3.91% | | | |
| Kenvue Inc | KVUE | 222.98 | 90.45 | 20,168.18 | 0.07% | 2.21% | 0.00% | 15.00% | 0.01% |
| Targa Resources Corp | TRGP | 161.43 | 109.87 | 17,736.20 | | 2.41% | | -5.00% | |
| LKQ Corp | LKQ | 267.60 | 44.53 | 11,916.14 | | 2.69% | | | |
| Zoetis Inc | ZTS | 459.11 | 176.67 | 81,111.67 | 0.28% | 0.85% | 0.00% | 10.91% | 0.03% |
| Equinix Inc | EQIX | 302.85 | 138.78 | 42,028.97 | 0.14% | 3.52% | 0.01% | 6.80% | 0.01% |
| Digital Realty Trust Inc | DLR | 93.88 | 815.01 | 76,515.58 | 0.26% | 2.09% | 0.01% | 16.67% | 0.04% |
| Molina Healthcare Inc | MOH | 764.49 | 46.12 | 35,258.32 | | 1.73% | | | |
| Las Vegas Sands Corp | LVS | 58.30 | 365.56 | 21,312.15 | 0.07% | | | 11.24% | 0.01% |

Notes:
[1] Equals sum of Col. [9]
[2] Equals sum of Col. [11]
[3] Equals ([1] x (1 + (0.5 x [2]))) + [2]
[4] Source: Bloomberg Professional as of October 31, 2023
[5] Source: Bloomberg Professional as of October 31, 2023
[6] Equals [4] x [5]
[7] Equals weight in S&P 500 based on market capitalization [6] if Growth Rate >0% and ≤20%
[8] Source: Bloomberg Professional, as of October 31, 2023
[9] Equals [7] x [8]
[10] Source: Value Line, as of October 31, 2023
[11] Equals [7] x [10]




SUMMARY OUTPUT

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.910153208 |
| R Square | 0.828378863 |
| Adjusted R Square | 0.827392534 |
| Standard Error | 0.005964231 |
| Observations | 176 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 1 | 0.029875584 | 0.029875584 | 839.8611296 | 1.69463E-68 |
| Residual | 174 | 0.006189537 | 3.55721E-05 | | |
| Total | 175 | 0.036065121 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | 0.080440587 | 0.000999038 | 80.51802137 | 1.2258E-139 | 0.078468794 | 0.082412381 | 0.078468794 | 0.082412381 |
| U.S. Govt. 30-year Treasury | -0.424653554 | 0.014653151 | -28.98035765 | 1.69463E-68 | -0.453574353 | -0.395732756 | -0.453574353 | -0.395732756 |

| | U.S. Govt. 30-year Treasury | Risk Premium | ROE |
|---|---|---|---|
| Current 30-day average of 30-year U.S. Treasury bond yield [4] | 4.77% | 6.02% | 10.79% |
| Blue Chip Near-Term Projected Forecast (Q1 2024 - Q1 2025) [5] | 4.48% | 6.14% | 10.62% |
| Blue Chip Long-Term Projected Forecast (2025-2029) [6] | 4.10% | 6.30% | 10.40% |
| AVERAGE | | | 10.61% |

Notes:
[1] Regulatory Research Associates, rate cases through November 31, 2023
[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 November 30, 2023
[5] Blue Chip Financial Forecasts, Vol. 42, No. 11, November 1, 2023, at 2
[6] Blue Chip Financial Forecasts, Vol. 42, No. 6, June 1, 2023, at 14.
[7] See notes [4], [5] & [6]
[8] Equals 0.080441 + (-0.424654 x Column [7])
[9] Equals Column [7] + Column [8]

BOND YIELD PLUS RISK PREMIUM

| | [1] | [2] | [3] |
|---|---|---|---|
| Quarter | Average Authorized VI Electric ROE | U.S. Govt. 30-year Treasury | Risk Premium |
| 1980.1 | 14.18% | 12.24% | 1.93% |
| 1980.2 | 14.52% | 10.52% | 3.99% |
| 1980.3 | 14.47% | 10.85% | 3.62% |
| 1980.4 | 14.56% | 12.10% | 2.47% |
| 1981.1 | 14.98% | 12.53% | 2.44% |
| 1981.2 | 15.46% | 13.24% | 2.22% |
| 1981.3 | 15.04% | 14.13% | 0.91% |
| 1981.4 | 15.55% | 13.85% | 1.70% |
| 1982.1 | 15.56% | 13.96% | 1.59% |
| 1982.2 | 15.50% | 13.52% | 1.98% |
| 1982.3 | 16.06% | 12.79% | 3.27% |
| 1982.4 | 16.20% | 10.75% | 5.45% |
| 1983.1 | 15.44% | 10.71% | 4.73% |
| 1983.2 | 14.90% | 10.65% | 4.25% |
| 1983.3 | 15.01% | 11.62% | 3.39% |
| 1983.4 | 15.53% | 11.74% | 3.79% |
| 1984.1 | 15.14% | 12.04% | 3.10% |
| 1984.2 | 15.46% | 13.18% | 2.27% |
| 1984.3 | 15.63% | 12.69% | 2.94% |
| 1984.4 | 15.72% | 11.70% | 4.02% |
| 1985.1 | 15.45% | 11.58% | 3.86% |
| 1985.2 | 15.09% | 11.00% | 4.09% |
| 1985.3 | 14.83% | 10.55% | 4.27% |
| 1985.4 | 15.07% | 10.04% | 5.03% |
| 1986.1 | 15.10% | 8.77% | 6.33% |
| 1986.2 | 14.69% | 7.49% | 7.20% |
| 1986.3 | 13.44% | 7.40% | 6.03% |
| 1986.4 | 13.48% | 7.53% | 5.95% |
| 1987.1 | 12.98% | 7.49% | 5.48% |
| 1987.2 | 14.00% | 8.53% | 5.47% |
| 1987.3 | 13.11% | 9.06% | 4.05% |
| 1987.4 | 12.61% | 9.23% | 3.38% |
| 1988.1 | 12.93% | 8.63% | 4.30% |
| 1988.2 | 13.17% | 9.06% | 4.10% |
| 1988.3 | 12.68% | 9.18% | 3.50% |
| 1988.4 | 12.82% | 8.97% | 3.84% |
| 1989.1 | 13.00% | 9.04% | 3.96% |
| 1989.2 | 13.05% | 8.70% | 4.35% |
| 1989.3 | 12.38% | 8.12% | 4.26% |
| 1989.4 | 12.85% | 7.93% | 4.92% |
| 1990.1 | 12.53% | 8.44% | 4.09% |
| 1990.2 | 12.72% | 8.65% | 4.08% |
| 1990.3 | 13.10% | 8.79% | 4.31% |
| 1990.4 | 12.63% | 8.56% | 4.07% |
| 1991.1 | 12.67% | 8.20% | 4.47% |
| 1991.2 | 12.75% | 8.31% | 4.44% |
| 1991.3 | 12.85% | 8.19% | 4.66% |
| 1991.4 | 12.58% | 7.85% | 4.72% |
| 1992.1 | 12.37% | 7.81% | 4.56% |
| 1992.2 | 11.82% | 7.90% | 3.93% |
| 1992.3 | 11.96% | 7.45% | 4.52% |
| 1992.4 | 12.21% | 7.52% | 4.69% |
| 1993.1 | 11.84% | 7.07% | 4.77% |
| 1993.2 | 11.65% | 6.86% | 4.79% |
| 1993.3 | 11.13% | 6.32% | 4.81% |
| 1993.4 | 11.08% | 6.14% | 4.94% |
| 1994.1 | 11.12% | 6.58% | 4.54% |
| 1994.2 | 11.08% | 7.36% | 3.72% |
| 1994.3 | 12.75% | 7.59% | 5.16% |
| 1994.4 | 11.20% | 7.96% | 3.23% |
| 1995.1 | 11.89% | 7.63% | 4.26% |

| | | | |
|---|---|---|---|
| 1995.2 | 11.31% | 6.94% | 4.37% |
| 1995.3 | 11.41% | 6.72% | 4.69% |
| 1995.4 | 11.55% | 6.24% | 5.31% |
| 1996.1 | 11.46% | 6.29% | 5.17% |
| 1996.2 | 11.39% | 6.92% | 4.46% |
| 1996.3 | 10.70% | 6.97% | 3.73% |
| 1996.4 | 11.52% | 6.62% | 4.90% |
| 1997.1 | 11.13% | 6.82% | 4.32% |
| 1997.2 | 11.64% | 6.94% | 4.70% |
| 1997.3 | 12.00% | 6.53% | 5.47% |
| 1997.4 | 11.06% | 6.15% | 4.91% |
| 1998.1 | 11.30% | 5.88% | 5.42% |
| 1998.2 | 12.20% | 5.85% | 6.35% |
| 1998.3 | 11.65% | 5.48% | 6.17% |
| 1998.4 | 12.24% | 5.11% | 7.13% |
| 1999.1 | 10.43% | 5.37% | 5.06% |
| 1999.2 | 10.94% | 5.80% | 5.14% |
| 1999.3 | 10.75% | 6.04% | 4.71% |
| 1999.4 | 11.10% | 6.26% | 4.84% |
| 2000.1 | 11.22% | 6.30% | 4.92% |
| 2000.2 | 11.00% | 5.98% | 5.02% |
| 2000.3 | 11.68% | 5.79% | 5.89% |
| 2000.4 | 12.50% | 5.69% | 6.81% |
| 2001.1 | 11.33% | 5.45% | 5.89% |
| 2001.2 | 11.00% | 5.70% | 5.30% |
| 2001.3 | 10.78% | 5.53% | 5.25% |
| 2001.4 | 11.99% | 5.30% | 6.69% |
| 2002.1 | 10.05% | 5.52% | 4.53% |
| 2002.2 | 11.43% | 5.62% | 5.82% |
| 2002.3 | 11.65% | 5.09% | 6.56% |
| 2002.4 | 11.57% | 4.93% | 6.63% |
| 2003.1 | 11.79% | 4.85% | 6.94% |
| 2003.2 | 11.33% | 4.60% | 6.73% |
| 2003.3 | 10.50% | 5.11% | 5.39% |
| 2003.4 | 11.32% | 5.11% | 6.21% |
| 2004.1 | 11.15% | 4.88% | 6.27% |
| 2004.2 | 10.64% | 5.34% | 5.30% |
| 2004.3 | 10.75% | 5.11% | 5.64% |
| 2004.4 | 11.32% | 4.93% | 6.38% |
| 2005.1 | 10.57% | 4.71% | 5.86% |
| 2005.2 | 10.25% | 4.47% | 5.78% |
| 2005.3 | 11.08% | 4.42% | 6.66% |
| 2005.4 | 10.68% | 4.65% | 6.03% |
| 2006.1 | 10.80% | 4.63% | 6.17% |
| 2006.2 | 10.67% | 5.14% | 5.53% |
| 2006.3 | 10.31% | 5.00% | 5.31% |
| 2006.4 | 10.57% | 4.74% | 5.83% |
| 2007.1 | 10.58% | 4.80% | 5.78% |
| 2007.2 | 10.32% | 4.99% | 5.33% |
| 2007.3 | 10.40% | 4.95% | 5.45% |
| 2007.4 | 10.65% | 4.61% | 6.04% |
| 2008.1 | 10.62% | 4.41% | 6.21% |
| 2008.2 | 10.53% | 4.57% | 5.96% |
| 2008.3 | 10.40% | 4.45% | 5.95% |
| 2008.4 | 10.30% | 3.64% | 6.66% |
| 2009.1 | 10.75% | 3.44% | 7.31% |
| 2009.2 | 10.73% | 4.17% | 6.56% |
| 2009.3 | 10.50% | 4.32% | 6.18% |
| 2009.4 | 10.53% | 4.34% | 6.19% |
| 2010.1 | 10.62% | 4.62% | 5.99% |
| 2010.2 | 10.14% | 4.37% | 5.77% |
| 2010.3 | 10.44% | 3.86% | 6.59% |
| 2010.4 | 10.32% | 4.17% | 6.15% |
| 2011.1 | 10.10% | 4.56% | 5.53% |
| 2011.2 | 10.26% | 4.34% | 5.92% |
| 2011.3 | 10.43% | 3.70% | 6.73% |
| 2011.4 | 10.46% | 3.04% | 7.42% |

| | | | |
|---|---|---|---|
| 2012.1 | 10.28% | 3.14% | 7.14% |
| 2012.2 | 9.90% | 2.94% | 6.96% |
| 2012.3 | 9.86% | 2.74% | 7.11% |
| 2012.4 | 10.17% | 2.86% | 7.30% |
| 2013.1 | 9.85% | 3.13% | 6.72% |
| 2013.2 | 9.85% | 3.14% | 6.71% |
| 2013.3 | 10.14% | 3.71% | 6.43% |
| 2013.4 | 9.94% | 3.79% | 6.15% |
| 2014.1 | 9.86% | 3.69% | 6.16% |
| 2014.2 | 10.10% | 3.44% | 6.66% |
| 2014.3 | 9.85% | 3.27% | 6.58% |
| 2014.4 | 9.98% | 2.96% | 7.01% |
| 2015.1 | 9.59% | 2.55% | 7.04% |
| 2015.2 | 9.81% | 2.88% | 6.92% |
| 2015.3 | 9.40% | 2.96% | 6.44% |
| 2015.4 | 9.82% | 2.96% | 6.86% |
| 2016.1 | 9.65% | 2.72% | 6.93% |
| 2016.2 | 9.48% | 2.57% | 6.91% |
| 2016.3 | 9.72% | 2.28% | 7.44% |
| 2016.4 | 9.86% | 2.83% | 7.03% |
| 2017.1 | 9.68% | 3.05% | 6.63% |
| 2017.2 | 9.64% | 2.90% | 6.75% |
| 2017.3 | 10.00% | 2.82% | 7.18% |
| 2017.4 | 9.79% | 2.82% | 6.97% |
| 2018.1 | 9.69% | 3.02% | 6.66% |
| 2018.2 | 9.72% | 3.09% | 6.63% |
| 2018.3 | 9.75% | 3.06% | 6.69% |
| 2018.4 | 9.48% | 3.27% | 6.21% |
| 2019.1 | 9.73% | 3.01% | 6.71% |
| 2019.2 | 9.49% | 2.78% | 6.70% |
| 2019.3 | 9.53% | 2.29% | 7.25% |
| 2019.4 | 9.90% | 2.26% | 7.65% |
| 2020.1 | 9.68% | 1.89% | 7.79% |
| 2020.2 | 9.58% | 1.38% | 8.19% |
| 2020.3 | 9.21% | 1.37% | 7.84% |
| 2020.4 | 9.58% | 1.62% | 7.96% |
| 2021.1 | 9.45% | 2.07% | 7.38% |
| 2021.2 | 9.47% | 2.26% | 7.21% |
| 2021.3 | 9.23% | 1.93% | 7.30% |
| 2021.4 | 9.69% | 1.95% | 7.74% |
| 2022.1 | 9.45% | 2.25% | 7.20% |
| 2022.2 | 9.50% | 3.05% | 6.45% |
| 2022.3 | 9.07% | 3.26% | 5.81% |
| 2022.4 | 9.84% | 3.89% | 5.94% |
| 2023.1 | 9.71% | 3.75% | 5.96% |
| 2023.2 | 9.67% | 3.81% | 5.86% |
| 2023.3 | 9.75% | 4.23% | 5.52% |
| 2023.4 | 9.64% | 4.80% | 4.85% |
| AVERAGE | 11.56% | 6.10% | 5.46% |
| MEDIAN | 11.08% | 5.37% | 5.77% |

**COMPARISON OF OG&E AND PROXY GROUP COMPANIES**
**WILDFIRE EXPECTED ANNUAL LOSS RANKINGS**

| | | [1] | [2] |
|---|---|---|---|
| | | RRA | |
| | Operation State | Rank | Numeric Rank |
| ALLETE, Inc. | Minnesota | Relatively Low | 2 |
| Alliant Energy Corporation | Iowa | Very Low | 1 |
| | Wisconsin | Very Low | 1 |
| Ameren Corporation | Illinois | Very Low | 1 |
| | Missouri | Relatively Low | 2 |
| American Electric Power Company, Inc. | Arkansas | Relatively Low | 2 |
| | Indiana | Very Low | 1 |
| | Kentucky | Relatively Low | 2 |
| | Louisiana | Relatively Low | 2 |
| | Michigan | Very Low | 1 |
| | Ohio | Very Low | 1 |
| | Oklahoma | Relatively Moderate | 3 |
| | Tennessee | Very Low | 1 |
| | Texas | Relatively High | 4 |
| | Virginia | Relatively Low | 2 |
| | West Virginia | Very Low | 1 |
| Avista Corporation | Alaska | Relatively Low | 2 |
| | Idaho | Relatively Moderate | 3 |
| | Oregon | Relatively Moderate | 3 |
| | Washington | Relatively Moderate | 3 |
| CMS Energy Corporation | Michigan | Very Low | 1 |
| Duke Energy Corporation | Florida | Relatively High | 4 |
| | Indiana | Very Low | 1 |
| | Kentucky | Relatively Low | 2 |
| | North Carolina | Relatively Low | 2 |
| | Ohio | Very Low | 1 |
| | South Carolina | Relatively Low | 2 |
| | Tennessee | Very Low | 1 |
| Entergy Corporation | Arkansas | Relatively Low | 2 |
| | Louisiana | Relatively Low | 2 |
| | Louisiana | Relatively Low | 2 |
| | Mississippi | Relatively Low | 2 |
| | Texas | Relatively High | 4 |
| Evergy, Inc. | Kansas | Relatively Low | 2 |
| | Missouri | Relatively Low | 2 |
| IDACORP, Inc. | Idaho | Relatively Moderate | 3 |
| | Oregon | Relatively Moderate | 3 |
| NextEra Energy, Inc. | Florida | Relatively High | 4 |
| | Texas | Relatively High | 4 |
| NorthWestern Corporation | Montana | Relatively Moderate | 3 |
| | Nebraska | Very Low | 1 |
| | South Dakota | Relatively Low | 2 |
| Pinnacle West Capital Corporation | Arizona | Relatively High | 4 |
| Portland General Electric Company | Oregon | Relatively Moderate | 3 |
| Southern Company | Alabama | Very Low | 1 |
| | Georgia | Relatively Low | 2 |
| | Illinois | Very Low | 1 |
| | Mississippi | Relatively Low | 2 |
| | Tennessee | Very Low | 1 |
| | Virginia | Relatively Low | 2 |
| Xcel Energy Inc. | Colorado | Relatively Moderate | 3 |
| | Minnesota | Relatively Low | 2 |
| | New Mexico | Relatively Moderate | 3 |
| | North Dakota | Relatively Low | 2 |
| | South Dakota | Relatively Low | 2 |
| | Texas | Relatively High | 4 |
| | Wisconsin | Very Low | 1 |
| Proxy Group Average | | Relatively Low | 2.12 |
| OG&E | Oklahoma | Relatively Moderate | 3 |

Notes
[1] FEMA National Risk Index, States and Territories - Expected Annual Loss (Table);
https://hazards.fema.gov/nri/data-resources#csvDownload
[2] Very Low = 1, Relatively Low = 2, Relatively Moderate = 3, Relatively High = 4, Very High = 5

PROJECTED CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT

*($ Millions)*

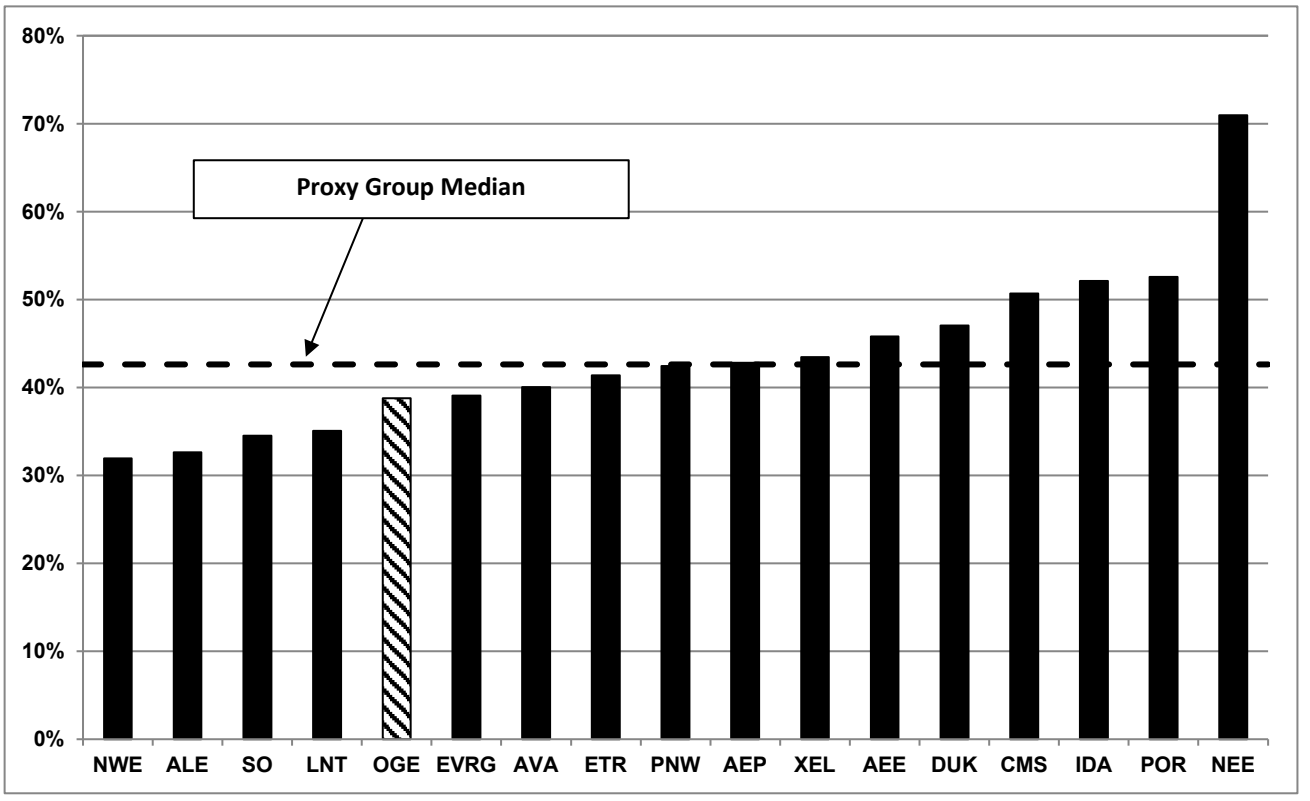
| | | [1] | [2] | [3] | [4] | [5] | [6] | |
|---|---|---|---|---|---|---|---|---|
| | | 2022 | 2024 | 2025 | 2026 | 2027 | Projected Cap. Ex. / 2022 Net Plant | Rank |
| ALLETE, Inc. | ALE | | | | | | | |
| Capital Spending per Share | | | $5.95 | $6.60 | $7.25 | $7.25 | | |
| Common Shares Outstanding | | | 59.00 | 60.00 | 61.00 | 61.00 | | |
| Capital Expenditures | | | $351.1 | $396.0 | $442.3 | $442.3 | 32.6% | 2 |
| Net Plant | | $5,004.0 | | | | | | |
| Alliant Energy Corporation | LNT | | | | | | | |
| Capital Spending per Share | | | $5.80 | $5.60 | $5.40 | $5.40 | | |
| Common Shares Outstanding | | | 256.00 | 256.50 | 257.00 | 257.00 | | |
| Capital Expenditures | | | $1,484.8 | $1,436.4 | $1,387.8 | $1,387.8 | 35.1% | 4 |
| Net Plant | | $16,247.0 | | | | | | |
| Ameren Corporation | AEE | | | | | | | |
| Capital Spending per Share | | | $12.55 | $12.78 | $13.00 | $13.00 | | |
| Common Shares Outstanding | | | 269.00 | 277.00 | 285.00 | 285.00 | | |
| Capital Expenditures | | | $3,376.0 | $3,538.7 | $3,705.0 | $3,705.0 | 45.8% | 12 |
| Net Plant | | $31,262.0 | | | | | | |
| American Electric Power Company | AEP | | | | | | | |
| Capital Spending per Share | | | $14.15 | $14.08 | $14.00 | $14.00 | | |
| Common Shares Outstanding | | | 530.00 | 540.00 | 550.00 | 550.00 | | |
| Capital Expenditures | | | $7,499.5 | $7,600.5 | $7,700.0 | $7,700.0 | 42.8% | 10 |
| Net Plant | | $71,283.0 | | | | | | |
| Avista Corporation | AVA | | | | | | | |
| Capital Spending per Share | | | $6.35 | $6.55 | $6.75 | $6.75 | | |
| Common Shares Outstanding | | | 78.50 | 81.75 | 85.00 | 85.00 | | |
| Capital Expenditures | | | $498.5 | $535.5 | $573.8 | $573.8 | 40.1% | 7 |
| Net Plant | | $5,444.7 | | | | | | |
| CMS Energy Corporation | CMS | | | | | | | |
| Capital Spending per Share | | | $9.50 | $9.63 | $9.75 | $9.75 | | |
| Common Shares Outstanding | | | 295.00 | 297.50 | 300.00 | 300.00 | | |
| Capital Expenditures | | | $2,802.5 | $2,863.4 | $2,925.0 | $2,925.0 | 50.7% | 14 |
| Net Plant | | $22,713.0 | | | | | | |
| Duke Energy Corporation | DUK | | | | | | | |
| Capital Spending per Share | | | $17.60 | $17.18 | $16.75 | $16.75 | | |
| Common Shares Outstanding | | | 770.00 | 770.00 | 770.00 | 770.00 | | |
| Capital Expenditures | | | $13,552.0 | $13,224.8 | $12,897.5 | $12,897.5 | 47.0% | 13 |
| Net Plant | | $111,748.0 | | | | | | |
| Entergy Corporation | ETR | | | | | | | |
| Capital Spending per Share | | | $19.00 | $19.38 | $19.75 | $19.75 | | |
| Common Shares Outstanding | | | $218.00 | 224.00 | 230.00 | 230.00 | | |
| Capital Expenditures | | | $4,142.0 | $4,340.0 | $4,542.5 | $4,542.5 | 41.4% | 8 |
| Net Plant | | $42,477.0 | | | | | | |
| Evergy, Inc. | EVRG | | | | | | | |
| Capital Spending per Share | | | $9.25 | $9.38 | $9.50 | $9.50 | | |
| Common Shares Outstanding | | | 230.00 | 230.00 | 230.00 | 230.00 | | |
| Capital Expenditures | | | $2,127.5 | $2,156.3 | $2,185.0 | $2,185.0 | 39.1% | 6 |
| Net Plant | | $22,137.0 | | | | | | |
| IDACORP, Inc. | IDA | | | | | | | |
| Capital Spending per Share | | | $16.00 | $13.50 | $11.00 | $11.00 | | |
| Common Shares Outstanding | | | 51.50 | 52.25 | 53.00 | 53.00 | | |
| Capital Expenditures | | | $824.0 | $705.4 | $583.0 | $583.0 | 52.1% | 15 |
| Net Plant | | $5,173.0 | | | | | | |

PROJECTED CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT
*($ Millions)*

| | | [1] | [2] | [3] | [4] | [5] | [6] | |
|---|---|---|---|---|---|---|---|---|
| | | 2022 | 2024 | 2025 | 2026 | 2027 | Projected Cap. Ex. / 2022 Net Plant | Rank |
| NextEra Energy, Inc. | NEE | | | | | | | |
| Capital Spending per Share | | | $9.50 | $9.63 | $9.75 | $9.75 | | |
| Common Shares Outstanding | | | 2025.00 | 2037.50 | 2050.00 | 2050.00 | | |
| Capital Expenditures | | | $19,237.5 | $19,610.9 | $19,987.5 | $19,987.5 | 71.0% | 17 |
| Net Plant | | $111,059.0 | | | | | | |
| NorthWestern Corporation | NWE | | | | | | | |
| Capital Spending per Share | | | $7.75 | $7.38 | $7.00 | $7.00 | | |
| Common Shares Outstanding | | | 62.00 | 62.00 | 62.00 | 62.00 | | |
| Capital Expenditures | | | $480.5 | $457.3 | $434.0 | $434.0 | 31.9% | 1 |
| Net Plant | | $5,657.5 | | | | | | |
| Pinnacle West Capital Corporation | PNW | | | | | | | |
| Capital Spending per Share | | | $15.00 | $15.00 | $15.00 | $15.00 | | |
| Common Shares Outstanding | | | $118.00 | 119.00 | 120.00 | 120.00 | | |
| Capital Expenditures | | | $1,770.0 | $1,785.0 | $1,800.0 | $1,800.0 | 42.5% | 9 |
| Net Plant | | $16,854.0 | | | | | | |
| Portland General Electric Company | POR | | | | | | | |
| Capital Spending per Share | | | $10.75 | $10.88 | $11.00 | $11.00 | | |
| Common Shares Outstanding | | | 102.00 | 102.00 | 102.00 | 102.00 | | |
| Capital Expenditures | | | $1,096.5 | $1,109.3 | $1,122.0 | $1,122.0 | 52.6% | 16 |
| Net Plant | | $8,465.0 | | | | | | |
| Southern Company | SO | | | | | | | |
| Capital Spending per Share | | | $7.85 | $7.68 | $7.50 | $7.50 | | |
| Common Shares Outstanding | | | 1,070.00 | 1,070.00 | 1,070.00 | 1,070.00 | | |
| Capital Expenditures | | | $8,399.5 | $8,212.3 | $8,025.0 | $8,025.0 | 34.5% | 3 |
| Net Plant | | $94,570.0 | | | | | | |
| Xcel Energy Inc. | XEL | | | | | | | |
| Capital Spending per Share | | | $9.25 | $9.38 | $9.50 | $9.50 | | |
| Common Shares Outstanding | | | 553.00 | 556.50 | 560.00 | 560.00 | | |
| Capital Expenditures | | | $5,115.3 | $5,217.2 | $5,320.0 | $5,320.0 | 43.5% | 11 |
| Net Plant | | $48,253.0 | | | | | | |
| | | | | | | | | |
| Oklahoma Gas & Electric | OGE | | | | | | | |
| Capital Expenditures [7] | | | $1,045.75 | $1,045.75 | $1,045.75 | $950.00 | 38.8% | 5 |
| Net Plant [8] | | $10,540.7 | | | | | | |
| | | | | | | | | |
| OG&E Projected CapEx Total | | | | | | | $4,087.3 | |
| OG&E CapEx Annual Average | | | | | | | $1,021.8 | |
| Proxy Group Median | | | | | | | 42.62% | |
| OG&E as % Proxy Group Median | | | | | | | 91.0% | |

Notes:
[1] - [5] Value Line, dated September 8, October 20, November 10, 2023.
[6] Equals (Column [2] + [3] + [4] + [5]) / Column [1]
[7] Company Provided Data
[8] Company Provided Data

PROJECTED CAPITAL EXPENDITURES AS A PERCENT OF 2022 NET PLANT




**Projected CAPEX / 2022 Net Plant**

| Rank | Company | | 2024-2027 |
|---|---|---|---|
| 1 | NorthWestern Corporation | NWE | 31.9% |
| 2 | ALLETE, Inc. | ALE | 32.6% |
| 3 | Southern Company | SO | 34.5% |
| 4 | Alliant Energy Corporation | LNT | 35.1% |
| 5 | Oklahoma Gas & Electric | OGE | 38.8% |
| 6 | Evergy, Inc. | EVRG | 39.1% |
| 7 | Avista Corporation | AVA | 40.1% |
| 8 | Entergy Corporation | ETR | 41.4% |
| 9 | Pinnacle West Capital Corporation | PNW | 42.5% |
| 10 | American Electric Power Company | AEP | 42.8% |
| 11 | Xcel Energy Inc. | XEL | 43.5% |
| 12 | Ameren Corporation | AEE | 45.8% |
| 13 | Duke Energy Corporation | DUK | 47.0% |
| 14 | CMS Energy Corporation | CMS | 50.7% |
| 15 | IDACORP, Inc. | IDA | 52.1% |
| 16 | Portland General Electric Company | POR | 52.6% |
| 17 | NextEra Energy, Inc. | NEE | 71.0% |

| | |
|---|---|
| Proxy Group Median | 42.6% |
| OG&E / Proxy Group | 91.0% |

Notes:

Source: Exhibit___(AEB-1), Schedule 12, pages 1-2 col. [6]

| | | | | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Decoupling / Revenue Stabilization | | | | Capital Cost Recovery | | | | |
| Proxy Group Company | Operating Subsidiary | Jurisdiction | Service | Test Year | Revenue Decoupling | Formula-Based Rates | Straight Fixed-Variable Rate Design | Total | Traditional Generation | Renewables/Non-Traditional Generation | Delivery Infrastructure | Environmental Compliance | Total |
| ALLETE, Inc. | ALLETE (Minnesota Power) | Minnesota | Electric | Fully Forecast | No | No | No | No | No | Yes | No | No | Yes |
| Alliant Energy Corporation | Interstate Power & Light Co. | Iowa | Electric | Historical | No | No | No | No | No | Yes | No | Yes | Yes |
| | Interstate Power & Light Co. | Iowa | Gas | Historical | No | No | No | No | No | No | No | No | No |
| | Wisconsin Power & Light Co. | Wisconsin | Electric | Fully Forecast | No | No | No | No | No | No | No | No | No |
| | Wisconsin Power & Light Co. | Wisconsin | Gas | Fully Forecast | No | No | No | No | No | No | No | No | No |
| Ameren Corporation | Ameren Illinois Co. | Illinois | Electric | Historical | Partial | Yes | No | Yes | No | Yes | No | Yes | Yes |
| | Ameren Illinois Co. | Illinois | Gas | Fully Forecast | Partial | No | No | Yes | No | No | Yes | Yes | Yes |
| | Union Electric Co. | Missouri | Electric | Historical | Partial | No | No | Yes | No | Yes | Yes | No | Yes |
| | Union Electric Co. | Missouri | Gas | Historical | Partial | No | No | Yes | No | No | Yes | No | Yes |
| American Electric Power Company, Inc. | Southwestern Electric Power Co. | Arkansas | Electric | Historical | Partial | Yes | No | Yes | Yes | No | No | Yes | Yes |
| | Indiana Michigan Power Co. | Indiana | Electric | Fully Forecast | Full | No | No | Yes | No | Yes | Yes | Yes | Yes |
| | Kentucky Power Co. | Kentucky | Electric | Fully Forecast | Partial | No | No | Yes | No | No | Yes | No | Yes |
| | Southwestern Electric Power Co. | Louisiana | Electric | Historical | Partial | Yes | No | Yes | No | No | No | No | No |
| | Indiana Michigan Power Co. | Michigan | Electric | Fully Forecast | Partial | No | No | Yes | No | Yes | No | No | Yes |
| | Ohio Power Co. | Ohio | Electric | Partially Forecast | Partial | No | No | Yes | No | Yes | Yes | No | Yes |
| | Public Service Co. of Oklahoma | Oklahoma | Electric | Historical | Partial | No | No | Yes | No | Yes | Yes | No | Yes |
| | Kingsport Power Co. | Tennessee | Electric | Fully Forecast | No | No | No | No | No | No | No | No | No |
| | AEP Texas Inc. | Texas | Electric | Historical | No | No | No | No | No | No | Yes | No | Yes |
| | Southwestern Electric Power Co. | Texas | Electric | Historical | No | No | No | No | No | No | Yes | No | Yes |
| | Appalachian Power Co. | Virginia | Electric | Historical | No | No | No | No | Yes | No | No | Yes | Yes |
| | Appalachian Power Co./Wheeling Power Co. | West Virginia | Electric | Historical | No | No | No | No | No | No | No | Yes | Yes |
| Avista Corporation | Alaska Electric Light & Power Co. | Alaska | Electric | Historical | No | No | No | No | No | No | No | No | No |
| | Avista Corp. | Idaho | Electric | Historical | Full | No | No | Yes | No | No | No | No | No |
| | Avista Corp. | Idaho | Gas | Historical | Full | No | No | Yes | No | No | No | No | No |
| | Avista Corp. | Oregon | Gas | Fully Forecast | Partial | No | No | Yes | No | No | No | No | No |
| | Avista Corp. | Washington | Electric | Historical | Full | No | No | Yes | No | No | No | No | No |
| | Avista Corp. | Washington | Gas | Historical | Full | No | No | Yes | No | No | No | No | No |
| CMS Energy Corporation | Consumers Energy Co. | Michigan | Electric | Fully Forecast | No | No | No | No | No | Yes | No | No | Yes |
| | Consumers Energy Co. | Michigan | Gas | Fully Forecast | Partial | No | No | Yes | No | No | No | No | No |
| Duke Energy Corporation | Duke Energy Florida LLC | Florida | Electric | Fully Forecast | No | No | No | No | Yes | Yes | No | Yes | Yes |
| | Duke Energy Indiana LLC | Indiana | Electric | Historical | Partial | No | No | Yes | No | Yes | Yes | Yes | Yes |
| | Duke Energy Kentucky Inc. | Kentucky | Electric | Fully Forecast | Partial | No | No | Yes | No | No | No | Yes | Yes |
| | Duke Energy Kentucky Inc. | Kentucky | Gas | Fully Forecast | Partial | No | No | Yes | No | No | Yes | No | Yes |
| | Duke Energy Carolinas LLC/Duke Energy Progress LLC | North Carolina | Electric | Historical | No | No | No | No | No | Yes | No | Yes | Yes |
| | Piedmont Natural Gas Co. Inc. | North Carolina | Gas | Historical | Full | No | No | Yes | No | No | Yes | No | Yes |
| | Duke Energy Ohio Inc. | Ohio | Electric | Partially Forecast | Partial | No | No | Yes | No | Yes | Yes | No | Yes |
| | Duke Energy Ohio Inc. | Ohio | Gas | Partially Forecast | No | No | Yes | Yes | No | No | Yes | Yes | Yes |
| | Duke Energy Carolinas LLC/Duke Energy Progress LLC | South Carolina | Electric | Historical | No | No | No | No | No | Yes | No | Yes | Yes |
| | Piedmont Natural Gas Co. Inc. | South Carolina | Gas | Historical | Partial | No | No | Yes | No | No | No | No | No |
| | Piedmont Natural Gas Co. Inc. | Tennessee | Gas | Fully Forecast | Partial | No | No | Yes | No | No | Yes | No | Yes |

| | | | | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Decoupling / Revenue Stabilization | | | | Capital Cost Recovery | | | | |
| Proxy Group Company | Operating Subsidiary | Jurisdiction | Service | Test Year | Revenue Decoupling | Formula-Based Rates | Straight Fixed-Variable Rate Design | Total | Traditional Generation | Renewables/Non-Traditional Generation | Delivery Infrastructure | Environmental Compliance | Total |
| Entergy Corporation | Entergy Arkansas LLC | Arkansas | Electric | Fully Forecast | Partial | Yes | No | Yes | Yes | Yes | Yes | No | Yes |
| | Entergy New Orleans LLC | Louisiana-NOCC | Electric | Partially Forecast | No | Yes | No | Yes | No | Yes | No | Yes | Yes |
| | Entergy New Orleans LLC | Louisiana-NOCC | Gas | Partially Forecast | No | Yes | No | Yes | No | No | No | No | No |
| | Entergy Louisiana LLC | Louisiana | Electric | Historical | Partial | Yes | No | Yes | No | No | No | Yes | Yes |
| | Entergy Louisiana LLC | Louisiana | Gas | Historical | No | Yes | No | Yes | No | No | Yes | No | Yes |
| | Entergy Mississippi LLC | Mississippi | Electric | Fully Forecast | Partial | Yes | No | Yes | No | No | No | No | No |
| | Entergy Texas Inc. | Texas | Electric | Historical | No | No | No | No | Yes | No | Yes | No | Yes |
| Evergy, Inc. | Evergy Kansas Central Inc | Kansas | Electric | Historical | Partial | No | No | Yes | No | Yes | No | Yes | Yes |
| | Evergy Metro Inc. | Kansas | Electric | Historical | No | No | No | No | No | No | Yes | No | Yes |
| | Evergy Metro Inc | Missouri | Electric | Historical | Partial | No | No | Yes | No | No | Yes | No | Yes |
| | Evergy Missouri West Inc. | Missouri | Electric | Historical | Partial | No | No | Yes | No | Yes | Yes | No | Yes |
| IDACORP, Inc. | Idaho Power Co. | Idaho | Electric | Partially Forecast | Full | No | No | Yes | No | No | No | No | No |
| | Idaho Power Co. | Oregon | Electric | Partially Forecast | No | No | No | No | No | No | No | No | No |
| NextEra Energy, Inc. | Florida Power & Light Co. | Florida | Electric | Fully Forecast | No | No | No | No | Yes | Yes | No | Yes | Yes |
| | Pivotal Utility Holdings Inc. | Florida | Gas | Fully Forecast | No | No | No | No | No | No | Yes | Yes | Yes |
| | Lone Star Transmission LLC | Texas | Electric | Historical | No | No | No | No | No | No | Yes | No | Yes |
| NorthWestern Corporation | NorthWestern Corporation | Montana | Electric | Historical | No | No | No | No | No | No | No | No | No |
| | NorthWestern Corporation | Montana | Gas | Historical | No | No | No | No | No | No | No | No | No |
| | NorthWestern Corporation | Nebraska | Gas | Historical | No | No | No | No | No | No | No | No | No |
| | NorthWestern Corporation | South Dakota | Electric | Historical | No | No | No | No | No | No | No | No | No |
| | NorthWestern Corporation | South Dakota | Gas | Historical | No | No | No | No | No | No | No | No | No |
| Pinnacle West Capital Corporation | Arizona Public Service Co. | Arizona | Electric | Historical | Partial | No | No | Yes | No | Yes | No | Yes | Yes |
| Portland General Electric Company | Portland General Electric Co. | Oregon | Electric | Fully Forecast | No | No | No | No | Yes | Yes | No | Yes | Yes |
| Southern Company | Alabama Power Co. | Alabama | Electric | Historical | No | Yes | No | Yes | Yes | Yes | No | Yes | Yes |
| | Atlanta Gas Light Co. | Georgia | Electric | Fully Forecast | No | Yes | No | Yes | No | No | Yes | Yes | Yes |
| | Georgia Power Co. | Georgia | Gas | Fully Forecast | No | Yes | Yes | Yes | Yes | No | No | Yes | Yes |
| | Northern Illinois Gas Co. | Illinois | Gas | Fully Forecast | Partial | No | No | Yes | No | No | Yes | Yes | Yes |
| | Mississippi Power Co. | Mississippi | Electric | Fully Forecast | Partial | Yes | No | Yes | No | No | No | Yes | Yes |
| | Chattanooga Gas Co. | Tennessee | Gas | Historical | Partial | Yes | No | Yes | No | No | No | No | No |
| | Virginia Natural Gas Inc. | Virginia | Gas | Historical | Partial | No | No | Yes | No | No | Yes | No | Yes |
| Xcel Energy Inc. | Public Service Co. of Colorado | Colorado | Electric | Historical | Partial | No | No | Yes | No | Yes | No | No | Yes |
| | Public Service Co. of Colorado | Colorado | Gas | Historical | Partial | No | No | Yes | No | No | Yes | No | Yes |
| | Northern States Power Co.-Minnesota | Minnesota | Electric | Fully Forecast | Partial | Yes | No | Yes | No | Yes | No | Yes | Yes |
| | Northern States Power Co.-Minnesota | Minnesota | Gas | Fully Forecast | No | No | No | No | No | No | Yes | No | Yes |
| | Southwestern Public Service Co. | New Mexico | Electric | Historical | No | No | No | No | No | Yes | No | No | Yes |
| | Northern States Power Co.-Minnesota | North Dakota | Electric | Fully Forecast | No | No | No | No | No | Yes | Yes | No | Yes |
| | Northern States Power Co.-Minnesota | North Dakota | Gas | Fully Forecast | No | No | Yes | Yes | No | No | No | No | No |
| | Northern States Power Co.-Minnesota | South Dakota | Electric | Historical | Partial | No | No | Yes | Yes | No | Yes | Yes | Yes |
| | Southwestern Public Service Co. | Texas | Electric | Historical | No | No | No | No | No | No | No | No | No |
| | Northern States Power Co.-Wisconsin | Wisconsin | Electric | Fully Forecast | No | No | No | No | No | No | No | No | No |
| | Northern States Power Co.-Wisconsin | Wisconsin | Gas | Fully Forecast | No | No | No | No | No | No | No | No | No |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Proxy Group Average | Fully Forecast | 30 | | Yes | 48 | Yes | 54 |
| | Partially Forecast | 7 | | No | 33 | No | 27 |
| | Historical | 44 | | | | | |
| | % with ForecastTest Year: | 45.7% | | % with Form of Revenue Stabilization | 59.3% | % with Form of Capital Cost Recovery | 66.7% |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OG&E [11] | Historical | Partial | No | No | Yes | Yes | No | Yes | Yes | Yes |

Notes:
[1] Sources: Regulatory Research Associates, effective as of November 30, 2023
[2] Sources: 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] Sources: Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF( AND( [2]=No, [3]=No, [4]=No), No, Yes)
[6] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[7] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[8] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[9] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[10] Equals IF( AND( [6]=No, [7]=No, [8]=No, [9]=No), No, Yes)
[11] Sources: S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.

**COMPARISON OF OG&E AND PROXY GROUP COMPANIES**
**RRA JURISDICTIONAL RANKINGS**

| | | [1] | [2] |
|---|---|---|---|
| | | RRA | |
| | Operation State | Rank | Numeric Rank |
| ALLETE, Inc. | Minnesota | Average/2 | 5 |
| Alliant Energy Corporation | Iowa | Above Average/3 | 3 |
| | Wisconsin | Above Average/3 | 3 |
| Ameren Corporation | Illinois | Average/2 | 5 |
| | Missouri | Average/3 | 6 |
| American Electric Power Company, Inc. | Arkansas | Average/1 | 4 |
| | Indiana | Average/1 | 4 |
| | Kentucky | Average/2 | 5 |
| | Louisiana | Average/2 | 5 |
| | Michigan | Above Average/3 | 3 |
| | Ohio | Average/2 | 5 |
| | Oklahoma | Average/3 | 6 |
| | Tennessee | Above Average/3 | 3 |
| | Texas | Average/3 | 6 |
| | Virginia | Average/2 | 5 |
| | West Virginia | Below Average/1 | 7 |
| Avista Corporation | Alaska | Below Average/1 | 7 |
| | Idaho | Average/2 | 5 |
| | Oregon | Average/2 | 5 |
| | Washington | Average/3 | 6 |
| CMS Energy Corporation | Michigan | Above Average/3 | 3 |
| Duke Energy Corporation | Florida | Above Average/2 | 2 |
| | Indiana | Average/1 | 4 |
| | Kentucky | Average/2 | 5 |
| | North Carolina | Above Average/3 | 3 |
| | Ohio | Average/2 | 5 |
| | South Carolina | Average/3 | 6 |
| | Tennessee | Above Average/3 | 3 |
| Entergy Corporation | Arkansas | Average/1 | 4 |
| | Louisiana (NOCC) | Average/3 | 6 |
| | Louisiana | Average/2 | 5 |
| | Mississippi | Above Average/3 | 3 |
| | Texas | Average/3 | 6 |
| Evergy, Inc. | Kansas | Below Average/1 | 7 |
| | Missouri | Average/3 | 6 |
| IDACORP, Inc. | Idaho | Average/2 | 5 |
| | Oregon | Average/2 | 5 |
| NextEra Energy, Inc. | Florida | Above Average/2 | 2 |
| | Texas | Average/3 | 6 |
| NorthWestern Corporation | Montana | Below Average/1 | 7 |
| | Nebraska | Average/1 | 4 |
| | South Dakota | Average/2 | 5 |
| Pinnacle West Capital Corporation | Arizona | Below Average/3 | 9 |
| Portland General Electric Company | Oregon | Average/2 | 5 |
| Southern Company | Alabama | Above Average/1 | 1 |
| | Georgia | Above Average/2 | 2 |
| | Illinois | Average/2 | 5 |
| | Mississippi | Above Average/3 | 3 |
| | Tennessee | Above Average/3 | 3 |
| | Virginia | Average/2 | 5 |
| Xcel Energy Inc. | Colorado | Average/1 | 4 |
| | Minnesota | Average/2 | 5 |
| | New Mexico | Below Average/1 | 7 |
| | North Dakota | Average/1 | 4 |
| | South Dakota | Average/2 | 5 |
| | Texas | Average/3 | 6 |
| | Wisconsin | Above Average/3 | 3 |
| Proxy Group Average | | Average 1 - Average/2 | 4.68 |
| OG&E | Oklahoma | Average/3 | 6 |

Notes
[1] State Regulatory Evaluations, Regulatory Research Associates, December 8, 2023.
[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 | |
| | | Rank | Numeric Rank |
| ALLETE, Inc. | Minnesota | Highly credit supportive | 2 |
| Alliant Energy Corporation | Iowa | Most credit supportive | 1 |
| | Wisconsin | Most credit supportive | 1 |
| Ameren Corporation | Illinois | Very credit supportive | 3 |
| | Missouri | Very credit supportive | 3 |
| American Electric Power Company, Inc. | Arkansas | Highly credit supportive | 2 |
| | Indiana | Highly credit supportive | 2 |
| | Kentucky | Most credit supportive | 1 |
| | Louisiana | Highly credit supportive | 2 |
| | Michigan | Most credit supportive | 1 |
| | Ohio | Very credit supportive | 3 |
| | Oklahoma | Very credit supportive | 3 |
| | Tennessee | Highly credit supportive | 2 |
| | Texas | Very credit supportive | 3 |
| | Virginia | Highly credit supportive | 2 |
| | West Virginia | Very credit supportive | 3 |
| Avista Corporation | Alaska | More credit supportive | 4 |
| | Idaho | Very credit supportive | 3 |
| | Oregon | More credit supportive | 4 |
| | Washington | Very credit supportive | 3 |
| CMS Energy Corporation | Michigan | Most credit supportive | 1 |
| Duke Energy | Florida | Most credit supportive | 1 |
| | Indiana | Highly credit supportive | 2 |
| | Kentucky | Most credit supportive | 1 |
| | North Carolina | Highly credit supportive | 2 |
| | Ohio | Very credit supportive | 3 |
| | South Carolina | More credit supportive | 4 |
| | Tennessee | Highly credit supportive | 2 |
| Entergy | Arkansas | Highly credit supportive | 2 |
| | Louisiana-NOCC | More credit supportive | 4 |
| | Louisiana | Highly credit supportive | 2 |
| | Mississippi | Very credit supportive | 3 |
| | Texas | Very credit supportive | 3 |
| Evergy, Inc. | Kansas | Highly credit supportive | 2 |
| | Missouri | Very credit supportive | 3 |
| IDACORP, Inc. | Idaho | Very credit supportive | 3 |
| | Oregon | More credit supportive | 4 |
| NextEra Energy, Inc. | Florida | Most credit supportive | 1 |
| | Texas | Very credit supportive | 3 |
| NorthWestern Corporation | Montana | More credit supportive | 4 |
| | Nebraska | Very credit supportive | 3 |
| | South Dakota | Very credit supportive | 3 |
| Pinnacle West Capital Corporation | Arizona | More credit supportive | 4 |
| Portland General Electric Company | Oregon | More credit supportive | 4 |
| Southern Company | Alabama | Most credit supportive | 1 |
| | Georgia | Highly credit supportive | 2 |
| | Illinois | Very credit supportive | 3 |
| | Mississippi | Very credit supportive | 3 |
| | Tennessee | Highly credit supportive | 2 |
| | Virginia | Highly credit supportive | 2 |
| Xcel Energy Inc. | Colorado | Very credit supportive | 3 |
| | Minnesota | Highly credit supportive | 2 |
| | North Dakota | Highly credit supportive | 2 |
| | New Mexico | Credit supportive | 5 |
| | South Dakota | Very credit supportive | 3 |
| | Texas | Very credit supportive | 3 |
| | Wisconsin | Most credit supportive | 1 |
| Proxy Group Average | | Highly credit supportive / Very credit supportive | 2.53 |
| OGE Energy Corporation | Oklahoma | Very credit supportive | 3 |

Notes
[1] Updated Views on North American Utility Regulatory Jurisdictions, Standard and Poor's Ratings Services, July 10, 2023
[2] Most= 1, Highly= 2, Very= 3, More= 4, Credit Supportive= 5

FLOTATION COST ADJUSTMENT

| Company | Date [i] | Shares Issued (000) | Offering Price | Under-writing Discount [ii] | Offering Expense ($000) | Net Proceeds Per Share | Total Flotation Costs ($000) | Equity Issue Before Costs ($000) | Net Proceeds ($000) | Flotation Cost Percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| Oklahoma Gas & Electric | 8/21/2003 | 5,324 | $ 21.60 | $ 0.7900 | $ 325 | $ 20.75 | $ 4,531 | $ 115,000 | $ 110,469 | 3.94% |
| | | | | | | | $ 4,531 | $ 115,000 | $ 110,469 | 3.94% |

Notes:
[i] Offering Completion Date
[ii] Underwriting discount was calculated as the market price minus the offering price when not explicitly given in the prospectus.

The flotation cost adjustment is derived by dividing the dividend yield by 1 − F (where F = flotation costs expressed in percentage terms), or by 0.9606, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

$$k = \frac{D \times (1 + 0.5g)}{P \times (1 - F)} + g$$

| | | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Company | Ticker | Annualized Dividend | Stock Price | Dividend Yield | Expected Dividend Yield | Expected Dividend Yield Adjusted for Flotation Costs | Value Line Earnings Growth | Yahoo! Finance Earnings Growth | Zacks Earnings Growth | Average Earnings Growth | ROE | ROE Adjusted for Flotation Costs |
| ALLETE, Inc. | ALE | $2.71 | $54.18 | 5.00% | 5.19% | 5.40% | 6.00% | 8.10% | 8.10% | 7.40% | 12.59% | 12.80% |
| Alliant Energy Corporation | LNT | $1.81 | $49.32 | 3.67% | 3.79% | 3.94% | 6.50% | 6.65% | 6.30% | 6.48% | 10.27% | 10.43% |
| Ameren Corporation | AEE | $2.52 | $76.88 | 3.28% | 3.38% | 3.52% | 6.50% | 6.20% | 6.60% | 6.43% | 9.82% | 9.96% |
| American Electric Power Company, Inc. | AEP | $3.52 | $76.65 | 4.59% | 4.71% | 4.90% | 6.50% | 3.70% | 4.80% | 5.00% | 9.71% | 9.90% |
| Avista Corporation | AVA | $1.84 | $33.32 | 5.52% | 5.69% | 5.92% | 6.00% | 5.90% | 5.90% | 5.93% | 11.62% | 11.85% |
| CMS Energy Corporation | CMS | $1.95 | $55.46 | 3.52% | 3.64% | 3.79% | 6.50% | 7.70% | 7.50% | 7.23% | 10.88% | 11.03% |
| Duke Energy Corporation | DUK | $4.10 | $88.52 | 4.63% | 4.77% | 4.96% | 5.00% | 6.55% | 6.10% | 5.88% | 10.65% | 10.85% |
| Entergy Corporation | ETR | $4.52 | $96.53 | 4.68% | 4.82% | 5.02% | 0.50% | 11.00% | 6.40% | 5.97% | 10.79% | 10.99% |
| Evergy, Inc. | EVRG | $2.57 | $49.33 | 5.21% | 5.33% | 5.55% | 7.50% | 2.50% | 4.30% | 4.77% | 10.10% | 10.32% |
| IDACORP, Inc. | IDA | $3.32 | $96.12 | 3.45% | 3.52% | 3.67% | 4.00% | 3.70% | 4.10% | 3.93% | 7.46% | 7.60% |
| NextEra Energy, Inc. | NEE | $1.87 | $56.48 | 3.31% | 3.45% | 3.60% | 9.50% | 8.15% | 8.20% | 8.62% | 12.07% | 12.21% |
| NorthWestern Corporation | NWE | $2.56 | $49.46 | 5.18% | 5.29% | 5.50% | 3.50% | 4.08% | 5.20% | 4.26% | 9.55% | 9.76% |
| Pinnacle West Capital Corporation | PNW | $3.52 | $72.98 | 4.82% | 4.94% | 5.14% | 2.50% | 5.90% | 5.90% | 4.77% | 9.70% | 9.91% |
| Portland General Electric Company | POR | $1.90 | $40.73 | 4.66% | 4.79% | 4.98% | 5.00% | 4.60% | 6.00% | 5.20% | 9.99% | 10.18% |
| Southern Company | SO | $2.80 | $68.05 | 4.11% | 4.24% | 4.41% | 6.50% | 7.10% | 4.00% | 5.87% | 10.10% | 10.28% |
| Xcel Energy Inc. | XEL | $2.08 | $59.77 | 3.48% | 3.59% | 3.74% | 6.00% | 6.80% | 6.10% | 6.30% | 9.89% | 10.04% |
| Median | | | | | | | | | | | 10.10% | 10.30% |
| Flotation Cost Adjustment | | | | | | | | | | | [12] | 0.20% |

Notes:
[1] Bloomberg Professional
[2] Bloomberg Professional, equals 30-day average as of November 30, 2023
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [9])
[5] Equals [4] / (1 − Flotation Cost)
[6] Value Line
[7] Yahoo! Finance
[8] Zacks
[9] Equals Average ([6], [7], [8])
[10] Equals [4] + [9]
[11] Equals [5] + [9]
[12] Equals Average ([11]) − Average ([10])

**CAPITAL STRUCTURE ANALYSIS**

| Proxy Group Company | Ticker | Most Recent 8 Quarters (2021Q3 - 2023Q2) Common Equity Ratio | Long-Term Debt Ratio | Preferred Equity Ratio | Total Capitalization |
|---|---|---|---|---|---|
| ALLETE, Inc. | ALE | 58.62% | 41.38% | 0.00% | 100.00% |
| Alliant Energy Corporation | LNT | 52.09% | 47.71% | 0.19% | 100.00% |
| Ameren Corporation | AEE | 53.17% | 46.26% | 0.57% | 100.00% |
| American Electric Power Company, Inc. | AEP | 47.90% | 52.10% | 0.00% | 100.00% |
| Avista Corporation | AVA | 49.76% | 50.24% | 0.00% | 100.00% |
| CMS Energy Corporation | CMS | 51.59% | 48.21% | 0.19% | 100.00% |
| Duke Energy Corporation | DUK | 52.80% | 47.20% | 0.00% | 100.00% |
| Entergy Corporation | ETR | 47.31% | 52.59% | 0.10% | 100.00% |
| Evergy, Inc. | EVRG | 61.10% | 38.90% | 0.00% | 100.00% |
| IDACORP, Inc. | IDA | 53.66% | 46.34% | 0.00% | 100.00% |
| NextEra Energy, Inc. | NEE | 61.29% | 38.71% | 0.00% | 100.00% |
| NorthWestern Corporation | NWE | 49.29% | 50.71% | 0.00% | 100.00% |
| Pinnacle West Capital Corporation | PNW | 50.99% | 49.01% | 0.00% | 100.00% |
| Portland General Electric Company | POR | 45.52% | 54.48% | 0.00% | 100.00% |
| Southern Company | SO | 55.56% | 44.20% | 0.24% | 100.00% |
| Xcel Energy Inc. | XEL | 54.44% | 45.56% | 0.00% | 100.00% |
| Average | | 52.82% | 47.10% | 0.08% | |
| Median | | 52.44% | 47.46% | 0.00% | |
| Maximum | | 61.29% | 54.48% | 0.57% | |
| Minimum | | 45.52% | 38.71% | 0.00% | |

Notes:
[1] Ratios are weighted by actual common capital, preferred capital, and long-term debt of the operating subsidiaries.
[2] Electric operating subsidiaries with data listed as N/A from S&P Capital IQ Pro have been excluded from the analysis.

# AFFIDAVIT

**COMMONWEALTH OF MASSACHUSETTS )**
**)**
**COUNTY OF SUFFOLK )**

On the 12th day of December 2023, before me appeared Ann E. Bulkley, to me personally known, who, being by me first duly sworn, states that she is a Principal for The Brattle Group and acknowledges that she has read the above and foregoing document and believes that the statements therein are true and correct to the best of her information, knowledge, and belief.

Print Ann E. Bulkley

Signature Ann E Bulkley

Subscribed and sworn to before this 11th day of December, 2023.

Notary Public

My commission expires: March 22, 2030

Seal

JENNIFER M. OSSEN
Notary Public, Commonwealth of Massachusetts
My Commission Expires March 22, 2030