Docket No. UE 433
Exhibit PAC/400
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Direct Testimony of Ann E. Bulkley

February 2024

TABLE OF CONTENTS

ATTACHED EXHIBITS

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 Public Utility Commission of Oregon (Commission) on behalf of PacifiCorp d/b/a/ Pacific Power (Company), which is an indirect wholly-owned subsidiary of Berkshire Hathaway Energy Company (BHE).

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

A. I hold a Bachelor's degree in Economics and Finance from Simmons College and a Master's degree in Economics from Boston University, with over 25 years of experience consulting to the energy industry. I have advised numerous energy and utility clients on a wide range of financial and economic issues with primary concentrations in valuation and utility rate matters. Many of these assignments have included the determination of the cost of capital for valuation and ratemaking purposes. My resume and a summary of testimony that I have filed in other proceedings, including previously before the Commission, are included as Exhibit PAC/401 to this testimony.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to present evidence and provide a recommendation regarding the appropriate Return on Equity (ROE) for PacifiCorp's

electric utility operations in Oregon and to provide an assessment of its proposed capital structure to be used for ratemaking purposes.

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 and multi-stage forms of the Discounted Cash Flow (DCF) 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 direct testimony organized?

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

- Section III provides a summary of my analyses and conclusions.
- Section IV reviews the regulatory guidelines pertinent to the development of the cost of capital.
- Section V discusses current and prospective capital market conditions and the effect of those conditions on the Company's cost of equity.
- Section VI explains my selection of the proxy group.
- Section VII describes my cost of equity analyses and the basis for my recommended ROE in this proceeding.

- Section VIII 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 IX provides an assessment of the reasonableness of the Company's proposed capital structure.

- Section X presents my conclusions and recommendations.

III. 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 recommendations consider the following:

- The United States (U.S.) 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.)

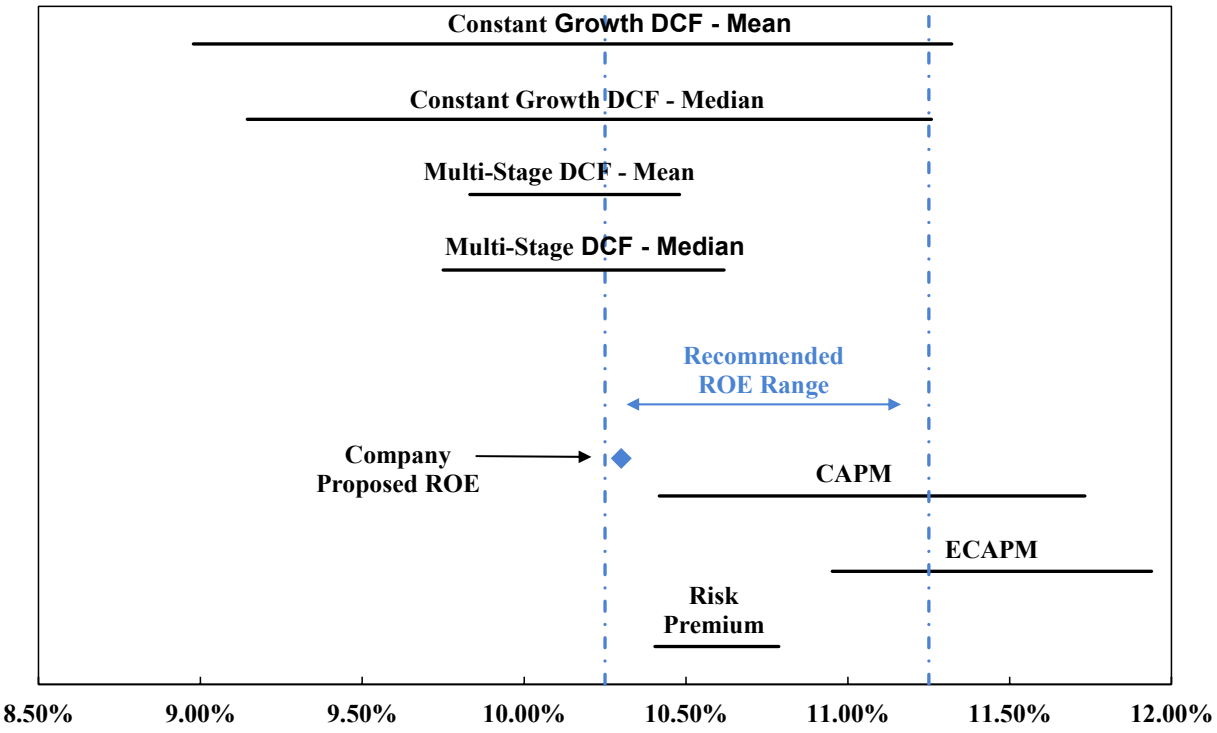
- Although the companies in my proxy group are generally comparable to PacifiCorp, each company is unique, and no two companies have the exact same business and financial risk profiles. Accordingly, I considered the Company's regulatory, business, and financial risks relative to a proxy group of comparable 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.

[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).

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

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

Figure 1: Summary of Cost of Equity Analytical Results[2]



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.

[2] *See also* Exhibit PAC/402.

Q. Are prospective capital market conditions expected to affect the results of the cost of equity analyses 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 over 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; utility share prices may remain depressed.

- 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 in 2024.

- 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 reasonableness of the Company's proposed ROE.

Q. What is your recommended ROE for the Company in this proceeding?

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 PacifiCorp has significantly greater risk than the proxy group companies and therefore an ROE at the higher end of the range of results is reasonable. However, the Company is requesting a more moderate return of 10.30 percent. As Company witness Matthew D. McVee explains, the proposed ROE balances the impact on customers with the prevailing market conditions that support a higher ROE and the Company's increased need to access capital at a reasonable costs in light of the escalating utility risks that are discussed by Company witnesses Cindy A. Crane, Nikki L. Kobliha, Ms. Joelle R. Steward, and Ms. Mariya V. Coleman.

Q. Is the Company's requested capital structure reasonable?

A. Yes. The Company's proposed equity ratio of 50.00 percent is well within the range of the actual capital structures of the utility operating subsidiaries of the proxy group companies. Further, the Company's proposed equity ratio is reasonable considering that credit rating agencies have identified in their outlook for the utility sector significant risks such as elevated interest rates and inflation, record levels of capital spending, and the need to fund capital spending in a credit supportive manner. Further, as discussed in the testimony of Company witness Kobliha, the requested capital structure is an important component of the plan to support the Company's financial metrics, which provides benefits to customers in terms of access to capital on reasonable terms.

IV. REGULATORY GUIDELINES

Q. Please describe the principles that guide the establishment of the cost of capital for a regulated utility.

A. The U.S. 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.[3]

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

A. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases by acknowledging that utility investors are entitled to a fair and reasonable return. For example, in the Company's determination in its 2020 general rate case (2020 GRC) the Commission stated:

> In establishing fair and reasonable rates under ORS 756.040, we balance the interests of the utility investor and customers by ensuring that the rates provide adequate revenue both for operating expenses and for capital costs of the utility, with a return to the equity holder that is "commensurate with the return on investments in other enterprises having corresponding risks" and "sufficient to ensure confidence in the financial integrity of the utility, allowing the utility to maintain its credit and attract capital."[4]

[3] *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.
[4] In the Matter of PacifiCorp, dba Pacific Power, Request for a General Rate Revision, Docket No. UE 374, Order No. 20-473 at 6 (Dec. 18, 2020).

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 terms?

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 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 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.

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 PacifiCorp's electric operations in Oregon.

Q. Does the fact that the Company is a subsidiary of BHE 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. 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 BHE.

Q. Are 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 case decision?

A. Yes. There are numerous examples in which utilities have experienced a negative market response related to the financial effects of a rate decision, including credit rating downgrades and material stock price declines. For example, ALLETE, Inc.,[5] CenterPoint Energy Houston Electric,[6] and Pinnacle West Capital Corporation (PNW)[7] each received credit rating downgrades following rate case decisions in the past few years for reasons that included below average authorized ROEs. The most recent example is the decisions by the Illinois Commerce Commission (ICC) in mid-December 2023 that rejected the multiyear grid plan proposals and authorized lower-than-expected ROEs for both Ameren Illinois Co. (Ameren IL) [8] and Commonwealth

[5] Moody's Investors Service, Credit Opinion: ALLETE, Inc. Update following downgrade, at 3 (Apr. 3, 2019).
[6] Fitch Ratings, Fitch Downgrades CenterPoint Energy Houston Electric to BBB+; Affirms CNP; Outlooks Negative (Feb. 19, 2020).
[7] S&P Capital IQ Pro; Fitch Ratings, Fitch Downgrades Pinnacle West Capital & Arizona Public Service to 'BBB+'; Outlooks Remain Negative (Oct. 12, 2021); Moody's Investors Service, Rating Actions: Moody's downgrades Pinnacle West to Baa1 and Arizona Public Service to A3; outlook negative (Nov. 17, 2021).
[8] Illinois Commerce Commission on Its Own Motion v. Ameren Company d/b/a Ameren Illinois, Order Requiring Ameren Illinois Company to File an Initial Multi-Year Integrated Grid Plan and Initiating Proceeding to Determine Whether the Plan is Reasonable and Complies with the Public Utilities Act, Ameren Illinois Company d/b/a Ameren Illinois, Petition for Approval of a Multi-Year Rate Plan Pursuant to 220 ILCS 5/16-108.18, Docket Nos. 22-0487, 23-0082 (cons.), Order (Dec. 14, 2023) (Ameren Order), Amendatory Order (Jan. 17, 2024).

Edison Co. (ComEd).[9] Specifically, the ICC authorized an ROE for Ameren IL of 8.72 percent and 8.905 percent for ComEd, which were significant reductions from the Administrative Law Judge's recommendations of 9.24 percent and 9.28 percent, respectively.[10]

Q. How did the market respond to the ICC's decisions for these utilities?

A. While the Standard & Poor's (S&P) 500 Index was increasing, the share prices of the parent companies of both Ameren IL and ComEd (*i.e.*, Ameren Corp. and Exelon Corp., respectively) each dropped more than 7 percent on December 14, 2023 after the ICC's decision, and declined again by more than 4.4 percent and 6.4 percent the following day, respectively.[11] As of the close on January 5, 2023, Ameren and Exelon's stock prices were 8.9 percent and 11.4 percent, respectively, below where their stock prices closed on December 13, 2023, or the day immediately prior to the ICC's decisions.[12]

In addition, the reactions of equity analysts were universally negative, and questioned whether the parents of both Ameren IL and ComEd (*i.e.*, Ameren Corp. and Exelon Corp., respectively) will shift their capital spending out of the jurisdiction as a

[9] Illinois Commerce Commission on Its Own Motion v. Commonwealth Edison Company, Order Requiring Commonwealth Edison Company to File an Initial Multi-Year Integrated Grid Plan and Initiating Proceeding to Determine Whether the Plan is Reasonable and Complies with the Public Utilities Act, Commonwealth Edison Company, Verified Petition for Approval of a Multi-Year Rate Plan Under Section 16-108 of the Public Utilities Act, Docket Nos. 22-0486, 23-0055 (cons.), Order (Dec. 14, 2023) (ComEd Order), Amendatory Order (Jan. 10, 2024).
[10] Ameren Order at 222, 372-374, 398, and 400 (Dec. 14, 2023); ComEd Order at 320, 470-472, 515, 517 (Dec. 14, 2023; *see also,* Allison Good, *Ameren, Exelon shares fall after Illinois regulators reject grid plans*, Platts, (Dec. 15, 2023).
[11] Yahoo! Finance.
[12] Ameren Corp.'s stock price closed at $81.32 on December 13, 2023 and $74.05 on January 5, 2023. Exelon Corp.'s stock price closed at $41.00 on December 13, 2023 and $36.31 on January 5, 2023.

result of the uncertainty associated with the multiyear rate plan and low authorized ROEs. For example:

- Barclays characterized the ICC's ROE authorizations as "draconian" and "one of the lowest awarded in recent memory, especially in an elevated interest rate and cost of capital environment."[13] Barclays also stated it found it hard to believe utilities "can deploy capital under the same magnitude on the updated grid plans to be filed, especially under the current proposed ROE framework."

- In its assessment of the impact on Exelon, the parent of ComEd, UBS stated that, "[t]he actions taken by the ICC today call into question, in our view, the regulatory backdrop in which EXC operates."[14]

- Wells Fargo stated that it was not mincing words, and that the ICC's orders were "onerous" and that:

> We now view IL as one of the worst regulatory jurisdictions in the U.S. (nipping at CT's heels). We think the totality of the recent orders suggest that the regulatory balancing act between customers and investors is currently heavily skewed toward customers. As a result, we wonder if AEE & EXC will allocate capital away from IL. Keep in mind, IL represents ~25% of both AEE's & EXC's total rate base."[15]

- In its evaluation of Ameren IL, Bank of America (BofA) Securities characterized the ICC's decision as "punitive" and stated that it was a surprise based on numerous conversations with investors that believed the ICC may authorize an ROE above the ALJ's recommendation, not substantially lower, and that the downside surprise was one of the biggest in recent memory for their regulated utility coverage.[16] While BofA Securities acknowledged that Ameren IL represents less than 20 percent of Ameren Corp.'s consolidated rate base, it will nonetheless need to offset capital expenditures elsewhere in order to hit its earnings growth rate targets.[17]

- After the decisions, Guggenheim questioned, "Is Illinois Becoming the Next Connecticut?" Guggenheim noted that investors questioned whether Illinois was "slowly becoming a CT-esque jurisdiction," and that equity and debt

[13] Barlclays, AEE/EXC: Coal Stocking-Stuffer in Illinois (Dec. 14, 2023).
[14] UBS, First Read Exelon Corp., Negative Rate Case Outcome – Rating and PT Under Review (Dec. 14, 2023).
[15] Wells Fargo, The ICC Delivers a Lump of Coal for AEE & EXC (Dec. 14, 2023)
[16] BofA Securities, Ameren Corporation, *Illinois delivers downside surprise* (Dec. 15, 2023).
[17] *Id*.

holders are going to be wary of Illinois as a jurisdiction going forward and that the ICC is "simply sending a negative message to investors."[18]

Also, after the ICC's decisions, Regulatory Research Associates (RRA) lowered its rating of the Illinois regulatory jurisdiction from Average/2 to Average/3 due to the "concerning pattern of restrictive" rate actions in the state.[19]

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 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.

[18] Guggenheim, IL: Is Illinois Becoming the Next Connecticut? To Be Determined, but Taking a Neutral Stance on the State (Dec. 15, 2023).
[19] Russell Ernst, Concerning pattern of restrictive Ill. rate actions prompts rankings revision, Market Intelligence (Dec. 18, 2023).

V. 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 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

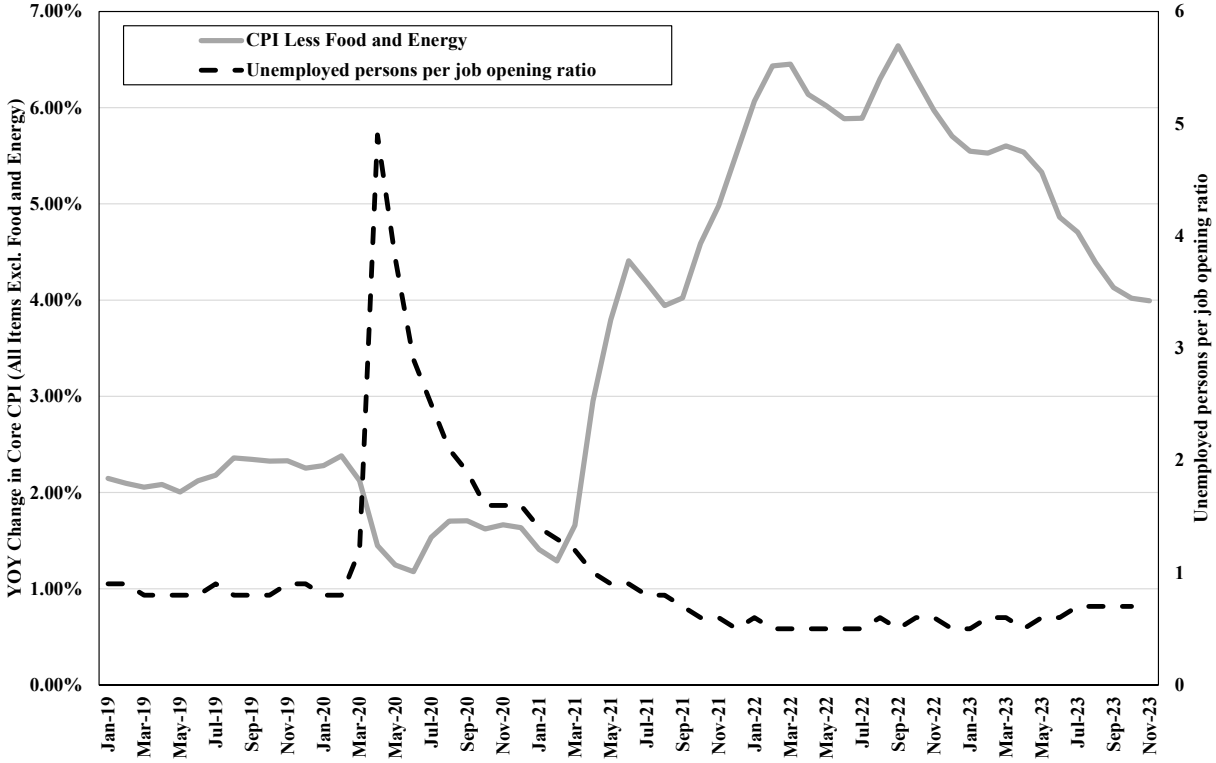
Q. What has the level of inflation been over the past few years?

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.[20] 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 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.

[20] 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.

Figure 2: Core Inflation and Unemployed Persons-to-Job Openings, January 2019 to November 2023[21]



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, 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

[21] Bureau of Labor Statistics.

based on the totality of the incoming data, the evolving outlook, and the balance of risks.[22]

Chair Powell reiterated that the FOMC was committed to bringing inflation down to the 2.0 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 [*Personal Consumption Expenditures]* 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.[23]

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 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

[22] Federal Reserve, Transcript of Chair Powell's Press Conference, at 1 (Dec. 13, 2023).
[23] *Id*., at 2-3; clarification added.

> 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.[24]

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 has 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 September 2023, the Federal Reserve increased the target federal funds rate through a series of increases from a range of 0.00 – 0.25 percent to a range of 5.25 percent to 5.50 percent. While inflation has declined from its peak, it still is above the Federal Reserve's target of 2.0 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 2.0 percent inflation over the long-run.

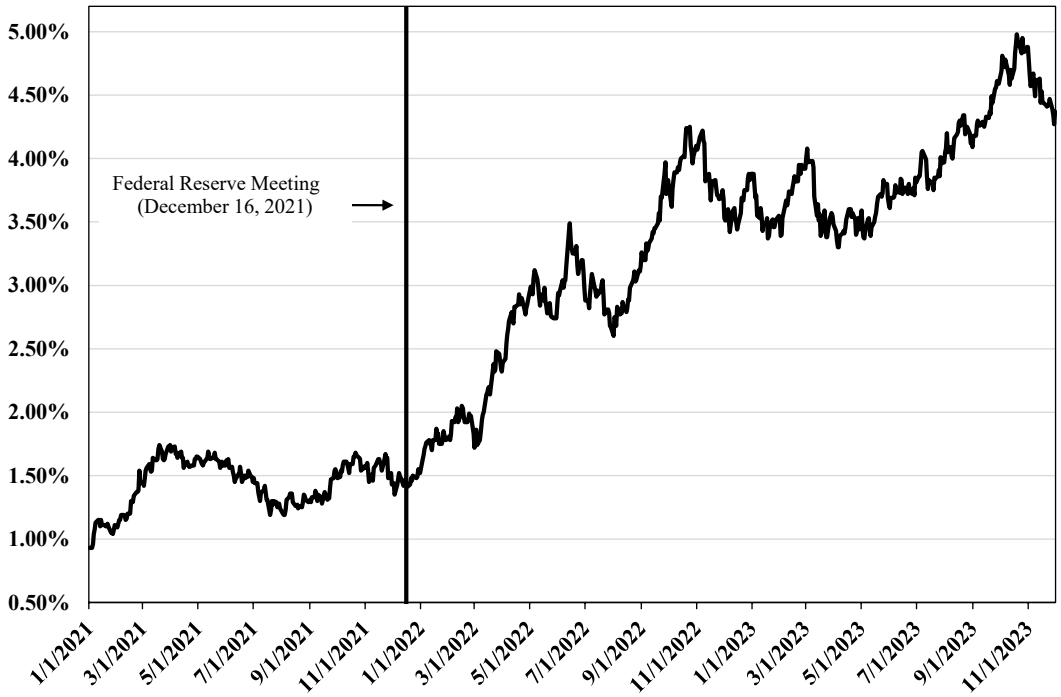
[24] *Id*., at 3-4.

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 responded to inflation and the Federal Reserve's normalization of monetary policy?

A. Yes. As the Federal Reserve has substantially increased the federal funds rate in response to increased levels of inflation that have persisted for longer than originally projected, longer term interest rate have also increased. As shown in Figure 3, since the Federal Reserve's December 2021 meeting, the yield on 10-year Treasury bonds 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 nearly 150 basis points since the Board's decision in the Company's last rate proceeding.

Figure 3: 10-Year Treasury Bond Yield – January 2021 through November 2023



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 surrebuttal testimony in its last rate proceeding and the Commission authorized an ROE of 9.50 percent as part of the settlement in the Company's last rate proceeding. Specifically, long-term interest rates have increased approximately 160 basis points since the Company's updated cost of equity analyses were filed and approximately 100 basis points since the Commission's decision was issued.

Figure 4: Change in Market Conditions Since Company's Last Rate Case

Period	Date	Federal Funds Rate	30-Day Avg of 30-Year Treasury Bond Yield	Core Inflation Rate	Auth'd ROE
Surrebutal - UE-399	7/31/2022	2.32%	3.15%	5.88%	
Decision - UE-399	12/16/2022	4.33%	3.78%	5.70%	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.[25] Similarly, the consensus estimate of the average yields on the 10-year and 30-year Treasury bonds reported by *Blue Chip Financial Forecasts* are 4.22 percent and 4.48 percent, respectively, through the first quarter of 2025.[26] Therefore, investors expect interest rates to remain elevated for at least the next 15 months. As a result, it is reasonable to expect that if government bond yields remain elevated, the cost of equity will remain materially higher than at the time of the Company's last rate proceeding.

[25] Nicholas Jasinski, Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds (Oct. 27, 2023).
[26] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, December 1, 2023, at 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).[27]

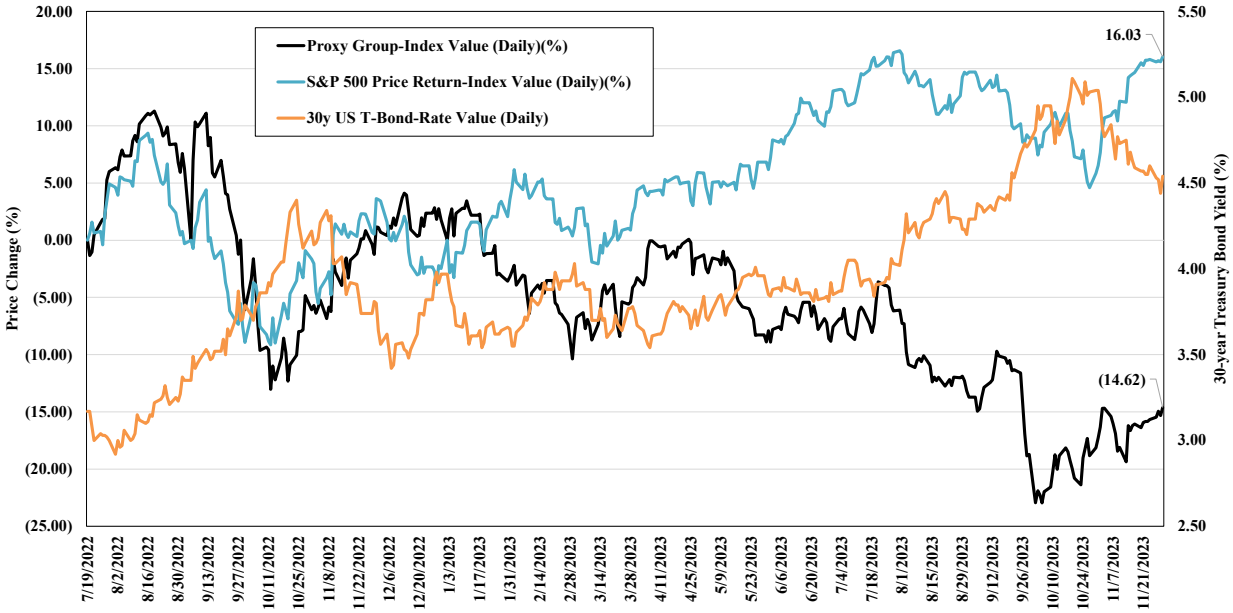
Q. In the Company's last rate proceeding, docket UE 399, you discussed equity analysts' expected underperformance of the utility sector.[28] Did that occur?

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 19, 2022, the yield on the 30-year Treasury bond has increased by nearly 140 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 14.6 percent and the S&P 500 Index has *increased* 16.0 percent. In fact, on October 2, 2023, the utilities sector

[27] Justina Lee, Wall Street Is Rethinking the Treasury Threat to Big Tech Stocks, Bloomberg.com (Mar. 11, 2021).
[28] *In the Matter of PacifiCorp, dba Pacific Power, Request for a General Rate Revision,* Docket Nos. UE 399, UM 1964, UM 2134, UM 2142, UM 2167, UM 2185, UM 2186, and UM 2201 (cons.), Exhibit PAC/1400, Bulkley at 38.

dropped by 4.7 percent, its single highest one-day percentage decline since April 2020.[29] 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-July 2022 through November 2023[30]



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,[31] and BofA 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.[32] Moreover, the professional investors surveyed by *Barron's* in its most recent Big

[29] Caroline Valetkevich, S&P 500 ends near flat; utilities drop, focus on rate outlook, Reuters (Oct. 2, 2023).
[30] S&P Capital IQ Pro.
[31] Fidelity Investments, Fourth Quarter 2023 Investment Research Update (Oct. 19, 2023).
[32] BofA Global Research, US Utilities & IPPs, As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes (Sept. 6, 2023).

Money poll selected the utility sector as one of the four equity sectors that they liked the least over the next 12 months, indicating they are projecting that utilities will underperform the broader market in 2024.[33]

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

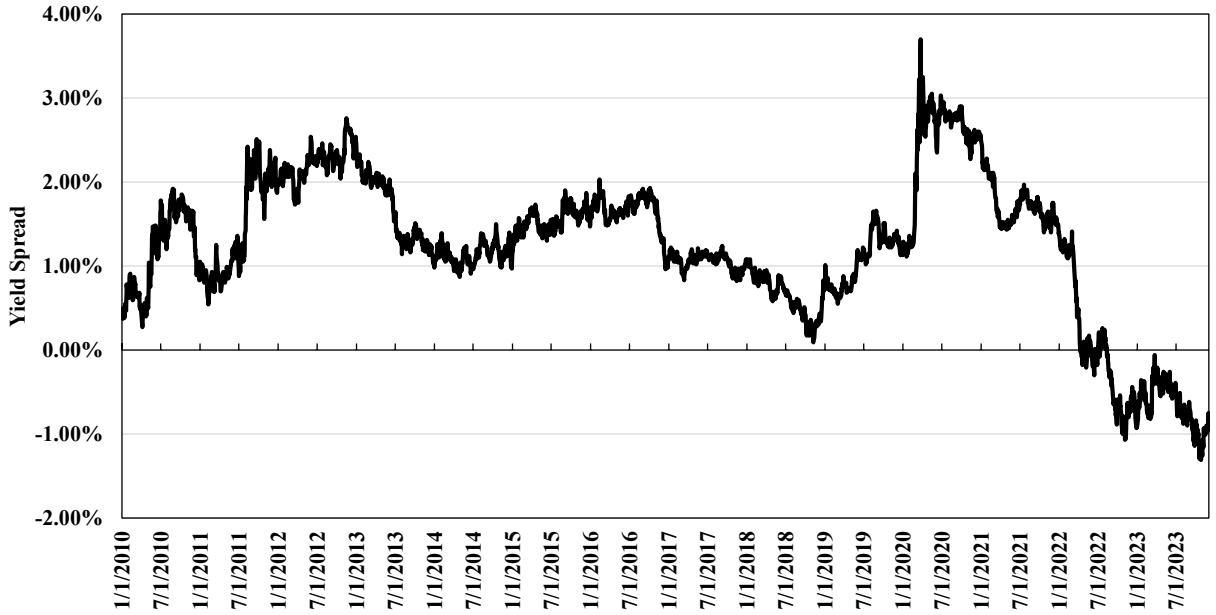
A. Equity analysts expect the utility sector to continue to underperform given that, on average, the yields for the utility sector remain lower than the yields on long-term government bonds. To illustrate this point, I examined the difference between the dividend yields of utility stocks and the yields on long-term government bonds from January 2010 through November 2023 (*i.e.*, 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 the yield spread is currently well below the long-term average, and the expectation is that interest rates will remain relatively high through at least the next year, it is reasonable to conclude that the utility sector may

[33] Nicholas Jasinski, Big Money Pros Are Split on the Outlook for Stocks. But They Are Fans of Bonds, Barron's (Oct. 27, 2023).

continue to underperform in 2024. 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 that 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 Proxy Group Dividend Yield and the 10-year Treasury Bond Yield, January 2010 – November 2023[34]



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 effect on the estimated cost of equity, it is important that current and projected market conditions be considered in setting the forward-looking ROE in this proceeding. The combination of persistently high inflation and the Federal Reserve's

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

changes in monetary policy that have increased interest rates demonstrate that the cost of equity has increased since the Company's last rate proceeding 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 historically long-term government bond yields have been lower than the dividend yields of utilities. Because the cost of equity has increased since the Company's last rate proceeding, docket UE 399, cost of equity estimates based in whole or in part on historical or current market conditions, as opposed to projected market conditions, may 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 forward-looking cost of equity estimation models such as the CAPM and ECAPM, which better reflect expected market conditions**.**

VI. PROXY GROUP SELECTION

Q. Please provide a brief profile of PacifiCorp.

A. PacifiCorp is an indirect, wholly-owned subsidiary of BHE, and provides electric utility service to approximately 2.0 million residential, commercial and industrial customers in California, Idaho, Oregon, Utah, Washington, and Wyoming.[35] As of December 31, 2022, the Company provided electric service to approximately 617,000 residential, commercial, and industrial customers in Oregon, with approximately 13,700 gigawatt-hours in electric sales.[36] The Company's electric operations in

[35] PacifiCorp SEC Form 10-K, December 31, 2022 at 3.
[36] 2022 Oregon Utilities Statistics Book.

Oregon represented approximately 24 percent of PacifiCorp's electric sales in 2022.[37] PacifiCorp currently has an investment grade long-term rating of BBB+ (Outlook: Negative) from S&P and Baa1 (Outlook: Stable) from Moody's.[38] The Company is not separately rated from PacifiCorp.

Q. Why have you used groups of proxy companies to estimate the Cost of Equity for PacifiCorp?

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 the Company's operations do not make up the entirety of a publicly traded entity, it is necessary to establish a group of companies that is both publicly traded and comparable to the Company in certain fundamental business and financial respects to serve as its "proxy" for purposes of estimating the cost of equity.

Even if the Company 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.

[37] PacifiCorp SEC Form 10-K, December 31, 2022 at 3.
[38] S&P Global Ratings, *PacifiCorp Ratings Affirmed Following Archie Creek Settlement; Outlook Negative* (Dec. 12, 2023); Moody's Investors, Issuer Comment, PacifiCorp, Dec. 8, 2023.

Q. How did you select the companies 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 cannot be analyzed using the DCF model;
- have investment grade long-term issuer ratings from S&P and/or Moody's;
- have positive long-term earnings growth forecasts from at least two utility industry equity analysts;
- own regulated generation assets that are 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. 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 PAC/403).

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
OGE Energy Corporation	OGE
Pinnacle West Capital Corporation	PNW
Portland General Electric Company	POR
Southern Company	SO
Xcel Energy Inc.	XEL

VII. COST OF EQUITY ESTIMATION

Q. Please briefly discuss the ROE in the context of a regulated utility.

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 the Company in this proceeding?

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

Q. Is it important to use more than one analytical approach?

A. Yes. 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[39] suggest using the CAPM and Arbitrage

[39] Tom Copeland, Tim Koller and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, at 214 (3rd ed. 2000).

Pricing Theory model, while Brigham and Gapenski[40] recommend the CAPM, DCF, and BYRP approaches.

Although the use of multiple analytical approaches is appropriate at all times, current market conditions particularly highlight the importance of using more than one analytical approach to estimating the cost of equity. 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 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.

[40] Eugene Brigham and Louis Gapenski, *Financial Management: Theory and Practice*, at 341 (7th ed. 1994).

Q. Has the Commission recognized that it is important to consider the results of multiple ROE estimation models?

A. Yes. In previous cases, the Commission has considered the results of many ROE estimation models and determined, based on the results of those models, whether or not to place any weight on the model in its final determination. Specifically, in the Company's 2020 GRC, the Commission considered the results of the DCF, CAPM and Risk Premium approaches:

> The Commission has previously accepted CAPM as a "useful and reliable addition to the DCF results" for determining cost of equity in certain cases. While we have historically rejected the risk premium analysis as unconventional and because it had not been accepted by other regulatory agencies, we note that FERC now gives equal consideration to DCF, CAPM and risk premium results.[41]

Further, the Commission recognized that no one party's application of any model is correct or certain. In that proceeding, the Commission considered the range of results established using the DCF model, the CAPM and the risk premium models. Further, the Commission recognized that the effects of the pandemic caused additional uncertainty in the assumptions used in the models. In addition, the Commission recognized incremental risk associated with the Company's capital investment plan and further recognized the relationship between the ROE and equity ratio.[42]

[41] Docket No. UE 374, Order No. 20-476 at 30.
[42] *Id*., at 30-31.

A. DCF Model

Q. Please describe the DCF approach.

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

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

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

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

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 constant growth DCF 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.

Q. Did 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. What sources of long-term growth rates did you rely on in your Constant Growth DCF model?

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 constant growth DCF models?

A. Exhibit PAC/404 and Figure 8 summarize the results of the constant growth DCF models. While I also summarize the DCF results using the minimum growth rates, given the market response to the recent ICC decisions for Ameren IL and ComEd as discussed previously, it is evident that the market would not consider these DCF

results reflective of the investor-required return, and thus I do not give these DCF results any material weight at this time.

Figure 8: Constant Growth DCF Model Results

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.08%	10.31%	11.43%
90-Day Avg. Stock Price	9.02%	10.25%	11.37%
180-Day Avg. Stock Price	8.83%	10.06%	11.17%
Average	8.98%	10.21%	11.32%
Median Results:			
30-Day Avg. Stock Price	9.37%	10.10%	11.33%
90-Day Avg. Stock Price	9.17%	10.13%	11.30%
180-Day Avg. Stock Price	8.90%	10.01%	11.14%
Average	9.14%	10.08%	11.26%

Q. What other forms of the DCF model have you considered?

A. Consistent with prior Commission precedent, I have also considered a multi-stage form of the DCF model. As with the constant growth DCF model, the multi-stage form of the model defines the cost of equity as the discount rate that sets the current price equal to the discounted value of future cash flows.

Q. Has the Commission expressed a preference for the results of the multi-stage DCF model?

A. Yes, the Commission has indicated that it prefers the results of the multi-stage DCF model. For example, in its order in PacifiCorp's 2020 GRC, the Commission stated:

> This Commission has primarily relied upon the multi-stage DCF model in determining a reasonable range of ROE, and in this case we are not persuaded to depart from that approach. In this case, we will also consider the results of the CAPM and risk-premium models presented

by the parties to confirm the reasonableness of that range and of the ROE authorized in this case.[43]

While I agree that the multi-stage DCF model is one of the methods considered by investors and regulators, I also agree with the Commission that it is reasonable to consider the results of other models to confirm the reasonableness of the results of that model.

Q. How does the multi-stage form of the DCF model differ from the constant growth form of the DCF model?

A. As with the constant growth DCF model, the multi-stage form of the model defines the cost of equity as the discount rate that sets the current price equal to the discounted value of future cash flows. However, the multi-stage DCF model, which is an extension of the constant growth form of the DCF, enables the analyst to specify different growth rates over multiple stages. The multi-stage DCF model allows for a gradual transition from the first-stage growth rate to the long-term growth rate, thereby avoiding the unrealistic assumption that growth changes abruptly between the first and final stages.

Q. What is the structure of the multi-stage DCF model?

A. The multi-stage DCF model sets a company's current stock price equal to the present value of future cash flows received over three "stages." In all three stages, cash flows are equal to the annual dividend payments that stockholders receive. Stage One is a short-term growth period that consists of the first five years; Stage Two is a transition period from the short-term growth period to the long-term growth period, from years six through 10; and Stage Three is a long-term growth period that begins in year 11

[43] Docket No. UE 374, Order No. 20-476 at 30.

and continues in perpetuity (*i.e.*, years 11 through 200). The cost of equity is then calculated as the rate of return that results from the initial stock investment and the dividend payments over the analytical period.

Q. What growth rates did you rely on in the multi-stage DCF model?

A. As shown in Exhibit PAC/405, I began with the current annualized dividend as of November 30, 2023 for each proxy group company. In the first stage of the model, the current annualized dividend is escalated based on the average of the three-to five-year projected EPS growth rate estimates reported by Yahoo! Finance, Zacks, and *Value Line* that I rely on in the constant growth DCF. For the third stage of the model, I rely on long-term projected growth in gross domestic product (GDP). The second stage growth rate is a transition from the first stage growth rate to the long-term growth rate on a geometric average basis.

Q. How did you calculate the long-term GDP growth rate?

A. As shown in Exhibit PAC/406, the projected long-term growth rate is 5.51 percent, which is based on real GDP growth rate of 3.18 percent from 1929 through 2022,[44] plus a projected inflation rate of 2.26 percent. The projected inflation rate is based on three measures: (1) the average long-term projected growth rate in the CPI of 2.20 percent;[45] (2) the compound annual growth rate of the CPI for all urban consumers for 2033-2050 of 2.27 percent as projected by the Energy Information

[44] U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, Table 1.1.1 (Nov. 29, 2023).
[45] *Blue Chip Financial Forecasts*, Vol. 42, No. 6 at 14 (June 1, 2023).

Administration (EIA);[46] and (3) the compound annual growth rate of the GDP chain-type price index for 2033-2050 of 2.31 percent, also reported by the EIA.[47]

Q. What are the results of your multi-stage DCF models?

A. Figure 9 summarizes the results of the multi-stage DCF model.

Figure 9: Multi-Stage DCF Model Results

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.94%	10.27%	10.60%
90-Day Avg. Stock Price	9.88%	10.21%	10.53%
180-Day Avg. Stock Price	9.68%	9.99%	10.31%
Average	9.83%	10.16%	10.48%
Median Results:			
30-Day Avg. Stock Price	9.87%	10.45%	10.75%
90-Day Avg. Stock Price	9.73%	10.28%	10.68%
180-Day Avg. Stock Price	9.65%	10.02%	10.43%
Average	9.75%	10.25%	10.62%

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

A. Yes. For example, in its May 2022 decision establishing the cost of equity for Aqua Pennsylvania, Inc., the Pennsylvania Public Utility Commission concluded that the current capital market conditions of high inflation and increased 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:

[46] U.S. Energy Information Administration, Annual Energy Outlook 2023, Table 20, Macroeconomic Indicators (Mar. 16, 2023).
[47] *Id*.

> 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.
>
> …..
>
> We have previously determined, above, that we shall utilize I&E's DCF and CAPM methodologies. I&E's DCF and CAPM produce a range of reasonableness for the ROE in this proceeding from 8.90% [DCF] to 9.89% [CAPM]. Based upon our informed judgment, which includes consideration of a variety of factors, including increasing inflation leading to increases in interest rates and capital costs since the rate filing, we determine that a base ROE of 9.75% is reasonable and appropriate for Aqua.[48]

Similarly, the Massachusetts Department of Public Utilities in a recent rate case for NSTAR Electric Company concluded that given the recent increase in

[48] *Penn. Pub. Util. Comm'n et.al. v, Aqua Penn. Wastewater Inc.*, Docket Nos. R-2021-3027385 and R-2021-3027386, Opinion and Order at 154–155 (May 12, 2022).

interest rates there was "greater certainty" that the results of the DCF model were understating the cost of equity for the utility.[49]

B. CAPM Analysis

Q. Please briefly describe the Capital Asset Pricing Model.

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.[50] 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;

β = 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-

[49] Petition of NSTAR Electric Company, doing business as Eversource Energy, pursuant to G.L. c. 164, § 94 and 220 CMR 5.00, for Approval of a General Increase in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Plan, Docket D.P.U. 22-22, Final Order at 385-386 (Nov. 30, 2022).

[50] 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.

diversifiable risk. Systematic risk is measured by beta, which is a measure of the volatility of a security as compared to the market as a whole. Beta is defined as:

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

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

Q. What risk-free rate did 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;[51] (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;[52] and (3) the average projected 30-year U.S. Treasury bond yield for 2025 through 2029, which is 4.10 percent.[53]

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

A. As shown in Exhibit PAC/407, 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

[51] Bloomberg Professional, as of November 30, 2023.
[52] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, at 2 (Dec. 1, 2023).
[53] *Blue Chip Financial Forecasts*, Vol. 42, No. 12, at 14 (Dec. 1, 2023).

weekly returns relative to the New York Stock Exchange Composite Index. Additionally, as shown in Exhibit PAC/407, 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, which are presented in Exhibit PAC/408.

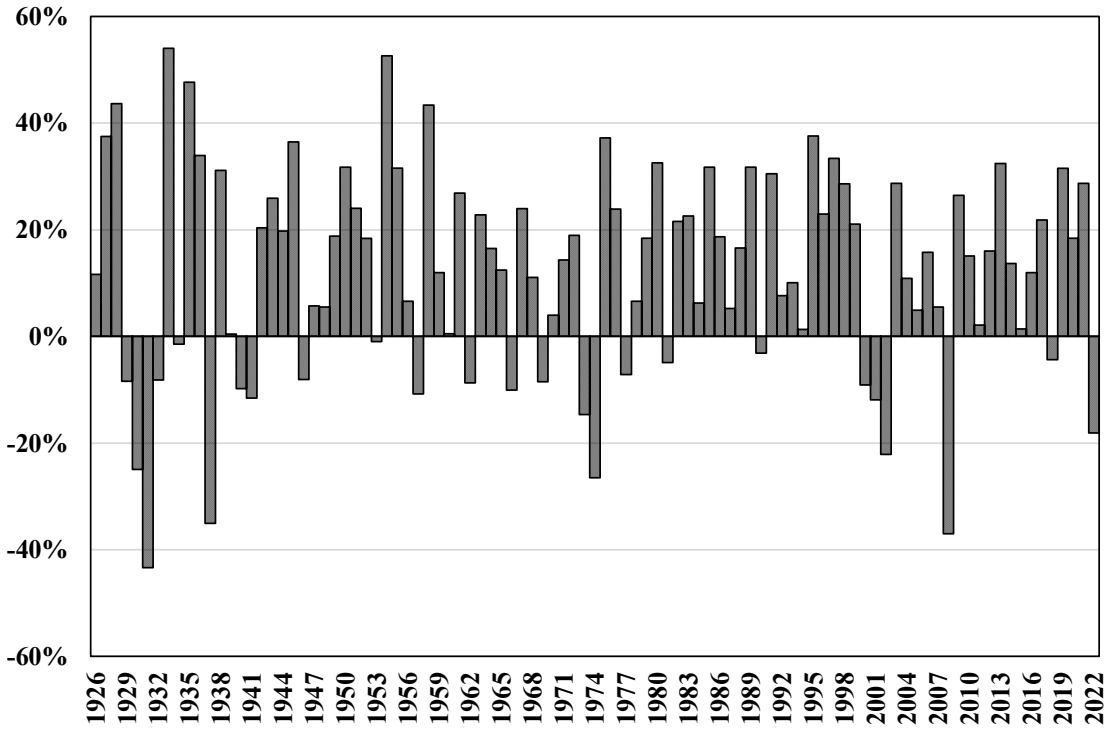
Q. How do you estimate the market risk premium in the CAPM?

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 PAC/409, 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 show in Figure 10, 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 10: Realized U.S. equity market returns (1926–2022)[54]



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

A. Yes. I have also considered the results of an ECAPM in estimating the cost of equity for the Company.[55] 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:

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

[54] Depicts total annual returns on large company stocks, as reported in the 2023 Kroll SBBI Yearbook.
[55] *See, e.g.*, Roger A. Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., at 189 (June 1, 2006).

Where:

k_e = the required market ROE

β = Adjusted Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

The ECAPM addresses the tendency of the "traditional" CAPM to underestimate the cost of equity for companies with low beta coefficients such as regulated utilities. In that regard, the ECAPM is not redundant to the use of adjusted betas in the traditional CAPM, but rather it recognizes the results of academic research indicating that the risk-return relationship is different (in essence, flatter) than estimated by the CAPM, meaning that the CAPM underestimates the "alpha," or the constant return term.[56]

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 11, as well as presented in Exhibit PAC/407.

[56] *Id*. at 191.

Figure 11: 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	11.73%	11.70%	11.66%
Current Bloomberg Beta	10.95%	10.89%	10.81%
Long-term Avg. *Value Line* Beta	10.59%	10.51%	10.42%
ECAPM:			
Current *Value Line* Beta	11.94%	11.91%	11.88%
Current Bloomberg Beta	11.35%	11.31%	11.25%
Long-term Avg. *Value Line* Beta	11.08%	11.02%	10.95%

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 PAC/410 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.[57]

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.

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

Q. What did your BYRP analysis reveal?

A. As shown in Figure 12, from 1980 through November 2023, there was a strong negative relationship between risk premia and interest rates. To estimate that relationship, I have conducted a regression analysis using the following equation:

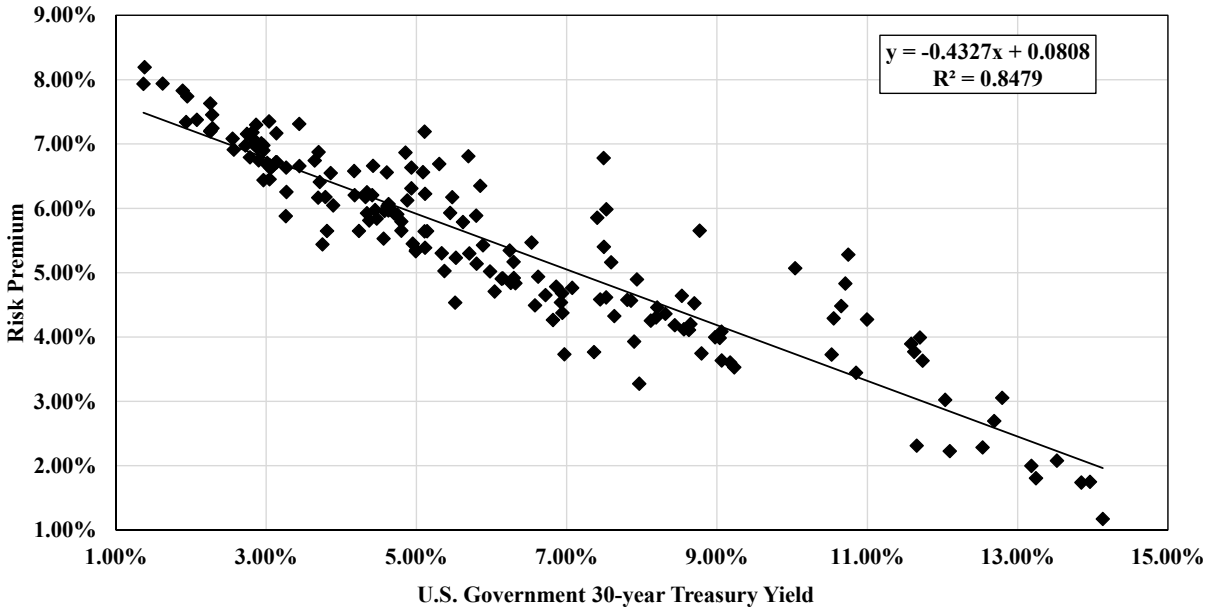
$$RP = a + b(T) \qquad [6]$$

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 vertically-integrated electric utility rate cases over this period as reported by RRA.[58] The equation's coefficients are statistically significant at the 99.00 percent level.

Figure 12: Risk Premium Results



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

Q. What are the results of your BYRP analysis?

A. Figure 13 presents the results of my BYRP analysis, which is also presented in more detail in Exhibit PAC/410.

Figure 13: 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 the Company?

A. I have considered the results of the BYRP analysis in my recommended ROE for the Company. 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.

VIII. REGULATORY AND BUSINESS 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 has stated that wildfire risk has become the top question among all different investor types.[59] In fact, BofA has stated that it sees "the consistent existential risk posed by wildfires outflanking any other factor exposure of a given utility equity."[60] 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 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.[61] A such, a utility's exposure to wildfire risk is expected to be a defining factor for utility valuations:

> 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

[59] BofA Global Research, US Utilities & IPPs, Wildfire wakeup: what the Hawaiian fires mean for the sector as prudency shifts (Aug. 28, 2023).
[60] BofA Global Research, US Utilities & IPPs, As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes (Sept. 6, 2023).
[61] BofA Global Research, US Utilities & IPPs, Wildfire wakeup: what the Hawaiian fires mean for the sector as prudency shifts (Aug. 28, 2023).

> refreshed plans will become a necessity for any utilities operating in geographies.
>
> *****
>
> 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.[62]

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.[63]

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.[64] 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 six years, utility credit downgrades directly related to physical risks have increased significantly.[65] Similarly, FitchRatings (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.[66] The most recent

[62] BofA Global Research, US Utilities & IPPs, As the leaves fall, preparing for Autumn utility outlook. Micro still has potholes (Sept. 6, 2023).
[63] *Id*.
[64] Moody's Investors Service, Breakfast with the Analysts, 58th Annual EEI Financial Conference, at 30 (Nov. 13, 2023).
[65] S&P Global Ratings, A Storm is Brewing: Extreme Weather Events Pressure North American Utilities' Credit Quality, at 1 (Nov. 9, 2023).
[66] Fitch Ratings, *Climate Related Risks in Focus*, 35th Annual Presentation at EEI Financial Conference, at 5, 11 (Nov. 13, 2023).

example is Hawaiian Electric Industries Inc. and its subsidiaries after the catastrophic Maui fires in August 2023 when S&P, Moody's, and Fitch all downgraded to "junk" status in response to the potential wildfire liabilities faced by the utility.[67]

Q. Has wildfire risk been specifically identified as a risk for the Company in Oregon?

A. Yes. Moody's recently noted that wildfire risk has been rising and that wildfires burned more acres in Oregon in 2020 and 2021 than had occurred in the past 20 years.[68] Moody's stated:

> Wildfires are a significant risk for PacifiCorp's service territory in Oregon, Utah, and California. While such wildfire risk has not been on the scale of its California investor-owned utility peers, it still has a substantial impact on its credit profile. Through the third quarter of 2023, the company has so far accrued about $1.9 billion of pretax losses net of the expected insurance recovery for wildfires in Oregon.[69]

Similarly, S&P has recently highlighted PacifiCorp's wildfire risk, noting that it could lead to a credit downgrade:

> We could lower the ratings on PacifiCorp over the next 24 months if the number of claimants and estimated damages concerning its wildfire lawsuits, including the James case, grow significantly such that we anticipate materially weaker leverage, increased business risk, or a weaker degree of group support from its parent. Furthermore, we could also lower ratings if the company's stand-alone FFO to debt consistently weakens to below 13% or if PacifiCorp contributes to a future significant wildfire.[70]

[67] See, e.g., Fitch downgrades Hawaiian Electric to junk on worries over wildfire exposure, Reuters (Aug. 21, 2023); S&P downgrades Hawaiian Electric to 'B-'as wildfires raise market-access worries, Reuters (Aug. 24, 2023); Moody's downgrades Hawaiian Electric's credit to junk amid Maui wildfire scrutiny, Reuters (Aug. 18, 2023).
[68] Moody's Investors Service, Credit Opinion, PacifiCorp, December 4, 2023, at 5.
[69] *Id*., at 1.
[70] S&P Global Ratings, PacifiCorp Ratings Affirmed Following Archie Creek Settlement; Outlook Negative, at 2 (Dec. 12, 2023).

S&P also stated that it could affirm its rating on PacifiCorp and revise its outlook to stable if the Company were to achieve favorable legal outcomes that limit existing wildfire liabilities the company is not the cause of a future materially significant wildfire.[71]

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 more broad 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.[72]

Q. Have you conducted any analysis to evaluate the wildfire risk in Oregon 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 Oregon 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 PAC/411, Oregon is ranked "Relatively Moderate" (*i.e.*, a "3"). This ranking for Oregon indicates a higher risk for the Company relative to the proxy group, which

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

has an average ranking of between "Relatively Low" and "Relatively Moderate" (*i.e.*, a "2.14").

Q. What are your conclusions regarding the effect of wildfire risk on the Company in Oregon?

A. Wildfire risk presents one of the most significant business, operational, and financial threats for utilities in states subject to such risks. Oregon 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. Capital Expenditures

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

A. The Company's current projection of capital expenditures for 2024 through 2026 totals approximately $10.6 billion, which represents approximately 43 percent of the Company's approximate $24.4 billion in net utility plant as of December 31, 2022.[73]

[73] Data provided by the Company.

Q. How do the Company's capital expenditures compare to those of the proxy group?

A. As shown on Exhibit PAC/412, I have calculated the ratio of expected capital expenditures to net utility plant for the Company and each of the companies in the proxy group by dividing each company's projected capital expenditures for the period from 2024 through 2026 by its total net utility plant as of December 31, 2022. As shown, the Company's ratio of capital expenditures as a percentage of net utility plant is approximately 139 percent of the median for the proxy group companies.

Q. How is PacifiCorp's risk profile affected by its capital expenditure requirements?

A. As with any utility facing increased 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 higher 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. [74]

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

[74] S&P Global Ratings, Assessing U.S. Investor-Owned Utility Regulatory Environments, at 7 (Aug. 10, 2016).

> 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. [75]

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

Q. Does the Company have a capital tracking mechanism to recover the costs associated with capital expenditures between rate cases?

A. Yes. PacifiCorp is authorized to separately file to recover capital costs to construct or otherwise acquire renewable generation facilities and the associated transmission between rate cases through the Renewable Adjustment Clause. The Company also has wildfire mitigation cost recovery through its Wildfire Mitigation Plan Automatic Adjustment Clause associated with its Wildfire Mitigation Plan. The Company does not have cost recovery mechanisms for capital expenditures related to its transmission and distribution system unrelated to wildfire mitigation or non-renewable generation resources.

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 the Company does have capital cost recovery for certain renewable generation-related

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

expenditures and wildfire-related expenditures, it does not for the recovery of its transmission and distribution expenditures unrelated to wildfire mitigation or non-renewable generation resources, thus timely recovery of a substantial portion of the Company's capital expenditures are not provided for between rate cases.

C. Regulatory Risks

Q. How does the regulatory environment affects 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 by 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.[76]

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

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

utility operates."[77] 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.[78]

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."[79] 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 utilities are made (including the setting of rates), as well as the predictability and consistency of decision-making provided by that foundation."[80]

[77] Standard & Poor's Global Ratings, U.S. and Canadian Regulatory Jurisdictions Support Utilities' Credit Quality—But Some More So Than Others, at 2 (June 25, 2018).
[78] *Id*., at 1.
[79] Moody's Investors Service, Rating Methodology: Regulated Electric and Gas Utilities, at 6 (June 23, 2017).
[80] *Id*.

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

A. Yes. I have evaluated the regulatory framework in Oregon based on five factors that are important in terms of providing a regulated utility an opportunity to earn its authorized ROE. These factors are: (1) fuel cost recovery; (2) the test year convention for ratemaking (*i.e.*, forecast vs. historical test year); (3) use of rate design and/or other mechanisms that mitigate volumetric risk and stabilize revenue; and (4) prevalence of capital cost recovery between rate cases. The results of my regulatory risk assessment are shown in Exhibit PAC/413 and are summarized below.

- *Fuel Cost Recovery*: The Company has a Power Cost Adjustment Mechanism (PCAM) to recover power costs. However, while traditional fuel cost recovery mechanisms allow all variances between projected fuel costs and actual fuel costs to be recovered from or refunded to customers, the PCAM has an asymmetrical deadband whereby the Company absorbs variances in fuel costs that are up to $30 million more than projected and $15 million less than projected. The PCAM also has a sharing mechanism whereby any power cost variance outside the deadband is shared 90 percent by customers and 10 percent by the Company if it earns within plus or minus 100 basis points of its authorized ROE.[81] However, if the Company is earning within this range of its authorized ROE, there is no power cost adjustment for that year. Finally, amortization of deferred amounts in any one year under the PCAM is limited to 6 percent of the Company's revenues in the preceding calendar year.[82]

As a result, the PCAM does not fully mitigate the Company's risk of recovery of its fuel and purchased power costs, which is important to investors given that fuel and purchased power costs typically account for 50–60 percent of the total operating costs for a regulated utility. Moreover, there are only nine states (*i.e.*, Arizona,

[81] Docket No. UE 374, Order No. 20-476 at 30.
[82] In the Matter of PacifiCorp, dba Pacific Power, Request for a General Rate Revision, Docket No. UE 246, Order No. 12-493 at 14-15 (Dec. 20, 2012).

Hawaii, Idaho, Missouri, Montana, Oregon, Vermont, Washington, and Wyoming) that have fuel cost recovery mechanisms with sharing bands. The remaining states either have restructured and the electric utilities do not own generation or have fuel cost recovery mechanisms with a true-up between actual and forecasted fuel costs. In addition, approximately 88 percent of the operating companies held by the proxy group are allowed to pass through fuel costs and purchased power costs directly to customers, without deadbands, sharing bands and earnings tests.

- *Test Year Convention:* The Company relies on a historical test year for ratemaking purposes. As shown in Exhibit PAC/413, approximately 55 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*.[83]

- *Revenue Stabilization/Non-Volumetric Rate Design*: The Company does not have protection against volumetric risk in Oregon. In contrast, as shown in Exhibit PAC/413, approximately 60 percent of the utility operating subsidiaries of the proxy group companies have some form of revenue stabilization through either decoupling, formula-based rates, and/or 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 capital cost recovery mechanisms for the construction of new renewable generation and associated transmission, as well as dam removal and wildfire mitigation expenditures. Similarly, as shown in Exhibit PAC/413, approximately 67 percent of the

[83] Mark Newton Lowry, David Hovde, Lullit Getachew, and Matt Makos. *Forward Test Years for US Electric Utilities,*" at 1, (Prepared for the Edison Electric Institute, Aug. 2010); emphasis added.

operating utility subsidiaries of the proxy group companies also 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 Oregon 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 Oregon 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 PAC/414, the Oregon jurisdictional ranking is "Average / 2" (*i.e.*, a "5"), which is below the proxy group average ranking of between "Average/1" and "Average/2" (*i.e.*, a "4.69").

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").

As shown on Exhibit PAC/415, similar to the RRA regulatory rankings discussed above, S&P ranks Oregon as "4", which is below the proxy group average ranking of "2.53".

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, the Company must compete for discretionary capital within the PacifiCorp corporate structure, as well as within the BHE corporate structure, which must in turn compete for capital with other utilities and businesses. Investors consider the business and financial risks of the Company relative to other

comparable investments. 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 the overall risk assessment of the regulatory jurisdiction in which the company operates. As noted previously, 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 Oregon 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, the Company's regulatory risk and the ability to timely recover its prudently incurred costs is moderately higher relative to the operating utilities of the proxy group given the Company's risk associated with fuel cost recovery and the lack of revenue stabilization. For these reasons, I conclude that the Company has greater than average regulatory risk when compared to the proxy group.

IX. 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, which has been recognized by the Commission.[84] Specifically, 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. As discussed in the direct testimony of Company witness Kobliha, PacifiCorp is proposing a capital structure that is composed of 50.00 percent common equity and 50.00 percent long-term debt.

Q. Does the Company's proposed capital structure differ from its actual capital structure?

A. Yes. As discussed in the testimony of Company witness Kobliha, the Company's actual capital structure has been affected by recent significant one-time events that has resulted in a more highly leveraged capital structure than is typically relied upon to finance the business. In the Company's last rate proceeding, the equity ratio that

[84] *See, e.g.,* Docket No. UE 374, Order No. 20-476 at 31 (fn 135).

was agreed to by the parties was composed of 50 percent equity and 50 percent long-term debt, which is consistent with the proposed equity ratio in this proceeding.

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, and preferred equity for the most recent three years for each of the utility operating subsidiaries of the proxy group companies. As shown in Exhibit PAC/416, the mean and median equity ratios for the utility operating subsidiaries of the proxy group are 52.89 percent and 52.77 percent respectively, which are significantly higher than the Company's proposed equity ratio percent.

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.[85]

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 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.[86]

S&P has also recently concluded:

[85] Moody's Investors Service, Outlook turns stable on low prices and credit-supportive regulation. (Sept. 7, 2023).
[86] S&P Global Ratings, The Outlook for North American Regulated Utilities Turns Stable, at 8 (May 18, 2023).

> 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.[87]

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.[88]

In addition to the specific concerns raised for PacifiCorp, discussed previously and in more detail in the direct testimony of Company witness Kobliha, the credit ratings agencies' continued concerns over the negative effects of inflation and increased capital expenditures underscore the importance of maintaining adequate cash flow metrics for the industry as a whole, and PacifiCorp in particular in the context of this proceeding.

[87] S&P Global Ratings, Regulatory Friction Is Constraining Cost Recovery For North American Investor-Owned Utilities, at 8 (Nov. 6, 2023).
[88] Fitch Ratings, *North American Utilities, Power & Gas Outlook,* S&P Market Intelligence (Nov. 13, 2023).

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

A. Yes. As discussed in the testimony of Company witness Kobliha, the Company's credit metrics have fallen below the thresholds that are acceptable for its current rating. The level of earnings authorized by the Commission will directly affect the Company's ability to fund its operations with internally-generated funds.

X. CONCLUSIONS AND RECOMMENDATIONS

Q. What is your conclusion regarding a fair ROE for the Company?

A. Based on the various quantitative analyses summarized in Figure 14, 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 regulatory, business, and financial risk relative to the proxy group, I conclude that the Company has significantly greater risk than the proxy group companies and therefore an ROE at the higher end of the range of results is reasonable. However, the Company is requesting a more moderate return of 10.3 percent, which, as discussed in the testimony of Company witness McVee, balances the impact on customers with the prevailing market conditions that support a higher ROE and the Company's increased need to access capital at a reasonable costs in light of the escalating utility risks as discussed by Company witnesses Crane, Kobliha, Steward, and Coleman.

Figure 14: Summary of Analytical Results

Constant Growth DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.08%	10.31%	11.43%
90-Day Avg. Stock Price	9.02%	10.25%	11.37%
180-Day Avg. Stock Price	8.83%	10.06%	11.17%
Average	8.98%	10.21%	11.32%
Median Results:			
30-Day Avg. Stock Price	9.37%	10.10%	11.33%
90-Day Avg. Stock Price	9.17%	10.13%	11.30%
180-Day Avg. Stock Price	8.90%	10.01%	11.14%
Average	9.14%	10.08%	11.26%

Multi-Stage DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.94%	10.27%	10.60%
90-Day Avg. Stock Price	9.88%	10.21%	10.53%
180-Day Avg. Stock Price	9.68%	9.99%	10.31%
Average	9.83%	10.16%	10.48%
Median Results:			
30-Day Avg. Stock Price	9.87%	10.45%	10.75%
90-Day Avg. Stock Price	9.73%	10.28%	10.68%
180-Day Avg. Stock Price	9.65%	10.02%	10.43%
Average	9.75%	10.25%	10.62%

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	11.73%	11.70%	11.66%
Current Bloomberg Beta	10.95%	10.89%	10.81%
Long-term Avg. *Value Line* Beta	10.59%	10.51%	10.42%
ECAPM:			
Current *Value Line* Beta	11.94%	11.91%	11.88%
Current Bloomberg Beta	11.35%	11.31%	11.25%
Long-term Avg. *Value Line* Beta	11.08%	11.02%	10.95%
Bond Yield Risk Premium	10.79%	10.62%	10.40%

Q. What is your conclusion with respect to the Company's proposed capital structure?

A. My conclusion is that the Company's proposal to establish a capital structure consisting of 50.00 percent common equity and 50.00 percent long-term debt is necessary to increase its credit metrics to the ranges established by the credit rating agencies for the Company's current credit ratings. Further, the proposed capitalization is conservative when compared to the proxy group companies, as the equity ratio proposed by the Company is well below the mean or median equity ratio of the utility operating companies of the proxy group. Finally, maintaining the Company's credit ratings and the ability to access capital on reasonable terms, particularly at a time when the Company has significant capital requirements, provides benefits to customers over the long-term. Therefore, I conclude that the Company's proposed capital structure is reasonable and should be approved.

Q. Does this conclude your direct testimony?

A. Yes.

Docket No. UE 433
Exhibit PAC/401
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Resume and Testimony Listing of Ann E. Bulkley

February 2024

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

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

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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Indiana Utility Regulatory Commission				
Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	12/23	Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South	IURC Cause No. 45990	Return on Equity
Indiana Michigan Power Co.	08/23	Indiana Michigan Power Co.	IURC Cause No. 45933	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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 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				

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SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
MidAmerican Energy Company	06/23	MidAmerican Energy Company	Docket No. RPU-2023-___	Return on Equity
MidAmerican Energy Company	01/22	MidAmerican Energy Company	Docket No. RPU-2022-0001	Return on Equity
Iowa-American Water Company	08/20	Iowa-American Water Company	Docket No. RPU-2020-0001	Return on Equity
Kansas Corporation Commission				
Evergy Kansas	04/23	Evergy Kansas	**Docket No. 23-_____-_____-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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
FirstLight Hydro Generating Company	06/17	FirstLight Hydro Generating Company	Docket No. F-325471 Docket No. F-325472 Docket No. F-325473 Docket No. F-325474	Valuation of Electric Generation Assets
Massachusetts Department of Public Utilities				
Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	11/23	Massachusetts Electric Company Nantucket Electric Company d/b/a National Grid	DPU 23-150	Return on Equity
National Grid USA	11/20	Boston Gas Company	DPU 20-120	Return on Equity
Berkshire Gas Company	05/18	Berkshire Gas Company	DPU 18-40	Return on Equity
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Indiana Michigan Power Co.	09/23	Indiana Michigan Power Co.	Case No. U-21461	Return on Equity
Michigan Gas Utilities Corporation	03/23	Michigan Gas Utilities Corporation	Case No. U-21366	Return on Equity
Michigan Gas Utilities Corporation	03/21	Michigan Gas Utilities Corporation	Case No. U-20718	Return on Equity
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
New Covert Generating Co., LLC.	03/18	The Township of New Covert Michigan	MTT Docket No. 000248TT and 16-001888-TT	Valuation of Electric Generation Assets

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets
Minnesota Public Utilities Commission				
ALLETE, Inc. d/b/a Minnesota Power	11/23	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-23-155	Return on Equity
CenterPoint Energy Resources	11/23	CenterPoint Energy Resources	D-G-008/GR-23-173	Return on Equity
Minnesota Energy Resources Corporation	11/22	Minnesota Energy Resources Corporation	Docket No. G011/GR-22-504	Return on Equity
CenterPoint Energy Resources	11/21	CenterPoint Energy Resources	D-G-008/GR-21-435	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/21	Allete, Inc. d/b/a Minnesota Power	D-E-015/GR-21-630	Return on Equity
Otter Tail Power Company	11/20	Otter Tail Power Company	E017/GR-20-719	Return on Equity
ALLETE, Inc. d/b/a Minnesota Power	11/19	Allete, Inc. d/b/a Minnesota Power	E015/GR-19-442	Return on Equity
CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	10/19	CenterPoint Energy Resources Corporation d/b/a CenterPoint Energy Minnesota Gas	G-008/GR-19-524	Return on Equity
Great Plains Natural Gas Co.	09/19	Great Plains Natural Gas Co.	Docket No. G004/GR-19-511	Return on Equity
Minnesota Energy Resources Corporation	10/17	Minnesota Energy Resources Corporation	Docket No. G011/GR-17-563	Return on Equity
Missouri Public Service Commission				

Brattle

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Ameren Missouri	08/22	Ameren Missouri	File No. ER-2022-0337	Return on Equity
Missouri American Water Company	07/22	Missouri American Water Company	Case No. WR-2022-0303 Case No. SR-2022-0304	Return on Equity
Evergy Missouri West	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 Docket No. GR-2021-0241	Return on Equity
Missouri American Water Company	06/20	Missouri American Water Company	Case No. WR-2020-0344 Case No. SR-2020-0345	Return on Equity
Missouri American Water Company	06/17	Missouri American Water Company	Case No. WR-17-0285 Case No. SR-17-0286	Return on Equity
Montana Public Service Commission				
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				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Liberty Utilities (EnergyNorth Natural Gas)	07/23	Liberty Utilities (EnergyNorth Natural Gas)	Docket No. DG 23-067	Return on Equity
Liberty Utilities (Granite State Electric)	05/23	Liberty Utilities (Granite State Electric)	Docket No. DE 23-039	Return on Equity
Public Service Company of New Hampshire d/b/a Eversource Energy	11/19 12/19	Public Service Company of New Hampshire d/b/a Eversource Energy	Master Docket No. 28873-14-15-16-17PT	Valuation of Utility Property and Generating Assets
New Hampshire Public Utilities Commission				
Public Service Company of New Hampshire	05/19	Public Service Company of New Hampshire	DE-19-057	Return on Equity
New Hampshire-Merrimack County Superior Court				
Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	04/18	Northern New England Telephone Operations, LLC d/b/a FairPoint Communications, NNE	220-2012-CV-1100	Valuation of Utility Property
New Hampshire-Rockingham Superior Court				
Eversource Energy	05/18	Public Service Commission of New Hampshire	218-2016-CV-00899 218-2017-CV-00917	Valuation of Utility Property
New Jersey Board of Public Utilities				
Public Service Electric and Gas Company	11/23	Public Service Electric and Gas Company	ER23120924 GR23120925	Return on Equity
New Jersey American Water Company, Inc.	01/22	New Jersey American Water Company, Inc.	WR22010019	Return on Equity
Public Service Electric and Gas Company	10/20	Public Service Electric and Gas Company	EO18101115	Return on Equity
New Jersey American Water Company, Inc.	12/19	New Jersey American Water Company, Inc.	WR19121516	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Public Service Electric and Gas Company	04/19	Public Service Electric and Gas Company	EO18060629 GO18060630	Return on Equity
Public Service Electric and Gas Company	02/18	Public Service Electric and Gas Company	GR17070776	Return on Equity
Public Service Electric and Gas Company	01/18	Public Service Electric and Gas Company	ER18010029 GR18010030	Return on Equity
New Mexico Public Regulation Commission				
Southwestern Public Service Company	07/19	Southwestern Public Service Company	19-00170-UT	Return on Equity
Southwestern Public Service Company	10/17	Southwestern Public Service Company	Case No. 17-00255-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. 16-00269-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. 15-00296-UT	Return on Equity
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. 15-00139-UT	Return on Equity
New York State Department of Public Service				
Liberty Utilities (New York Water)	5/23	Liberty Utilities (New York Water)	Case 23-W-0235	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/22	New York State Electric and Gas Company Rochester Gas and Electric	22-E-0317 22-G-0318 22-E-0319 22-G-0320	Return on Equity
Corning Natural Gas Corporation	07/21	Corning Natural Gas Corporation	Case No. 21-G-0394	Return on Equity
Central Hudson Gas and Electric Corporation	08/20	Central Hudson Gas and Electric Corporation	Electric 20-E-0428 Gas 20-G-0429	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Niagara Mohawk Power Corporation	07/20	National Grid USA	Case No. 20-E-0380 20-G-0381	Return on Equity
Corning Natural Gas Corporation	02/20	Corning Natural Gas Corporation	Case No. 20-G-0101	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/19	New York State Electric and Gas Company Rochester Gas and Electric	19-E-0378 19-G-0379 19-E-0380 19-G-0381	Return on Equity
Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	04/19	Brooklyn Union Gas Company d/b/a National Grid NY KeySpan Gas East Corporation d/b/a National Grid	19-G-0309 19-G-0310	Return on Equity
Central Hudson Gas and Electric Corporation	07/17	Central Hudson Gas and Electric Corporation	Electric 17-E-0459 Gas 17-G-0460	Return on Equity
Niagara Mohawk Power Corporation	04/17	National Grid USA	Case No. 17-E-0238 17-G-0239	Return on Equity
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0058 Case No. 15-G-0059	Return on Equity
New York State Electric and Gas Company Rochester Gas and Electric	05/15	New York State Electric and Gas Company Rochester Gas and Electric	Case No. 15-E-0283 Case No. 15-G-0284 Case No. 15-E-0285 Case No. 15-G-0286	Return on Equity
North Dakota Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Otter Tail Power Company	11/23	Otter Tail Power Company	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	11/23	Montana-Dakota Utilities Co.	Case No. PU-23-___	Return on Equity
Montana-Dakota Utilities Co.	05/22	Montana-Dakota Utilities Co.	C-PU-22-194	Return on Equity
Montana-Dakota Utilities Co.	08/20	Montana-Dakota Utilities Co.	C-PU-20-379	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Oklahoma Corporation Commission				
Oklahoma Gas & Electric	12/23	Oklahoma Gas & Electric	Cause No. PUD2023-000087	Return on Equity
Oklahoma Gas & Electric	12/21	Oklahoma Gas & Electric	Cause No. PUD 202100164	Return on Equity
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Oregon Public Service Commission				
PacifiCorp d/b/a Pacific Power & Light	03/22	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-399	Return on Equity
PacifiCorp d/b/a Pacific Power & Light	02/20	PacifiCorp d/b/a Pacific Power & Light	Docket No. UE-374	Return on Equity
Pennsylvania Public Utility Commission				
American Water Works Company Inc.	11/23	Pennsylvania-American Water Company	Docket No. R-2023-3043189 (water) Docket No. R-2023-3043190 (wastewater)	Return on Equity

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
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
Texas Railroad Commission				
CenterPoint Energy Entex and CenterPoint Energy Texas Gas	10/23	CenterPoint Energy Entex and CenterPoint Energy Texas Gas	2023 Texas Division Rate Case Case No. OS-23-00015513	Return on Equity
Utah Public Service Commission				

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
PacifiCorp d/b/a Rocky Mountain Power	05/20	PacifiCorp d/b/a Rocky Mountain Power	Docket No. 20-035-04	Return on Equity
Virginia State Corporation Commission				
Virginia American Water Company, Inc.	11/23	Virginia American Water Company, Inc.	Docket No. PUR-2023-00194	Return on Equity
Virginia American Water Company, Inc.	11/21	Virginia American Water Company, Inc.	Docket No. PUR-2021-00255	Return on Equity
Virginia American Water Company, Inc.	11/18	Virginia American Water Company, Inc.	Docket No. PUR-2018-00175	Return on Equity
Washington Utilities Transportation Commission				
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 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

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Wisconsin Electric Power Company and Wisconsin Gas LLC	04/22	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-110	Return on Equity
Wisconsin Public Service Corp.	04/22	Wisconsin Public Service Corp.	6690-UR-127	Return on Equity
Alliant Energy		Alliant Energy		Return on Equity
Wisconsin Electric Power Company and Wisconsin Gas LLC	03/19	Wisconsin Electric Power Company and Wisconsin Gas LLC	Docket No. 05-UR-109	Return on Equity
Wisconsin Public Service Corp.	03/19	Wisconsin Public Service Corp.	6690-UR-126	Return on Equity
Wyoming Public Service Commission				
PacifiCorp d/b/a Rocky Mountain Power	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

Docket No. UE 433
Exhibit PAC/402
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Summary of Results

February 2024

COST OF EQUITY ANALYSES
SUMMARY OF RESULTS

Constant Growth DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.08%	10.31%	11.43%
90-Day Avg. Stock Price	9.02%	10.25%	11.37%
180-Day Avg. Stock Price	8.83%	10.06%	11.17%
Average	8.98%	10.21%	11.32%
Median Results:			
30-Day Avg. Stock Price	9.37%	10.10%	11.33%
90-Day Avg. Stock Price	9.17%	10.13%	11.30%
180-Day Avg. Stock Price	8.90%	10.01%	11.14%
Average	9.14%	10.08%	11.26%

Multi-Stage DCF

	Minimum Growth Rate	Average Growth Rate	Maximum Growth Rate
Mean Results:			
30-Day Avg. Stock Price	9.94%	10.27%	10.60%
90-Day Avg. Stock Price	9.88%	10.21%	10.53%
180-Day Avg. Stock Price	9.68%	9.99%	10.31%
Average	9.83%	10.16%	10.48%
Median Results:			
30-Day Avg. Stock Price	9.87%	10.45%	10.75%
90-Day Avg. Stock Price	9.73%	10.28%	10.68%
180-Day Avg. Stock Price	9.65%	10.02%	10.43%
Average	9.75%	10.25%	10.62%

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	11.73%	11.70%	11.66%
Current Bloomberg Beta	10.95%	10.89%	10.81%
Long-term Avg. *Value Line* Beta	10.59%	10.51%	10.42%
ECAPM:			
Current *Value Line* Beta	11.94%	11.91%	11.88%
Current Bloomberg Beta	11.35%	11.31%	11.25%
Long-term Avg. *Value Line* Beta	11.08%	11.02%	10.95%
Bond Yield Risk Premium	10.79%	10.62%	10.40%

Docket No. UE 433
Exhibit PAC/403
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Proxy Group Selection

February 2024

PROXY GROUP SCREENING DATA AND RESULTS - PRELIMINARY PROXY GROUP

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[9]
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 Operating Income > 60%	Announced Merger
ALLETE, Inc.	ALE	Yes	BBB	Yes	Yes	Yes	43.27%	100.56%	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	BBB+	Yes	Yes	Yes	62.14%	100.00%	No
IDACORP, Inc.	IDA	Yes	BBB	Yes	Yes	Yes	65.35%	99.91%	No
NextEra Energy, Inc.	NEE	Yes	A-	Yes	Yes	Yes	96.40%	92.16%	No
NorthWestern Corporation	NWE	Yes	BBB	Yes	Yes	Yes	55.82%	84.28%	No
OGE Energy Corporation	OGE	Yes	BBB+	Yes	Yes	Yes	50.65%	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] Source: Bloomberg Professional
[2] Source: Bloomberg Professional
[3] Source: Yahoo! Finance and Zacks
[4] Source: Yahoo! Finance, Value Line Investment Survey, and Zacks
[5] Source: S&P Capital IQ Pro
[6] Source: S&P Capital IQ Pro
[7] Source: Form 10-K's for 2021, 2020, and 2019
[8] Source: Form 10-K's for 2021, 2020, and 2019
[9] Source: S&P Capital IQ Pro Financial News Releases
[10] OTTR: 2021 Operating Income Data was excluded from the three year average since, as noted by Otter Tail, 2021 operating income was impacted by the plastics segment that is not expected to continue over the long-term term.

Docket No. UE 433
Exhibit PAC/404
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Constant Growth Discounted Cash Flow Model

February 2024

30-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
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%
OGE Energy Corporation	OGE	$1.67	$34.43	4.86%	4.98%	6.50%	negative	3.70%	5.10%	8.65%	10.08%	11.52%
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										9.08%	10.31%	11.43%
Median										9.37%	10.10%	11.33%

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

90-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
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%
OGE Energy Corporation	OGE	$1.67	$34.14	4.90%	5.03%	6.50%	negative	3.70%	5.10%	8.69%	10.13%	11.56%
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										9.02%	10.25%	11.37%
Median										9.17%	10.13%	11.30%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 90-day average as of November 30, 2023
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Projected EPS Growth Rate	[6] Yahoo! Finance Projected EPS Growth Rate	[7] Zacks Projected EPS Growth Rate	[8] Average Projected EPS Growth Rate	[9] Cost of Equity: Minimum Growth Rate	[10] Cost of Equity: Mean Growth Rate	[11] Cost of Equity: Maximum Growth Rate
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%
OGE Energy Corporation	OGE	$1.67	$34.93	4.79%	4.91%	6.50%	negative	3.70%	5.10%	8.58%	10.01%	11.44%
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										8.83%	10.06%	11.17%
Median										8.90%	10.01%	11.14%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 180-day average as of November 30, 2023
[3] Equals [1]/[2]
[4] Equals [3] x (1 + 0.5 x [8])
[5] Value Line
[6] Yahoo! Finance
[7] Zacks
[8] Equals average of [5], [6], [7]
[9] Equals [3] x (1 + 0.5 x (min([5], [6], [7])) + (min([5], [6], [7])
[10] Equals [4] + [8]
[11] Equals [3] x (1 + 0.5 x (max([5], [6], [7])) + (max([5], [6], [7])

Docket No. UE 433
Exhibit PAC/405
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Multi-Stage Discounted Cash Flow Model

February 2024

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: 30 DAYS

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.18	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	11.07%
Alliant Energy Corporation	LNT	$1.81	$49.32	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.63%
Ameren Corporation	AEE	$2.52	$76.88	6.20%	6.08%	5.97%	5.85%	5.74%	5.62%	5.51%	9.16%
American Electric Power Company, Inc.	AEP	$3.52	$76.65	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	9.96%
Avista Corporation	AVA	$1.84	$33.32	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	11.62%
CMS Energy Corporation	CMS	$1.95	$55.46	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	9.50%
Duke Energy Corporation	DUK	$4.10	$88.52	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.36%
Entergy Corporation	ETR	$4.52	$96.53	0.50%	1.33%	2.17%	3.00%	3.84%	4.67%	5.51%	9.24%
Evergy, Inc.	EVRG	$2.57	$49.33	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	10.23%
IDACORP, Inc.	IDA	$3.32	$96.12	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	8.82%
NextEra Energy, Inc.	NEE	$1.87	$56.48	8.15%	7.71%	7.27%	6.83%	6.39%	5.95%	5.51%	9.65%
NorthWestern Corporation	NWE	$2.56	$49.46	3.50%	3.83%	4.17%	4.50%	4.84%	5.17%	5.51%	10.49%
OGE Energy Corporation	OGE	$1.67	$34.43	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	10.23%
Pinnacle West Capital Corporation	PNW	$3.52	$72.98	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	9.87%
Portland General Electric Company	POR	$1.90	$40.73	4.60%	4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	10.28%
Southern Company	SO	$2.80	$68.05	4.00%	4.25%	4.50%	4.75%	5.00%	5.26%	5.51%	9.55%
Xcel Energy Inc.	XEL	$2.08	$59.77	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	9.35%
Mean					4.78%	4.92%	5.07%	5.22%	5.36%	5.51%	9.94%
Median					4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	9.87%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 30-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: **90** **DAYS**

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.27	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	11.06%
Alliant Energy Corporation	LNT	$1.81	$49.86	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.59%
Ameren Corporation	AEE	$2.52	$78.29	6.20%	6.08%	5.97%	5.85%	5.74%	5.62%	5.51%	9.09%
American Electric Power Company, Inc.	AEP	$3.52	$77.17	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	9.93%
Avista Corporation	AVA	$1.84	$33.50	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	11.59%
CMS Energy Corporation	CMS	$1.95	$55.55	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	9.50%
Duke Energy Corporation	DUK	$4.10	$89.10	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.32%
Entergy Corporation	ETR	$4.52	$95.22	0.50%	1.33%	2.17%	3.00%	3.84%	4.67%	5.51%	9.29%
Evergy, Inc.	EVRG	$2.57	$52.10	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	9.97%
IDACORP, Inc.	IDA	$3.32	$95.86	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	8.83%
NextEra Energy, Inc.	NEE	$1.87	$61.29	8.15%	7.71%	7.27%	6.83%	6.39%	5.95%	5.51%	9.32%
NorthWestern Corporation	NWE	$2.56	$50.42	3.50%	3.83%	4.17%	4.50%	4.84%	5.17%	5.51%	10.39%
OGE Energy Corporation	OGE	$1.67	$34.14	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	10.27%
Pinnacle West Capital Corporation	PNW	$3.52	$75.15	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	9.73%
Portland General Electric Company	POR	$1.90	$42.56	4.60%	4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	10.07%
Southern Company	SO	$2.80	$67.52	4.00%	4.25%	4.50%	4.75%	5.00%	5.26%	5.51%	9.58%
Xcel Energy Inc.	XEL	$2.08	$58.79	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	9.41%
Mean					4.78%	4.92%	5.07%	5.22%	5.36%	5.51%	9.88%
Median					4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	9.73%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 90-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 20

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: **180** **DAYS**

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$56.88	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	10.80%
Alliant Energy Corporation	LNT	$1.81	$51.12	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.48%
Ameren Corporation	AEE	$2.52	$81.27	6.20%	6.08%	5.97%	5.85%	5.74%	5.62%	5.51%	8.96%
American Electric Power Company, Inc.	AEP	$3.52	$81.52	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	9.68%
Avista Corporation	AVA	$1.84	$36.89	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	11.02%
CMS Energy Corporation	CMS	$1.95	$57.38	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	9.37%
Duke Energy Corporation	DUK	$4.10	$90.33	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.26%
Entergy Corporation	ETR	$4.52	$97.81	0.50%	1.33%	2.17%	3.00%	3.84%	4.67%	5.51%	9.19%
Evergy, Inc.	EVRG	$2.57	$55.28	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	9.70%
IDACORP, Inc.	IDA	$3.32	$100.25	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	8.68%
NextEra Energy, Inc.	NEE	$1.87	$67.60	8.15%	7.71%	7.27%	6.83%	6.39%	5.95%	5.51%	8.96%
NorthWestern Corporation	NWE	$2.56	$53.59	3.50%	3.83%	4.17%	4.50%	4.84%	5.17%	5.51%	10.09%
OGE Energy Corporation	OGE	$1.67	$34.93	3.70%	4.00%	4.30%	4.60%	4.90%	5.21%	5.51%	10.16%
Pinnacle West Capital Corporation	PNW	$3.52	$76.59	2.50%	3.00%	3.50%	4.00%	4.50%	5.01%	5.51%	9.65%
Portland General Electric Company	POR	$1.90	$45.25	4.60%	4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	9.79%
Southern Company	SO	$2.80	$68.47	4.00%	4.25%	4.50%	4.75%	5.00%	5.26%	5.51%	9.53%
Xcel Energy Inc.	XEL	$2.08	$61.98	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	9.21%
Mean					4.78%	4.92%	5.07%	5.22%	5.36%	5.51%	9.68%
Median					4.75%	4.90%	5.05%	5.20%	5.36%	5.51%	9.65%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 180-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: 30 DAYS

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.18	7.40%	7.08%	6.77%	6.45%	6.14%	5.82%	5.51%	11.52%
Alliant Energy Corporation	LNT	$1.81	$49.32	6.48%	6.32%	6.16%	6.00%	5.83%	5.67%	5.51%	9.68%
Ameren Corporation	AEE	$2.52	$76.88	6.43%	6.28%	6.12%	5.97%	5.82%	5.66%	5.51%	9.21%
American Electric Power Company, Inc.	AEP	$3.52	$76.65	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.31%
Avista Corporation	AVA	$1.84	$33.32	5.93%	5.86%	5.79%	5.72%	5.65%	5.58%	5.51%	11.64%
CMS Energy Corporation	CMS	$1.95	$55.46	7.23%	6.95%	6.66%	6.37%	6.08%	5.79%	5.51%	9.68%
Duke Energy Corporation	DUK	$4.10	$88.52	5.88%	5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.61%
Entergy Corporation	ETR	$4.52	$96.53	5.97%	5.89%	5.81%	5.74%	5.66%	5.58%	5.51%	10.69%
Evergy, Inc.	EVRG	$2.57	$49.33	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.91%
IDACORP, Inc.	IDA	$3.32	$96.12	3.93%	4.20%	4.46%	4.72%	4.98%	5.24%	5.51%	8.87%
NextEra Energy, Inc.	NEE	$1.87	$56.48	8.62%	8.10%	7.58%	7.06%	6.54%	6.03%	5.51%	9.76%
NorthWestern Corporation	NWE	$2.56	$49.46	4.26%	4.47%	4.68%	4.88%	5.09%	5.30%	5.51%	10.72%
OGE Energy Corporation	OGE	$1.67	$34.43	5.10%	5.17%	5.24%	5.30%	5.37%	5.44%	5.51%	10.63%
Pinnacle West Capital Corporation	PNW	$3.52	$72.98	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.50%
Portland General Electric Company	POR	$1.90	$40.73	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	10.45%
Southern Company	SO	$2.80	$68.05	5.87%	5.81%	5.75%	5.69%	5.63%	5.57%	5.51%	10.03%
Xcel Energy Inc.	XEL	$2.08	$59.77	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.41%
Mean					5.78%	5.72%	5.67%	5.62%	5.56%	5.51%	10.27%
Median					5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.45%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 30-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 20

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: **90** **DAYS**

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.27	7.40%	7.08%	6.77%	6.45%	6.14%	5.82%	5.51%	11.51%
Alliant Energy Corporation	LNT	$1.81	$49.86	6.48%	6.32%	6.16%	6.00%	5.83%	5.67%	5.51%	9.63%
Ameren Corporation	AEE	$2.52	$78.29	6.43%	6.28%	6.12%	5.97%	5.82%	5.66%	5.51%	9.14%
American Electric Power Company, Inc.	AEP	$3.52	$77.17	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.28%
Avista Corporation	AVA	$1.84	$33.50	5.93%	5.86%	5.79%	5.72%	5.65%	5.58%	5.51%	11.60%
CMS Energy Corporation	CMS	$1.95	$55.55	7.23%	6.95%	6.66%	6.37%	6.08%	5.79%	5.51%	9.67%
Duke Energy Corporation	DUK	$4.10	$89.10	5.88%	5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.58%
Entergy Corporation	ETR	$4.52	$95.22	5.97%	5.89%	5.81%	5.74%	5.66%	5.58%	5.51%	10.77%
Evergy, Inc.	EVRG	$2.57	$52.10	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.61%
IDACORP, Inc.	IDA	$3.32	$95.86	3.93%	4.20%	4.46%	4.72%	4.98%	5.24%	5.51%	8.88%
NextEra Energy, Inc.	NEE	$1.87	$61.29	8.62%	8.10%	7.58%	7.06%	6.54%	6.03%	5.51%	9.43%
NorthWestern Corporation	NWE	$2.56	$50.42	4.26%	4.47%	4.68%	4.88%	5.09%	5.30%	5.51%	10.61%
OGE Energy Corporation	OGE	$1.67	$34.14	5.10%	5.17%	5.24%	5.30%	5.37%	5.44%	5.51%	10.68%
Pinnacle West Capital Corporation	PNW	$3.52	$75.15	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.35%
Portland General Electric Company	POR	$1.90	$42.56	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	10.23%
Southern Company	SO	$2.80	$67.52	5.87%	5.81%	5.75%	5.69%	5.63%	5.57%	5.51%	10.06%
Xcel Energy Inc.	XEL	$2.08	$58.79	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.48%
Mean					5.78%	5.72%	5.67%	5.62%	5.56%	5.51%	10.21%
Median					5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.28%

Notes:
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[2] Bloomberg Professional 90-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 20

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: 180 DAYS

Company		1 Annualized Dividend	2 Stock Price	3 First Stage Gwth Rate	4 Year 6	5 Year 7	6 Year 8	7 Year 9	8 Year 10	9 Third Stage Growth Rate	10 ROE
ALLETE, Inc.	ALE	$2.71	$56.88	7.40%	7.08%	6.77%	6.45%	6.14%	5.82%	5.51%	11.23%
Alliant Energy Corporation	LNT	$1.81	$51.12	6.48%	6.32%	6.16%	6.00%	5.83%	5.67%	5.51%	9.53%
Ameren Corporation	AEE	$2.52	$81.27	6.43%	6.28%	6.12%	5.97%	5.82%	5.66%	5.51%	9.01%
American Electric Power Company, Inc.	AEP	$3.52	$81.52	5.00%	5.08%	5.17%	5.25%	5.34%	5.42%	5.51%	10.02%
Avista Corporation	AVA	$1.84	$36.89	5.93%	5.86%	5.79%	5.72%	5.65%	5.58%	5.51%	11.03%
CMS Energy Corporation	CMS	$1.95	$57.38	7.23%	6.95%	6.66%	6.37%	6.08%	5.79%	5.51%	9.54%
Duke Energy Corporation	DUK	$4.10	$90.33	5.88%	5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.51%
Entergy Corporation	ETR	$4.52	$97.81	5.97%	5.89%	5.81%	5.74%	5.66%	5.58%	5.51%	10.62%
Evergy, Inc.	EVRG	$2.57	$55.28	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.31%
IDACORP, Inc.	IDA	$3.32	$100.25	3.93%	4.20%	4.46%	4.72%	4.98%	5.24%	5.51%	8.72%
NextEra Energy, Inc.	NEE	$1.87	$67.60	8.62%	8.10%	7.58%	7.06%	6.54%	6.03%	5.51%	9.06%
NorthWestern Corporation	NWE	$2.56	$53.59	4.26%	4.47%	4.68%	4.88%	5.09%	5.30%	5.51%	10.30%
OGE Energy Corporation	OGE	$1.67	$34.93	5.10%	5.17%	5.24%	5.30%	5.37%	5.44%	5.51%	10.56%
Pinnacle West Capital Corporation	PNW	$3.52	$76.59	4.77%	4.89%	5.01%	5.14%	5.26%	5.38%	5.51%	10.25%
Portland General Electric Company	POR	$1.90	$45.25	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	9.94%
Southern Company	SO	$2.80	$68.47	5.87%	5.81%	5.75%	5.69%	5.63%	5.57%	5.51%	10.00%
Xcel Energy Inc.	XEL	$2.08	$61.98	6.30%	6.17%	6.04%	5.90%	5.77%	5.64%	5.51%	9.27%
Mean					5.78%	5.72%	5.67%	5.62%	5.56%	5.51%	9.99%
Median					5.82%	5.76%	5.70%	5.63%	5.57%	5.51%	10.02%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 180-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: 30 DAYS

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.18	8.10%	7.67%	7.24%	6.80%	6.37%	5.94%	5.51%	11.75%
Alliant Energy Corporation	LNT	$1.81	$49.32	6.65%	6.46%	6.27%	6.08%	5.89%	5.70%	5.51%	9.72%
Ameren Corporation	AEE	$2.52	$76.88	6.60%	6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	9.25%
American Electric Power Company, Inc.	AEP	$3.52	$76.65	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	10.75%
Avista Corporation	AVA	$1.84	$33.32	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	11.66%
CMS Energy Corporation	CMS	$1.95	$55.46	7.70%	7.33%	6.97%	6.60%	6.24%	5.87%	5.51%	9.79%
Duke Energy Corporation	DUK	$4.10	$88.52	6.55%	6.38%	6.20%	6.03%	5.85%	5.68%	5.51%	10.81%
Entergy Corporation	ETR	$4.52	$96.53	11.00%	10.08%	9.17%	8.25%	7.34%	6.42%	5.51%	12.33%
Evergy, Inc.	EVRG	$2.57	$49.33	7.50%	7.17%	6.84%	6.50%	6.17%	5.84%	5.51%	11.80%
IDACORP, Inc.	IDA	$3.32	$96.12	4.10%	4.33%	4.57%	4.80%	5.04%	5.27%	5.51%	8.90%
NextEra Energy, Inc.	NEE	$1.87	$56.48	9.50%	8.83%	8.17%	7.50%	6.84%	6.17%	5.51%	9.98%
NorthWestern Corporation	NWE	$2.56	$49.46	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	11.01%
OGE Energy Corporation	OGE	$1.67	$34.43	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	11.06%
Pinnacle West Capital Corporation	PNW	$3.52	$72.98	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	10.83%
Portland General Electric Company	POR	$1.90	$40.73	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	10.68%
Southern Company	SO	$2.80	$68.05	7.10%	6.83%	6.57%	6.30%	6.04%	5.77%	5.51%	10.36%
Xcel Energy Inc.	XEL	$2.08	$59.77	6.80%	6.58%	6.37%	6.15%	5.94%	5.72%	5.51%	9.53%
Mean					6.69%	6.45%	6.22%	5.98%	5.74%	5.51%	10.60%
Median					6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	10.75%

Notes:
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[2] Bloomberg Professional 30-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: **90** **DAYS**

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$54.27	8.10%	7.67%	7.24%	6.80%	6.37%	5.94%	5.51%	11.74%
Alliant Energy Corporation	LNT	$1.81	$49.86	6.65%	6.46%	6.27%	6.08%	5.89%	5.70%	5.51%	9.67%
Ameren Corporation	AEE	$2.52	$78.29	6.60%	6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	9.18%
American Electric Power Company, Inc.	AEP	$3.52	$77.17	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	10.71%
Avista Corporation	AVA	$1.84	$33.50	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	11.62%
CMS Energy Corporation	CMS	$1.95	$55.55	7.70%	7.33%	6.97%	6.60%	6.24%	5.87%	5.51%	9.79%
Duke Energy Corporation	DUK	$4.10	$89.10	6.55%	6.38%	6.20%	6.03%	5.85%	5.68%	5.51%	10.77%
Entergy Corporation	ETR	$4.52	$95.22	11.00%	10.08%	9.17%	8.25%	7.34%	6.42%	5.51%	12.42%
Evergy, Inc.	EVRG	$2.57	$52.10	7.50%	7.17%	6.84%	6.50%	6.17%	5.84%	5.51%	11.47%
IDACORP, Inc.	IDA	$3.32	$95.86	4.10%	4.33%	4.57%	4.80%	5.04%	5.27%	5.51%	8.91%
NextEra Energy, Inc.	NEE	$1.87	$61.29	9.50%	8.83%	8.17%	7.50%	6.84%	6.17%	5.51%	9.63%
NorthWestern Corporation	NWE	$2.56	$50.42	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	10.90%
OGE Energy Corporation	OGE	$1.67	$34.14	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	11.11%
Pinnacle West Capital Corporation	PNW	$3.52	$75.15	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	10.68%
Portland General Electric Company	POR	$1.90	$42.56	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	10.46%
Southern Company	SO	$2.80	$67.52	7.10%	6.83%	6.57%	6.30%	6.04%	5.77%	5.51%	10.40%
Xcel Energy Inc.	XEL	$2.08	$58.79	6.80%	6.58%	6.37%	6.15%	5.94%	5.72%	5.51%	9.60%
Mean					6.69%	6.45%	6.22%	5.98%	5.74%	5.51%	10.53%
Median					6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	10.68%

Notes:
[1] Bloomberg Professional as of November 30, 2023
[2] Bloomberg Professional 90-day average as of November 30, 2023
[3] Attachment PAC 404
[4] Equals [3] + ([9] − [3]) / 6
[5] Equals [4] + ([9] − [3]) / 6
[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

MULTI-STAGE DCF

AVERAGE FIRST STAGE GROWTH RATE
STOCK PRICE AVERAGING CONVENTION: **180** **DAYS**

		1	2	3	4	5	6	7	8	9	10
Company		Annualized Dividend	Stock Price	First Stage Gwth Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Third Stage Growth Rate	ROE
ALLETE, Inc.	ALE	$2.71	$56.88	8.10%	7.67%	7.24%	6.80%	6.37%	5.94%	5.51%	11.45%
Alliant Energy Corporation	LNT	$1.81	$51.12	6.65%	6.46%	6.27%	6.08%	5.89%	5.70%	5.51%	9.57%
Ameren Corporation	AEE	$2.52	$81.27	6.60%	6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	9.04%
American Electric Power Company, Inc.	AEP	$3.52	$81.52	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	10.43%
Avista Corporation	AVA	$1.84	$36.89	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	11.05%
CMS Energy Corporation	CMS	$1.95	$57.38	7.70%	7.33%	6.97%	6.60%	6.24%	5.87%	5.51%	9.65%
Duke Energy Corporation	DUK	$4.10	$90.33	6.55%	6.38%	6.20%	6.03%	5.85%	5.68%	5.51%	10.70%
Entergy Corporation	ETR	$4.52	$97.81	11.00%	10.08%	9.17%	8.25%	7.34%	6.42%	5.51%	12.24%
Evergy, Inc.	EVRG	$2.57	$55.28	7.50%	7.17%	6.84%	6.50%	6.17%	5.84%	5.51%	11.12%
IDACORP, Inc.	IDA	$3.32	$100.25	4.10%	4.33%	4.57%	4.80%	5.04%	5.27%	5.51%	8.76%
NextEra Energy, Inc.	NEE	$1.87	$67.60	9.50%	8.83%	8.17%	7.50%	6.84%	6.17%	5.51%	9.25%
NorthWestern Corporation	NWE	$2.56	$53.59	5.20%	5.25%	5.30%	5.35%	5.40%	5.46%	5.51%	10.57%
OGE Energy Corporation	OGE	$1.67	$34.93	6.50%	6.33%	6.17%	6.00%	5.84%	5.67%	5.51%	10.98%
Pinnacle West Capital Corporation	PNW	$3.52	$76.59	5.90%	5.83%	5.77%	5.70%	5.64%	5.57%	5.51%	10.58%
Portland General Electric Company	POR	$1.90	$45.25	6.00%	5.92%	5.84%	5.75%	5.67%	5.59%	5.51%	10.16%
Southern Company	SO	$2.80	$68.47	7.10%	6.83%	6.57%	6.30%	6.04%	5.77%	5.51%	10.33%
Xcel Energy Inc.	XEL	$2.08	$61.98	6.80%	6.58%	6.37%	6.15%	5.94%	5.72%	5.51%	9.39%
Mean					6.69%	6.45%	6.22%	5.98%	5.74%	5.51%	10.31%
Median					6.42%	6.24%	6.05%	5.87%	5.69%	5.51%	10.43%

Notes:
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[6] Equals [5] + ([9] − [3]) / 6
[7] Equals [6] + ([9] − [3]) / 6
[8] Equals [7] + ([9] − [3]) / 6
[9] Attachment PAC 406
[10] Equals internal rate of return of cash flows for Year 0 through Year 200

Docket No. UE 433
Exhibit PAC/406
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Gross Domestic Product Growth

February 2024

CALCULATION OF LONG-TERM GROWTH RATE FOR MULTI-STAGE DCF

Historical GDP Growth		
Real GDP ($ Billions) [1]	1929	$ 1,191.1
	2022	$ 21,822.0
Compound Annual Growth Rate		**3.18%**
Inflation Forecast		
Consumer Price Index (YoY % Change) [2]	2030-2034	2.20%
Consumer Price Index (All-Urban) [3]	2033	3.78
	2050	5.54
Compound Annual Growth Rate		2.27%
GDP Chain-type Price Index (2012=1.000) [3]	2033	1.65
	2050	2.43
Compound Annual Growth Rate		2.31%
Average Inflation Forecast		**2.26%**
Long-Term GDP Growth Rate		**5.51%**

Notes:
[1] Bureau of Economic Analysis, November 30, 2023
[2] *Blue Chip Financial Forecasts*, Vol. 42, No. 6, June 1, 2023, at 14
[3] Energy Information Administration, Annual Energy Outlook 2023, at Table 20, March 16, 2023

Docket No. UE 433
Exhibit PAC/407
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Capital Asset Pricing Model and Empirical Capital Asset Pricing Model

February 2024

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Current 30-day average of 30-year U.S. Treasury bond yield	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM 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%
OGE Energy Corporation	OGE	4.77%	1.05	12.56%	7.78%	12.95%	12.85%
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						11.73%	11.94%
Median						11.78%	11.97%

Notes:
[1] Bloomberg Professional 30-day average as of November 30, 2023
[2] Value Line
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

Company	Ticker	[1] Near-term projected 30-year U.S. Treasury bond yield (Q1 2024 - Q1 2025)	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] CAPM ROE (K)	[6] 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%
OGE Energy Corporation	OGE	4.48%	1.05	12.56%	8.08%	12.96%	12.86%
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						11.70%	11.91%
Median						11.75%	11.95%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Value Line
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM 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%
OGE Energy Corporation	OGE	4.10%	1.05	12.56%	8.46%	12.98%	12.87%
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						11.66%	11.88%
Median						11.71%	11.92%

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

CAPITAL ASSET PRICING MODEL
CURRENT RISK FREE RATE AND BLOOMBERG BETA

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

		[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)	CAPM 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%
OGE Energy Corporation	OGE	4.77%	0.92	12.56%	7.78%	11.90%	12.06%
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						10.95%	11.35%
Median						10.92%	11.33%

Notes:
[1] Bloomberg Professional 30-day average as of November 30, 2023
[2] Bloomberg Professional
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q1 2024 - Q1 2025)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM 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%
OGE Energy Corporation	OGE	4.48%	0.92	12.56%	8.08%	11.87%	12.04%
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						10.89%	11.31%
Median						10.85%	11.28%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Bloomberg Professional
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM 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%
OGE Energy Corporation	OGE	4.10%	0.92	12.56%	8.46%	11.84%	12.02%
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						10.81%	11.25%
Median						10.77%	11.22%

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

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

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

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Return (Rm)	[4] Market Risk Premium (Rm − Rf)	[5] CAPM ROE (K)	[6] 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%
OGE Energy Corporation	OGE	4.77%	0.93	12.56%	7.78%	12.01%	12.15%
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						10.59%	11.08%
Median						10.49%	11.01%

Notes:
[1] Bloomberg Professional 30-day average as of November 30, 2023
[2] Source: LT Beta
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Near-term projected 30-year U.S. Treasury bond yield (Q1 2024 - Q1 2025)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM ROE (K)	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%
OGE Energy Corporation	OGE	4.48%	0.93	12.56%	8.08%	11.99%	12.13%
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						10.51%	11.02%
Median						10.42%	10.95%

Notes:
[1] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 2
[2] Source: LT Beta
[3] Market Return
[4] Equals [3]-[1]
[5] Equals [1] + [2] x [4]
[6] Equals [1] + 0.25 x ([4]) + 0.75 x ([2] x [4])

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

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

		[1]	[2]	[3]	[4]	[5]	[6]
Company	Ticker	Projected 30-year U.S. Treasury bond yield (2025 - 2029)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm − Rf)	CAPM 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%
OGE Energy Corporation	OGE	4.10%	0.93	12.56%	8.46%	11.96%	12.11%
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						10.42%	10.95%
Median						10.32%	10.88%

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

Docket No. UE 433
Exhibit PAC/408
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Long-Term Beta Coefficient

February 2024

HISTORICAL VALUE LINE BETA

Company	Ticker	[1] 12/31/2013	[2] 12/31/2014	[3] 12/31/2015	[4] 12/31/2016	[5] 12/31/2017	[6] 12/31/2018	[7] 12/31/2019	[8] 12/31/2020	[9] 12/31/2021	[10] 12/31/2022	[11] 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
OGE Energy Corporation	OGE	0.85	0.90	0.95	0.90	0.95	0.85	0.75	1.10	1.05	1.00	0.93
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		0.72	0.73	0.75	0.68	0.69	0.58	0.57	0.89	0.89	0.87	0.75

Notes:
[1] Value Line, December 26, 2013
[2] Value Line, December 31, 2014
[3] Value Line, December 30, 2015
[4] Value Line, December 29, 2016
[5] Value Line, December 28, 2017
[6] Value Line, December 27, 2018
[7] Value Line, December 26, 2019
[8] Value Line, December 30, 2020
[9] Value Line, December 29, 2021
[10] Value Line, December 30, 2022
[11] Average ([1] - [10])

Docket No. UE 433
Exhibit PAC/409
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Market Return

February 2024

MARKET RISK PREMIUM DERIVED FROM S&P 500 INDEX

[1] Estimate of the S&P 500 Dividend Yield	1.69%
[2] Estimate of the S&P 500 Growth Rate	10.78%
[3] S&P 500 Estimated Required Market Return	12.56%

		[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	324.362	95.1	30,846.83	0.11%	5.26%	0.01%	8.00%	0.01%
American Express Co	AXP	728.746	170.77	124,447.95	0.42%	1.41%	0.01%	14.01%	0.06%
Verizon Communications Inc	VZ	4204.102	38.33	161,143.23		6.94%			
Broadcom Inc	AVGO	469.426	925.73	434,561.73	1.48%	1.99%	0.03%	13.89%	0.21%
Boeing Co/The	BA	604.977	231.63	140,130.82				183.61%	
Caterpillar Inc	CAT	509.085	250.72	127,637.79	0.43%	2.07%	0.01%	20.00%	0.09%
JPMorgan Chase & Co	JPM	2891.008	156.08	451,228.53	1.54%	2.69%	0.04%	1.00%	0.02%
Chevron Corp	CVX	1887.749	143.6	271,080.76	0.92%	4.21%	0.04%	7.27%	0.07%
Coca-Cola Co/The	KO	4323.414	58.44	252,660.31	0.86%	3.15%	0.03%	6.51%	0.06%
AbbVie Inc	ABBV	1765.537	142.39	251,394.81	0.86%	4.35%	0.04%	0.19%	0.00%
Walt Disney Co/The	DIS	1830.316	92.69	169,651.99	0.58%	0.65%	0.00%	18.88%	0.11%
FleetCor Technologies Inc	FLT	72.204	240.5	17,365.06	0.06%			12.92%	0.01%
Extra Space Storage Inc	EXR	211.278	130.17	27,502.06	0.09%	4.98%	0.00%	1.10%	0.00%
Exxon Mobil Corp	XOM	4006.133	102.74	411,590.10		3.70%		45.59%	
Phillips 66	PSX	439.956	128.89	56,705.93	0.19%	3.26%	0.01%	15.21%	0.03%
General Electric Co	GE	1088.386	121.8	132,565.41		0.26%		22.50%	
HP Inc	HPQ	988.269	29.34	28,995.81	0.10%	3.76%	0.00%	3.00%	0.00%
Home Depot Inc/The	HD	995.262	313.49	312,004.68	1.06%	2.67%	0.03%	1.69%	0.02%
Monolithic Power Systems Inc	MPWR	47.912	548.72	26,290.27	0.09%	0.73%	0.00%	8.00%	0.01%
International Business Machines Corp	IBM	913.119	158.56	144,784.15	0.49%	4.19%	0.02%	2.77%	0.01%
Johnson & Johnson	JNJ	2407.279	154.66	372,309.77	1.27%	3.08%	0.04%	3.86%	0.05%
Lululemon Athletica Inc	LULU	121.425	446.8	54,252.69	0.18%			16.00%	0.03%
McDonald's Corp	MCD	725.342	281.84	204,430.39	0.70%	2.37%	0.02%	9.34%	0.07%
Merck & Co Inc	MRK	2534.023	102.48	259,686.68	0.88%	3.01%	0.03%	9.08%	0.08%
3M Co	MMM	552.317	99.07	54,718.05	0.19%	6.06%	0.01%	4.00%	0.01%
American Water Works Co Inc	AWK	194.705	131.84	25,669.91	0.09%	2.15%	0.00%	8.00%	0.01%
Bank of America Corp	BAC	7913.732	30.49	241,289.69		3.15%		-5.00%	
Pfizer Inc	PFE	5646.413	30.47	172,046.20		5.38%		50.40%	
Procter & Gamble Co/The	PG	2356.886	153.52	361,829.14	1.23%	2.45%	0.03%	7.51%	0.09%
AT&T Inc	T	7150.02	16.57	118,475.83	0.40%	6.70%	0.03%	3.36%	0.01%
Travelers Cos Inc/The	TRV	228.399	180.62	41,253.43	0.14%	2.21%	0.00%	15.33%	0.02%
RTX Corp	RTX	1437.901	81.48	117,160.17	0.40%	2.90%	0.01%	8.61%	0.03%
Analog Devices Inc	ADI	496.262	182.5199	90,577.69	0.31%	1.88%	0.01%	4.50%	0.01%
Walmart Inc	WMT	2692.234	155.69	419,153.91	1.43%	1.46%	0.02%	3.00%	0.04%
Cisco Systems Inc	CSCO	4063.476	48.38	196,590.97	0.67%	3.22%	0.02%	10.00%	0.07%
Intel Corp	INTC	4216	44.7	188,455.20		1.12%		-1.82%	
General Motors Co	GM	1369.481	31.6	43,275.60		1.14%		-4.65%	
Microsoft Corp	MSFT	7432.262	378.91	2,816,158.39	9.59%	0.79%	0.08%	15.72%	1.51%
Dollar General Corp	DG	219.476	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	2222.774	17.57	39,054.14	0.13%	6.43%	0.01%	2.00%	0.00%
Citigroup Inc	C	1913.882	46.1	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	1768.647	42.04	74,353.92	0.25%	9.32%	0.02%	4.50%	0.01%
HCA Healthcare Inc	HCA	267.661	250.48	67,043.73	0.23%	0.96%	0.00%	7.56%	0.02%
International Paper Co	IP	346.017	36.94	12,781.87		5.01%		-2.00%	
Hewlett Packard Enterprise Co	HPE	1283	16.91	21,695.53	0.07%	3.08%	0.00%	3.03%	0.00%
Abbott Laboratories	ABT	1736.059	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	222.208	270.55	60,118.37	0.20%	2.59%	0.01%	12.55%	0.03%
Royal Caribbean Cruises Ltd	RCL	256.235	107.46	27,535.01					
Hess Corp	HES	307.152	140.56	43,173.29	0.15%	1.25%	0.00%	13.00%	0.02%
Archer-Daniels-Midland Co	ADM	533.381	73.73	39,326.18		2.44%		-7.07%	
Automatic Data Processing Inc	ADP	411.305	229.92	94,567.25	0.32%	2.44%	0.01%	16.00%	0.05%
Verisk Analytics Inc	VRSK	144.987	241.43	35,004.21	0.12%	0.56%	0.00%	12.15%	0.01%
AutoZone Inc	AZO	17.634	2609.93	46,023.51	0.16%			13.72%	0.02%
Linde PLC	LIN	484.89	412.4952	200,014.80	0.68%	1.24%	0.01%	14.00%	0.10%
Avery Dennison Corp	AVY	80.531	194.5	15,663.28	0.05%	1.67%	0.00%	7.00%	0.00%
Enphase Energy Inc	ENPH	136.551	101.02	13,794.38				28.59%	
MSCI Inc	MSCI	79.091	520.85	41,194.55	0.14%	1.06%	0.00%	14.48%	0.02%
Ball Corp	BALL	315.301	55.29	17,432.99	0.06%	1.45%	0.00%	10.30%	0.01%
Axon Enterprise Inc	AXON	74.934	229.87	17,225.08					
Ceridian HCM Holding Inc	CDAY	156.127	68.9	10,757.15					
Carrier Global Corp	CARR	839.047	51.96	43,596.88	0.15%	1.42%	0.00%	10.80%	0.02%
Bank of New York Mellon Corp/The	BK	769.073	48.32	37,161.61	0.13%	3.48%	0.00%	10.00%	0.01%
Otis Worldwide Corp	OTIS	409.259	85.79	35,110.33	0.12%	1.59%	0.00%	9.00%	0.01%
Baxter International Inc	BAX	507.324	36.08	18,304.25		3.22%		-1.17%	
Becton Dickinson & Co	BDX	290.405	236.18	68,587.85		1.61%		-2.02%	
Berkshire Hathaway Inc	BRK/B	1308.414	360	471,029.04					
Best Buy Co Inc	BBY	217.638	70.94	15,439.24	0.05%	5.19%	0.00%	2.93%	0.00%
Boston Scientific Corp	BSX	1464.983	55.89	81,877.90	0.28%			12.10%	0.03%
Bristol-Myers Squibb Co	BMY	2034.758	49.38	100,476.35	0.34%	4.62%	0.02%	9.92%	0.03%
Brown-Forman Corp	BF/B	310.136	58.74	18,217.39	0.06%	1.48%	0.00%	6.42%	0.00%
Coterra Energy Inc	CTRA	752.192	26.25	19,745.04		3.05%		55.04%	
Campbell Soup Co	CPB	297.622	40.18	11,958.45	0.04%	3.68%	0.00%	2.81%	0.00%
Hilton Worldwide Holdings Inc	HLT	256.44	167.52	42,958.83	0.15%	0.36%	0.00%	17.09%	0.03%
Carnival Corp	CCL	1119.445	15.06	16,858.84					
Qorvo Inc	QRVO	97.346	96.5	9,393.89	0.03%			10.04%	0.00%
UDR Inc	UDR	328.928	33.4	10,986.20	0.04%	5.03%	0.00%	6.08%	0.00%
Clorox Co/The	CLX	124.059	143.35	17,783.86	0.06%	3.35%	0.00%	11.53%	0.01%
Paycom Software Inc	PAYC	60.228	181.66	10,941.02	0.04%	0.83%	0.00%	15.19%	0.01%
CMS Energy Corp	CMS	291.764	56.76	16,560.52	0.06%	3.44%	0.00%	7.75%	0.00%
Colgate-Palmolive Co	CL	823.372	78.77	64,857.01	0.22%	2.44%	0.01%	7.21%	0.02%
EPAM Systems Inc	EPAM	57.7	258.19	14,897.56	0.05%			4.87%	0.00%
Comerica Inc	CMA	131.873	45.22	5,963.30	0.02%	6.28%	0.00%	10.63%	0.00%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Conagra Brands Inc	CAG	477.968	28.29	13,521.71	0.05%	4.95%	0.00%	0.84%	0.00%
Airbnb Inc	ABNB	434.745	126.34	54,925.68	0.19%			18.20%	0.03%
Consolidated Edison Inc	ED	344.924	90.11	31,081.10	0.11%	3.60%	0.00%	4.88%	0.01%
Corning Inc	GLW	853.175	28.49	24,306.96	0.08%	3.93%	0.00%	1.57%	0.00%
Cummins Inc	CMI	141.745	224.16	31,773.56	0.11%	3.00%	0.00%	9.15%	0.01%
Caesars Entertainment Inc	CZR	215.711	44.72	9,646.60				110.92%	
Danaher Corp	DHR	738.927	223.31	165,009.79		0.48%		-7.03%	
Target Corp	TGT	461.662	133.81	61,774.99	0.21%	3.29%	0.01%	0.15%	0.00%
Deere & Co	DE	288.001	364.41	104,950.44	0.36%	1.48%	0.01%	3.96%	0.01%
Dominion Energy Inc	D	836.773	45.34	37,939.29		5.89%		-0.72%	
Dover Corp	DOV	139.89	141.16	19,746.87	0.07%	1.45%	0.00%	10.00%	0.01%
Alliant Energy Corp	LNT	252.719	50.57	12,780.00	0.04%	3.58%	0.00%	6.26%	0.00%
Steel Dynamics Inc	STLD	161.816	119.13	19,277.14		1.43%		-13.17%	
Duke Energy Corp	DUK	771	92.28	71,147.88	0.24%	4.44%	0.01%	6.06%	0.01%
Regency Centers Corp	REG	184.576	62.78	11,587.68	0.04%	4.27%	0.00%	4.64%	0.00%
Eaton Corp PLC	ETN	399.3	227.69	90,916.62	0.31%	1.51%	0.00%	15.00%	0.05%
Ecolab Inc	ECL	285.14	191.73	54,669.89	0.19%	1.11%	0.00%	16.00%	0.03%
Revvity Inc	RVTY	123.407	88.9	10,970.88		0.31%		-26.69%	
Emerson Electric Co	EMR	570.1	88.9	50,681.89	0.17%	2.36%	0.00%	12.01%	0.02%
EOG Resources Inc	EOG	583.15	123.07	71,768.27	0.24%	2.96%	0.01%	17.83%	0.04%
Aon PLC	AON	200.216	328.49	65,768.95	0.22%	0.75%	0.00%	11.58%	0.03%
Entergy Corp	ETR	211.456	101.41	21,443.75	0.07%	4.46%	0.00%	6.22%	0.00%
Equifax Inc	EFX	123.217	217.71	26,825.57	0.09%	0.72%	0.00%	12.33%	0.01%
EQT Corp	EQT	411.332	39.96	16,436.83		1.58%		20.04%	
IQVIA Holdings Inc	IQV	182.5	214.1	39,073.25				-13.67%	
Gartner Inc	IT	77.949	434.84	33,895.34	0.12%			7.35%	0.01%
FedEx Corp	FDX	251.42	258.83	65,075.04	0.22%	1.95%	0.00%	14.50%	0.03%
FMC Corp	FMC	124.759	53.66	6,694.57		4.32%		-4.00%	
Brown & Brown Inc	BRO	284.598	74.74	21,270.85	0.07%	0.70%	0.00%	11.00%	0.01%
Ford Motor Co	F	3932.102	10.26	40,343.37		5.85%		-2.52%	
NextEra Energy Inc	NEE	2023.714	58.51	118,407.51	0.40%	3.20%	0.01%	8.10%	0.03%
Franklin Resources Inc	BEN	494.584	24.8	12,265.68		4.84%		-9.00%	
Garmin Ltd	GRMN	191.331	122.24	23,388.30	0.08%	2.39%	0.00%	5.60%	0.00%
Freeport-McMoRan Inc	FCX	1433.977	37.32	53,516.02		1.61%		-15.66%	
Dexcom Inc	DXCM	386.374	115.52	44,633.92				30.59%	
General Dynamics Corp	GD	272.897	246.97	67,397.37	0.23%	2.14%	0.00%	10.40%	0.02%
General Mills Inc	GIS	581.279	63.66	37,004.22	0.13%	3.71%	0.00%	8.00%	0.01%
Genuine Parts Co	GPC	140.197	132.78	18,615.36	0.06%	2.86%	0.00%	9.49%	0.01%
Atmos Energy Corp	ATO	148.496	113.81	16,900.33	0.06%	2.83%	0.00%	7.25%	0.00%
WW Grainger Inc	GWW	49.634	786.19	39,021.75		0.95%			
Halliburton Co	HAL	895.052	37.03	33,143.78		1.73%		24.14%	
L3Harris Technologies Inc	LHX	189.54	190.81	36,166.13	0.12%	2.39%	0.00%	3.50%	0.00%
Healthpeak Properties Inc	PEAK	547.074	17.32	9,475.32	0.03%	6.93%	0.00%	1.24%	0.00%
Insulet Corp	PODD	69.828	189.09	13,203.78				41.08%	
Catalent Inc	CTLT	180.272	38.85	7,003.57	0.02%			9.24%	0.00%
Fortive Corp	FTV	351.434	68.98	24,241.92	0.08%	0.46%	0.00%	8.68%	0.01%
Hershey Co/The	HSY	149.885	187.92	28,166.39	0.10%	2.54%	0.00%	9.00%	0.01%
Synchrony Financial	SYF	413.804	32.36	13,390.70		3.09%			
Hormel Foods Corp	HRL	546.481	30.59	16,716.85	0.06%	3.69%	0.00%	1.08%	0.00%
Arthur J Gallagher & Co	AJG	215.9	249	53,759.10	0.18%	0.88%	0.00%	14.11%	0.03%
Mondelez International Inc	MDLZ	1360.896	71.06	96,705.27	0.33%	2.39%	0.01%	9.17%	0.03%
CenterPoint Energy Inc	CNP	629.432	28.27	17,794.04	0.06%	2.83%	0.00%	8.02%	0.00%
Humana Inc	HUM	123.111	484.86	59,691.60	0.20%	0.73%	0.00%	12.32%	0.03%
Willis Towers Watson PLC	WTW	103.26	246.3	25,432.94	0.09%	1.36%	0.00%	11.19%	0.01%
Illinois Tool Works Inc	ITW	300.886	242.21	72,877.60	0.25%	2.31%	0.01%	3.91%	0.01%
CDW Corp/DE	CDW	133.96	210.88	28,249.48	0.10%	1.18%	0.00%	13.10%	0.01%
Trane Technologies PLC	TT	227.557	225.41	51,293.62	0.17%	1.33%	0.00%	13.29%	0.02%
Interpublic Group of Cos Inc/The	IPG	383.004	30.74	11,773.54	0.04%	4.03%	0.00%	5.71%	0.00%
International Flavors & Fragrances Inc	IFF	255.279	75.38	19,242.93	0.07%	4.30%	0.00%	5.50%	0.00%
Generac Holdings Inc	GNRC	61.432	117.07	7,191.84	0.02%			5.00%	0.00%
NXP Semiconductors NV	NXPI	257.763	204.08	52,604.27		1.99%		34.00%	
Kellanova	K	342.52	52.54	17,996.00	0.06%	4.26%	0.00%	1.69%	0.00%
Broadridge Financial Solutions Inc	BR	117.647	193.82	22,802.34		1.65%			
Kimberly-Clark Corp	KMB	337.941	123.73	41,813.44	0.14%	3.81%	0.01%	9.64%	0.01%
Kimco Realty Corp	KIM	619.892	19.32	11,976.31	0.04%	4.97%	0.00%	4.35%	0.00%
Oracle Corp	ORCL	2739.376	116.21	318,342.88	1.08%	1.38%	0.01%	14.45%	0.16%
Kroger Co/The	KR	719.316	44.27	31,844.12	0.11%	2.62%	0.00%	4.21%	0.00%
Lennar Corp	LEN	250.152	127.92	31,999.44	0.11%	1.17%	0.00%	1.00%	0.00%
Eli Lilly & Co	LLY	949.307	591.04	561,078.41		0.76%		21.47%	
Bath & Body Works Inc	BBWI	227.381	32.62	7,417.17	0.03%	2.45%	0.00%	6.51%	0.00%
Charter Communications Inc	CHTR	147.92	400.13	59,187.23	0.20%			12.31%	0.02%
Loews Corp	L	223.251	70.29	15,692.31		0.36%			
Lowe's Cos Inc	LOW	575.113	198.83	114,349.72		2.21%		20.20%	
Hubbell Inc	HUBB	53.622	300	16,086.60		1.63%			
IDEX Corp	IEX	75.626	201.68	15,252.25	0.05%	1.27%	0.00%	11.00%	0.01%
Marsh & McLennan Cos Inc	MMC	493.072	199.42	98,328.42	0.33%	1.42%	0.00%	11.53%	0.04%
Masco Corp	MAS	224.501	60.55	13,593.54	0.05%	1.88%	0.00%	4.36%	0.00%
S&P Global Inc	SPGI	316.8	415.83	131,734.94	0.45%	0.87%	0.00%	13.66%	0.06%
Medtronic PLC	MDT	1329.654	79.27	105,401.67	0.36%	3.48%	0.01%	4.33%	0.02%
Viatris Inc	VTRS	1199.671	9.18	11,012.98		5.23%		-2.58%	
CVS Health Corp	CVS	1286.897	67.95	87,444.65	0.30%	3.56%	0.01%	6.99%	0.02%
DuPont de Nemours Inc	DD	430.042	71.54	30,765.20	0.10%	2.01%	0.00%	11.43%	0.01%
Micron Technology Inc	MU	1098.034	76.12	83,582.35		0.60%		-11.00%	
Motorola Solutions Inc	MSI	165.968	322.87	53,586.09	0.18%	1.21%	0.00%	10.82%	0.02%
Cboe Global Markets Inc	CBOE	105.556	182.19	19,231.25	0.07%	1.21%	0.00%	10.21%	0.01%
Laboratory Corp of America Holdings	LH	84.9	216.91	18,415.66		1.33%		-32.45%	
Newmont Corp	NEM	1152.492	40.19	46,318.65	0.16%	3.98%	0.01%	11.58%	0.02%
NIKE Inc	NKE	1224.013	109.9	134,519.03	0.46%	1.35%	0.01%	16.07%	0.07%
NiSource Inc	NI	413.415	25.64	10,599.96	0.04%	3.90%	0.00%	7.65%	0.00%
Norfolk Southern Corp	NSC	226.136	218.16	49,333.83	0.17%	2.48%	0.00%	0.73%	0.00%
Principal Financial Group Inc	PFG	238.412	73.83	17,601.96	0.06%	3.63%	0.00%	8.98%	0.01%
Eversource Energy	ES	349.086	59.41	20,739.20	0.07%	4.54%	0.00%	5.21%	0.00%
Northrop Grumman Corp	NOC	150.793	475.16	71,650.80	0.24%	1.57%	0.00%	2.53%	0.01%
Wells Fargo & Co	WFC	3631.64	44.59	161,934.83	0.55%	3.14%	0.02%	13.41%	0.07%

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Nucor Corp	NUE	245.839	169.97	41,785.25		1.20%		-10.84%	
Occidental Petroleum Corp	OXY	880.371	59.15	52,073.94		1.22%			
Omnicom Group Inc	OMC	197.934	80.63	15,959.42	0.05%	3.47%	0.00%	4.72%	0.00%
ONEOK Inc	OKE	582.551	68.85	40,108.64	0.14%	5.55%	0.01%	6.93%	0.01%
Raymond James Financial Inc	RJF	208.607	105.15	21,935.03		1.71%			
PG&E Corp	PCG	2133.508	17.17	36,632.33	0.12%	0.23%	0.00%	6.26%	0.01%
Parker-Hannifin Corp	PH	128.476	433.18	55,653.23	0.19%	1.37%	0.00%	15.28%	0.03%
Rollins Inc	ROL	484.038	40.74	19,719.71	0.07%	1.47%	0.00%	14.86%	0.01%
PPL Corp	PPL	737.089	26.12	19,252.76	0.07%	3.68%	0.00%	4.20%	0.00%
ConocoPhillips	COP	1187.408	115.57	137,228.74	0.47%	0.50%	0.00%	6.00%	0.03%
PulteGroup Inc	PHM	215.595	88.42	19,062.91	0.06%	0.90%	0.00%	2.04%	0.00%
Pinnacle West Capital Corp	PNW	113.312	74.94	8,491.60	0.03%	4.70%	0.00%	5.95%	0.00%
PNC Financial Services Group Inc/The	PNC	398.341	133.96	53,361.76	0.18%	4.63%	0.01%	12.87%	0.02%
PPG Industries Inc	PPG	235.8	141.99	33,481.24	0.11%	1.83%	0.00%	12.91%	0.01%
Progressive Corp/The	PGR	585.041	164.03	95,964.28		0.24%		39.34%	
Veralto Corp	VLTO	246.308	77.25	19,027.29					
Public Service Enterprise Group Inc	PEG	499.111	62.43	31,159.50	0.11%	3.65%	0.00%	5.47%	0.01%
Robert Half Inc	RHI	105.895	81.98	8,681.27	0.03%	2.34%	0.00%	1.26%	0.00%
Cooper Cos Inc/The	COO	49.524	336.92	16,685.63	0.06%	0.02%	0.00%	7.54%	0.00%
Edison International	EIX	383.568	66.99	25,695.22	0.09%	4.40%	0.00%	4.80%	0.00%
Schlumberger NV	SLB	1423.421	52.04	74,074.83		1.92%		33.41%	
Charles Schwab Corp/The	SCHW	1771.682	61.32	108,639.54	0.37%	1.63%	0.01%	3.60%	0.01%
Sherwin-Williams Co/The	SHW	255.966	278.8	71,363.32	0.24%	0.87%	0.00%	10.90%	0.03%
West Pharmaceutical Services Inc	WST	73.99	350.76	25,952.73	0.09%	0.23%	0.00%	5.80%	0.01%
J M Smucker Co/The	SJM	106.133	109.73	11,645.97	0.04%	3.86%	0.00%	5.95%	0.00%
Snap-on Inc	SNA	52.78	274.69	14,498.14	0.05%	2.71%	0.00%	4.85%	0.00%
AMETEK Inc	AME	230.799	155.23	35,826.93	0.12%	0.64%	0.00%	6.36%	0.01%
Southern Co/The	SO	1091.515	70.98	77,475.73	0.26%	3.94%	0.01%	5.05%	0.01%
Truist Financial Corp	TFC	1333.668	32.14	42,864.09	0.15%	6.47%	0.01%	16.00%	0.02%
Southwest Airlines Co	LUV	596.115	25.57	15,242.66	0.05%	2.82%	0.00%	10.15%	0.01%
W R Berkley Corp	WRB	257.872	72.55	18,708.61	0.06%	0.61%	0.00%	13.00%	0.01%
Stanley Black & Decker Inc	SWK	153.311	90.9	13,935.97	0.05%	3.56%	0.00%	9.00%	0.00%
Public Storage	PSA	175.829	258.76	45,497.51	0.15%	4.64%	0.01%	3.77%	0.01%
Arista Networks Inc	ANET	311.1	219.71	68,351.78	0.23%			19.72%	0.05%
Sysco Corp	SYY	504.372	72.17	36,400.53	0.12%	2.77%	0.00%	13.00%	0.02%
Corteva Inc	CTVA	704.88	45.2	31,860.58	0.11%	1.42%	0.00%	16.17%	0.02%
Texas Instruments Inc	TXN	908.204	152.71	138,691.83	0.47%	3.41%	0.02%	10.00%	0.05%
Textron Inc	TXT	196.005	76.66	15,025.74	0.05%	0.10%	0.00%	11.73%	0.01%
Thermo Fisher Scientific Inc	TMO	386.372	495.76	191,547.78		0.28%		-5.00%	
TJX Cos Inc/The	TJX	1139.677	88.11	100,416.94	0.34%	1.51%	0.01%	6.38%	0.02%
Globe Life Inc	GL	94.119	123.13	11,588.87		0.73%			
Johnson Controls International plc	JCI	680.32	52.8	35,920.90	0.12%	2.80%	0.00%	13.36%	0.02%
Ulta Beauty Inc	ULTA	48.562	425.99	20,686.93	0.07%			6.41%	0.00%
Union Pacific Corp	UNP	609.597	225.27	137,323.92	0.47%	2.31%	0.01%	11.00%	0.05%
Keysight Technologies Inc	KEYS	174.6	135.89	23,726.39	0.08%			1.81%	0.00%
UnitedHealth Group Inc	UNH	924.925	551.09	509,716.92	1.74%	1.36%	0.02%	13.40%	0.23%
Blackstone Inc	BX	710.545	112.37	79,843.94	0.27%	2.85%	0.01%	7.63%	0.02%
Marathon Oil Corp	MRO	585.247	25.43	14,882.83	0.05%	1.73%	0.00%	8.00%	0.00%
Bio-Rad Laboratories Inc	BIO	24.059	304.92	7,336.07	0.02%			4.00%	0.00%
Ventas Inc	VTR	402.381	45.84	18,445.15	0.06%	3.93%	0.00%	8.02%	0.01%
VF Corp	VFC	388.883	16.73	6,506.01	0.02%	2.15%	0.00%	3.10%	0.00%
Vulcan Materials Co	VMC	132.873	213.56	28,376.36		0.81%		23.22%	
Weyerhaeuser Co	WY	730.001	31.35	22,885.53		2.42%			
Whirlpool Corp	WHR	54.853	108.9	5,973.49		6.43%		-2.33%	
Williams Cos Inc/The	WMB	1216.499	36.79	44,755.00	0.15%	4.87%	0.01%	3.50%	0.01%
Constellation Energy Corp	CEG	319.382	121.04	38,658.00		0.93%		26.33%	
WEC Energy Group Inc	WEC	315.435	83.62	26,376.67	0.09%	3.73%	0.00%	6.41%	0.01%
Adobe Inc	ADBE	455.3	611.01	278,192.85	0.95%			17.33%	0.16%
AES Corp/The	AES	669.629	17.21	11,524.32	0.04%	3.86%	0.00%	10.12%	0.00%
Expeditors International of Washington Inc	EXPD	145.389	120.34	17,496.11		1.15%		-16.00%	
Amgen Inc	AMGN	535.178	269.64	144,305.40	0.49%	3.16%	0.02%	4.88%	0.02%
Apple Inc	AAPL	15552.752	189.95	2,954,245.24	10.06%	0.51%	0.05%	13.00%	1.31%
Autodesk Inc	ADSK	213.764	218.43	46,692.47	0.16%			12.48%	0.02%
Cintas Corp	CTAS	101.854	553.25	56,350.73	0.19%	0.98%	0.00%	11.84%	0.02%
Comcast Corp	CMCSA	4015.635	41.89	168,214.95	0.57%	2.77%	0.02%	9.26%	0.05%
Molson Coors Beverage Co	TAP	200.955	61.54	12,366.77	0.04%	2.66%	0.00%	12.99%	0.01%
KLA Corp	KLAC	135.932	544.62	74,031.29	0.25%	1.06%	0.00%	9.93%	0.03%
Marriott International Inc/MD	MAR	293.691	202.7	59,531.17	0.20%	1.03%	0.00%	17.38%	0.04%
Fiserv Inc	FI	600.186	130.61	78,390.29	0.27%			14.08%	0.04%
McCormick & Co Inc/MD	MKC	251.291	64.83	16,291.20	0.06%	2.59%	0.00%	7.01%	0.00%
PACCAR Inc	PCAR	523.076	91.82	48,028.84	0.16%	1.18%	0.00%	12.00%	0.02%
Costco Wholesale Corp	COST	442.741	592.74	262,430.30	0.89%	0.69%	0.01%	13.06%	0.12%
Stryker Corp	SYK	379.895	296.33	112,574.29	0.38%	1.01%	0.00%	7.62%	0.03%
Tyson Foods Inc	TSN	285.231	46.84	13,360.22		4.18%		46.71%	
Lamb Weston Holdings Inc	LW	144.927	100.03	14,497.05	0.05%	1.12%	0.00%	13.32%	0.01%
Applied Materials Inc	AMAT	836.534	149.78	125,296.06	0.43%	0.85%	0.00%	5.50%	0.02%
American Airlines Group Inc	AAL	653.541	12.43	8,123.51				54.64%	
Cardinal Health Inc	CAH	246.468	107.08	26,391.79	0.09%	1.87%	0.00%	13.32%	0.01%
Cincinnati Financial Corp	CINF	156.908	102.79	16,128.57	0.05%	2.92%	0.00%	18.21%	0.01%
Paramount Global	PARA	610.704	14.37	8,775.82		1.39%		-20.36%	
DR Horton Inc	DHI	333.184	127.67	42,537.60	0.14%	0.94%	0.00%	1.70%	0.00%
Electronic Arts Inc	EA	268.966	138.01	37,120.00	0.13%	0.55%	0.00%	10.32%	0.01%
Fair Isaac Corp	FICO	24.714	1087.6	26,878.95				22.00%	
Fastenal Co	FAST	571.413	59.97	34,267.64		2.33%			
M&T Bank Corp	MTB	165.96	128.17	21,271.09	0.07%	4.06%	0.00%	11.59%	0.01%
Xcel Energy Inc	XEL	551.816	60.84	33,572.49	0.11%	3.42%	0.00%	6.12%	0.01%
Fifth Third Bancorp	FITB	681.017	28.95	19,715.44		4.84%		25.00%	
Gilead Sciences Inc	GILD	1246.042	76.6	95,446.82	0.33%	3.92%	0.01%	2.10%	0.01%
Hasbro Inc	HAS	138.764	46.41	6,440.04		6.03%		-3.49%	
Huntington Bancshares Inc/OH	HBAN	1448.075	11.26	16,305.32		5.51%		-7.69%	
Welltower Inc	WELL	556.094	89.1	49,547.98	0.17%	2.74%	0.00%	10.96%	0.02%
Biogen Inc	BIIB	144.898	234.08	33,917.72	0.12%			0.87%	0.00%
Northern Trust Corp	NTRS	207.036	79.25	16,407.60	0.06%	3.79%	0.00%	5.93%	0.00%
Packaging Corp of America	PKG	89.624	168.01	15,057.73	0.05%	2.98%	0.00%	5.00%	0.00%

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Paychex Inc	PAYX	361.232	121.97	44,059.47	0.15%	2.92%	0.00%	7.00%	0.01%
QUALCOMM Inc	QCOM	1113	129.05	143,632.65	0.49%	2.48%	0.01%	11.61%	0.06%
Ross Stores Inc	ROST	338.632	130.38	44,150.84	0.15%	1.03%	0.00%	10.00%	0.02%
IDEXX Laboratories Inc	IDXX	83.052	465.82	38,687.28	0.13%			17.98%	0.02%
Starbucks Corp	SBUX	1136.7	99.3	112,874.31	0.38%	2.30%	0.01%	17.41%	0.07%
KeyCorp	KEY	936.26	12.39	11,600.26	0.04%	6.62%	0.00%	7.08%	0.00%
Fox Corp	FOXA	247.227	29.54	7,303.09	0.02%	1.76%	0.00%	6.24%	0.00%
Fox Corp	FOX	235.581	27.66	6,516.17	0.02%	1.88%	0.00%	6.24%	0.00%
State Street Corp	STT	308.584	72.82	22,471.09	0.08%	3.79%	0.00%	6.92%	0.01%
Norwegian Cruise Line Holdings Ltd	NCLH	425.425	15.27	6,496.24					
US Bancorp	USB	1557.012	38.12	59,353.30	0.20%	5.04%	0.01%	7.50%	0.02%
A O Smith Corp	AOS	122.828	75.36	9,256.32		1.70%			
Gen Digital Inc	GEN	640.715	22.08	14,146.99	0.05%	2.26%	0.00%	12.98%	0.01%
T Rowe Price Group Inc	TROW	223.47	100.13	22,376.05		4.87%		-4.09%	
Waste Management Inc	WM	402.775	170.99	68,870.50	0.23%	1.64%	0.00%	10.05%	0.02%
Constellation Brands Inc	STZ	183.663	240.49	44,169.11	0.15%	1.48%	0.00%	9.75%	0.01%
DENTSPLY SIRONA Inc	XRAY	211.86	31.75	6,726.56	0.02%	1.76%	0.00%	7.93%	0.00%
Zions Bancorp NA	ZION	148.149	35.63	5,278.55		4.60%		-9.73%	
Alaska Air Group Inc	ALK	128.053	37.81	4,841.68	0.02%			3.56%	0.00%
Invesco Ltd	IVZ	449.554	14.27	6,415.14		5.61%		-0.68%	
Intuit Inc	INTU	279.936	571.46	159,972.23	0.54%	0.63%	0.00%	18.96%	0.10%
Morgan Stanley	MS	1641.312	79.34	130,221.69	0.44%	4.29%	0.02%	3.64%	0.02%
Microchip Technology Inc	MCHP	541.045	83.44	45,144.79		2.10%		-1.00%	
Chubb Ltd	CB	407.99	229.43	93,605.15	0.32%	1.50%	0.00%	15.50%	0.05%
Hologic Inc	HOLX	240.003	71.3	17,112.21				-8.76%	
Citizens Financial Group Inc	CFG	466.223	27.27	12,713.90		6.16%		-10.63%	
O'Reilly Automotive Inc	ORLY	59.162	982.38	58,119.57	0.20%			11.39%	0.02%
Allstate Corp/The	ALL	261.687	137.87	36,078.79		2.58%		50.02%	
Equity Residential	EQR	379.724	56.84	21,583.51	0.07%	4.66%	0.00%	4.75%	0.00%
BorgWarner Inc	BWA	235.055	33.69	7,919.00	0.03%	1.31%	0.00%	4.33%	0.00%
Keurig Dr Pepper Inc	KDP	1398.336	31.57	44,145.47	0.15%	2.72%	0.00%	6.85%	0.01%
Host Hotels & Resorts Inc	HST	705.4	17.47	12,323.34		4.12%			
Incyte Corp	INCY	224.109	54.34	12,178.08				36.36%	
Simon Property Group Inc	SPG	326.247	124.89	40,744.99	0.14%	6.09%	0.01%	1.71%	0.00%
Eastman Chemical Co	EMN	118.564	83.83	9,939.22	0.03%	3.77%	0.00%	4.75%	0.00%
AvalonBay Communities Inc	AVB	142.015	172.94	24,560.07	0.08%	3.82%	0.00%	6.27%	0.01%
Prudential Financial Inc	PRU	361	97.78	35,298.58	0.12%	5.11%	0.01%	10.47%	0.01%
United Parcel Service Inc	UPS	723.257	151.61	109,652.99	0.37%	4.27%	0.02%	1.64%	0.01%
Walgreens Boots Alliance Inc	WBA	863.915	19.94	17,226.47	0.06%	9.63%	0.01%	0.25%	0.00%
STERIS PLC	STE	98.8	200.94	19,852.87		1.04%			
McKesson Corp	MCK	133.062	470.56	62,613.65	0.21%	0.53%	0.00%	10.04%	0.02%
Lockheed Martin Corp	LMT	248.099	447.77	111,091.29	0.38%	2.81%	0.01%	7.04%	0.03%
Cencora Inc	COR	199.433	203.37	40,558.69	0.14%	1.00%	0.00%	9.04%	0.01%
Capital One Financial Corp	COF	380.847	111.66	42,525.38		2.15%		-6.30%	
Waters Corp	WAT	59.127	280.61	16,591.63	0.06%			4.44%	0.00%
Nordson Corp	NDSN	57.014	235.34	13,417.67		1.16%			
Dollar Tree Inc	DLTR	217.872	123.59	26,926.80	0.09%			7.77%	0.01%
Darden Restaurants Inc	DRI	120.315	156.47	18,825.69	0.06%	3.35%	0.00%	10.45%	0.01%
Evergy Inc	EVRG	229.583	51.04	11,717.92	0.04%	5.04%	0.00%	4.82%	0.00%
Match Group Inc	MTCH	271.812	32.38	8,801.27				43.48%	
Domino's Pizza Inc	DPZ	34.881	392.89	13,704.40	0.05%	1.23%	0.00%	13.97%	0.01%
NVR Inc	NVR	3.179	6155.39	19,567.98				-4.57%	
NetApp Inc	NTAP	206.031	91.39	18,829.17	0.06%	2.19%	0.00%	7.40%	0.00%
Old Dominion Freight Line Inc	ODFL	109.114	389.06	42,451.89	0.14%	0.41%	0.00%	5.83%	0.01%
DaVita Inc	DVA	91.3	101.46	9,263.30				21.67%	
Hartford Financial Services Group Inc/The	HIG	300.77	78.16	23,508.18	0.08%	2.41%	0.00%	7.00%	0.01%
Iron Mountain Inc	IRM	291.99	64.15	18,731.16	0.06%	4.05%	0.00%	4.00%	0.00%
Estee Lauder Cos Inc/The	EL	232.305	127.69	29,663.03	0.10%	2.07%	0.00%	13.86%	0.01%
Cadence Design Systems Inc	CDNS	272.062	273.27	74,346.38	0.25%			18.56%	0.05%
Tyler Technologies Inc	TYL	42.124	408.84	17,221.98					
Universal Health Services Inc	UHS	61.007	137.48	8,387.24	0.03%	0.58%	0.00%	9.41%	0.00%
Skyworks Solutions Inc	SWKS	159.955	96.93	15,504.44		2.81%		-7.11%	
Quest Diagnostics Inc	DGX	112.435	137.23	15,429.46		2.07%		-1.27%	
Rockwell Automation Inc	ROK	114.673	275.44	31,585.53	0.11%	1.82%	0.00%	12.16%	0.01%
Kraft Heinz Co/The	KHC	1226.539	35.11	43,063.78	0.15%	4.56%	0.01%	4.03%	0.01%
American Tower Corp	AMT	466.165	208.78	97,325.93	0.33%	3.10%	0.01%	10.93%	0.04%
Regeneron Pharmaceuticals Inc	REGN	107.129	823.81	88,253.94	0.30%			4.00%	0.01%
Amazon.com Inc	AMZN	10334.031	146.09	1,509,698.59				86.99%	
Jack Henry & Associates Inc	JKHY	72.828	158.69	11,557.08	0.04%	1.31%	0.00%	7.06%	0.00%
Ralph Lauren Corp	RL	39.752	129.38	5,143.11	0.02%	2.32%	0.00%	10.38%	0.00%
Boston Properties Inc	BXP	156.939	56.93	8,934.54	0.03%	6.89%	0.00%	2.82%	0.00%
Amphenol Corp	APH	598.31	90.99	54,440.23	0.19%	0.97%	0.00%	4.04%	0.01%
Howmet Aerospace Inc	HWM	411.744	52.6	21,657.73		0.38%		20.41%	
Pioneer Natural Resources Co	PXD	233.309	231.64	54,043.70		5.53%		-3.00%	
Valero Energy Corp	VLO	340.453	125.36	42,679.19		3.25%		35.66%	
Synopsys Inc	SNPS	152.053	543.23	82,599.75	0.28%			16.68%	0.05%
Etsy Inc	ETSY	119.746	75.81	9,077.94	0.03%			2.74%	0.00%
CH Robinson Worldwide Inc	CHRW	116.651	82.05	9,571.21	0.03%	2.97%	0.00%	5.00%	0.00%
Accenture PLC	ACN	664.787	333.14	221,467.14	0.75%	1.55%	0.01%	10.00%	0.08%
TransDigm Group Inc	TDG	55.314	962.87	53,260.19	0.18%			15.56%	0.03%
Yum! Brands Inc	YUM	280.308	125.55	35,192.67	0.12%	1.93%	0.00%	11.93%	0.01%
Prologis Inc	PLD	923.862	114.93	106,179.46	0.36%	3.03%	0.01%	8.00%	0.03%
FirstEnergy Corp	FE	573.815	36.94	21,196.73		4.44%		-0.33%	
VeriSign Inc	VRSN	102.1	212.2	21,665.62	0.07%			11.50%	0.01%
Quanta Services Inc	PWR	145.285	188.31	27,358.62	0.09%	0.17%	0.00%	8.00%	0.01%
Henry Schein Inc	HSIC	130.585	66.73	8,713.94	0.03%			3.44%	0.00%
Ameren Corp	AEE	262.475	77.59	20,365.44	0.07%	3.25%	0.00%	7.11%	0.00%
ANSYS Inc	ANSS	86.873	293.36	25,485.06	0.09%			10.77%	0.01%
FactSet Research Systems Inc	FDS	37.988	453.46	17,226.04	0.06%	0.86%	0.00%	10.45%	0.01%
NVIDIA Corp	NVDA	2470	467.7	1,155,219.00		0.03%		50.82%	
Sealed Air Corp	SEE	144.436	33.38	4,821.27	0.02%	2.40%	0.00%	0.01%	0.00%
Cognizant Technology Solutions Corp	CTSH	501.413	70.38	35,289.45	0.12%	1.65%	0.00%	12.00%	0.01%
Intuitive Surgical Inc	ISRG	352.072	310.84	109,438.06	0.37%			11.57%	0.04%
Take-Two Interactive Software Inc	TTWO	170.068	158.2	26,904.76				58.00%	

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
Republic Services Inc	RSG	314.637	161.84	50,920.85	0.17%	1.32%	0.00%	9.97%	0.02%
eBay Inc	EBAY	519	41.01	21,284.19	0.07%	2.44%	0.00%	0.32%	0.00%
Goldman Sachs Group Inc/The	GS	326.112	341.54	111,380.29	0.38%	3.22%	0.01%	7.71%	0.03%
SBA Communications Corp	SBAC	107.887	246.96	26,643.77	0.09%	1.38%	0.00%	8.00%	0.01%
Sempra	SRE	629.328	72.87	45,859.13	0.16%	3.27%	0.01%	5.49%	0.01%
Moody's Corp	MCO	183	364.96	66,787.68	0.23%	0.84%	0.00%	14.08%	0.03%
ON Semiconductor Corp	ON	430.698	71.33	30,721.69	0.10%			3.72%	0.00%
Booking Holdings Inc	BKNG	34.89	3125.7	109,055.67	0.37%			15.00%	0.06%
F5 Inc	FFIV	59.707	171.19	10,221.24	0.03%			5.45%	0.00%
Akamai Technologies Inc	AKAM	150.832	115.53	17,425.62					
Charles River Laboratories International Inc	CRL	51.297	197.08	10,109.61	0.03%			9.00%	0.00%
MarketAxess Holdings Inc	MKTX	37.905	240.12	9,101.75		1.20%			
Devon Energy Corp	DVN	640.7	44.97	28,812.28		6.85%		51.35%	
Bio-Techne Corp	TECH	158.15	62.9	9,947.64	0.03%	0.51%	0.00%	4.50%	0.00%
Alphabet Inc	GOOGL	5918	132.53	784,312.54	2.67%			16.65%	0.44%
Teleflex Inc	TFX	46.993	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	87.788	106.09	9,313.43	0.03%	1.70%	0.00%	5.93%	0.00%
Agilent Technologies Inc	A	292.123	127.8	37,333.32	0.13%	0.74%	0.00%	8.00%	0.01%
Warner Bros Discovery Inc	WBD	2438.566	10.45	25,483.01				91.04%	
Elevance Health Inc	ELV	234.959	479.49	112,660.49	0.38%	1.23%	0.00%	10.85%	0.04%
Trimble Inc	TRMB	248.768	46.4	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	318.868	28.45	9,071.79	0.03%	3.09%	0.00%	7.96%	0.00%
BlackRock Inc	BLK	148.762	751.23	111,754.48	0.38%	2.66%	0.01%	6.72%	0.03%
DTE Energy Co	DTE	206.109	104.11	21,458.01	0.07%	3.66%	0.00%	7.00%	0.01%
Nasdaq Inc	NDAQ	576.965	55.84	32,217.73	0.11%	1.58%	0.00%	2.68%	0.00%
Celanese Corp	CE	108.855	138.66	15,093.83	0.05%	2.02%	0.00%	2.27%	0.00%
Philip Morris International Inc	PM	1552.406	93.36	144,932.62	0.49%	5.57%	0.03%	9.19%	0.05%
Salesforce Inc	CRM	968	251.9	243,839.20				21.67%	
Ingersoll Rand Inc	IR	404.797	71.43	28,914.65	0.10%	0.11%	0.00%	14.00%	0.01%
Huntington Ingalls Industries Inc	HII	39.723	237.02	9,415.15		2.19%		40.00%	
Roper Technologies Inc	ROP	106.822	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	229.186	31.67	7,258.32	0.02%	4.42%	0.00%	11.00%	0.00%
CSX Corp	CSX	1976.131	32.3	63,829.03	0.22%	1.36%	0.00%	6.39%	0.01%
Edwards Lifesciences Corp	EW	606.5	67.71	41,066.12	0.14%			9.23%	0.01%
Ameriprise Financial Inc	AMP	101.196	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	208.981	116.31	24,306.58	0.08%	0.83%	0.00%	7.12%	0.01%
CBRE Group Inc	CBRE	304.793	78.96	24,066.46					
Camden Property Trust	CPT	106.771	90.26	9,637.15	0.03%	4.43%	0.00%	6.17%	0.00%
Mastercard Inc	MA	930.438	413.83	385,043.16	1.31%	0.55%	0.01%	17.35%	0.23%
CarMax Inc	KMX	158.668	63.94	10,145.23	0.03%			16.34%	0.01%
Intercontinental Exchange Inc	ICE	572.364	113.84	65,157.92	0.22%	1.48%	0.00%	8.66%	0.02%
Fidelity National Information Services Inc	FIS	592.484	58.64	34,743.26	0.12%	3.55%	0.00%	5.51%	0.01%
Chipotle Mexican Grill Inc	CMG	27.445	2202.25	60,440.75				25.41%	
Wynn Resorts Ltd	WYNN	112.946	84.42	9,534.90		1.18%		153.24%	
Live Nation Entertainment Inc	LYV	230.325	84.22	19,397.97					
Assurant Inc	AIZ	52.591	168.02	8,836.34	0.03%	1.71%	0.00%	14.60%	0.00%
NRG Energy Inc	NRG	225.764	47.84	10,800.55		3.16%			
Regions Financial Corp	RF	930.065	16.68	15,513.48	0.05%	5.76%	0.00%	0.99%	0.00%
Monster Beverage Corp	MNST	1040.441	55.15	57,380.32				21.32%	
Mosaic Co/The	MOS	326.835	35.89	11,730.11	0.04%	2.23%	0.00%	7.00%	0.00%
Baker Hughes Co	BKR	1006.234	33.75	33,960.40	0.12%	2.37%	0.00%	16.00%	0.02%
Expedia Group Inc	EXPE	133.325	136.18	18,156.20	0.06%			17.50%	0.01%
CF Industries Holdings Inc	CF	191.057	75.15	14,357.93		2.13%		46.00%	
Leidos Holdings Inc	LDOS	137.506	107.32	14,757.14	0.05%	1.42%	0.00%	8.12%	0.00%
APA Corp	APA	306.719	36	11,041.88	0.04%	2.78%	0.00%	0.72%	0.00%
Alphabet Inc	GOOG	5725	133.92	766,692.00	2.61%			16.65%	0.43%
First Solar Inc	FSLR	106.844	157.78	16,857.85				43.22%	
TE Connectivity Ltd	TEL	310.779	131	40,712.05		1.80%			
Discover Financial Services	DFS	250.058	93	23,255.39		3.01%		56.16%	
Visa Inc	V	1580.68	256.68	405,728.94	1.38%	0.81%	0.01%	14.32%	0.20%
Mid-America Apartment Communities Inc	MAA	116.688	124.48	14,525.32	0.05%	4.50%	0.00%	1.77%	0.00%
Xylem Inc/NY	XYL	241.078	105.13	25,344.53		1.26%			
Marathon Petroleum Corp	MPC	379.697	149.19	56,647.00		2.21%			
Advanced Micro Devices Inc	AMD	1615.499	121.16	195,733.86				30.65%	
Tractor Supply Co	TSCO	108.114	203.01	21,948.22	0.07%	2.03%	0.00%	3.81%	0.00%
ResMed Inc	RMD	147.092	157.73	23,200.82		1.22%			
Mettler-Toledo International Inc	MTD	21.684	1091.93	23,677.41	0.08%			5.01%	0.00%
Jacobs Solutions Inc	J	126.024	127.18	16,027.73	0.05%	0.82%	0.00%	12.31%	0.01%
Copart Inc	CPRT	960.231	50.22	48,222.80					
VICI Properties Inc	VICI	1034.532	29.89	30,922.16	0.11%	5.55%	0.01%	7.09%	0.01%
Fortinet Inc	FTNT	767.91	52.56	40,361.35	0.14%			15.03%	0.02%
Albemarle Corp	ALB	117.353	121.27	14,231.40	0.05%	1.32%	0.00%	18.79%	0.01%
Moderna Inc	MRNA	381.284	77.7	29,625.77				-29.33%	
Essex Property Trust Inc	ESS	64.183	213.46	13,700.50	0.05%	4.33%	0.00%	5.71%	0.00%
CoStar Group Inc	CSGP	408.363	83.04	33,910.46	0.12%			20.00%	0.02%
Realty Income Corp	O	723.924	53.96	39,062.94	0.13%	5.69%	0.01%	0.68%	0.00%
Westrock Co	WRK	256.469	41.17	10,558.83	0.04%	2.94%	0.00%	4.20%	0.00%
Westinghouse Air Brake Technologies Corp	WAB	179.159	116.56	20,882.77	0.07%	0.58%	0.00%	12.86%	0.01%
Pool Corp	POOL	38.679	347.32	13,433.99		1.27%		-5.49%	
Western Digital Corp	WDC	324.243	48.31	15,664.18				-11.96%	
PepsiCo Inc	PEP	1374.864	168.29	231,375.86	0.79%	3.01%	0.02%	8.70%	0.07%
Diamondback Energy Inc	FANG	178.985	154.41	27,637.07		8.73%		21.94%	
Palo Alto Networks Inc	PANW	315.3	295.09	93,041.88				30.00%	
ServiceNow Inc	NOW	205	685.74	140,576.70					
Church & Dwight Co Inc	CHD	246.382	96.63	23,807.89	0.08%	1.13%	0.00%	5.95%	0.00%
Federal Realty Investment Trust	FRT	81.618	95.59	7,801.86	0.03%	4.56%	0.00%	5.77%	0.00%
MGM Resorts International	MGM	341.583	39.44	13,472.03					
American Electric Power Co Inc	AEP	515.176	79.55	40,982.25	0.14%	4.42%	0.01%	4.83%	0.01%
SolarEdge Technologies Inc	SEDG	56.811	79.38	4,509.66				27.00%	
Invitation Homes Inc	INVH	611.958	33.36	20,414.92	0.07%	3.12%	0.00%	3.15%	0.00%

Name	Ticker	[4] Shares Outst'g	[5] Price	[6] Market Capitalization	[7] Weight in Index	[8] Estimated Dividend Yield	[9] Cap-Weighted Dividend Yield	[10] Bloomberg Long-Term Growth Est.	[11] Cap-Weighted Long-Term Growth Est.
PTC Inc	PTC	119.245	157.36	18,764.39	0.06%			19.31%	0.01%
JB Hunt Transport Services Inc	JBHT	103.143	185.27	19,109.30		0.91%		27.00%	
Lam Research Corp	LRCX	131.792	715.92	94,352.53	0.32%	1.12%	0.00%	5.44%	0.02%
Mohawk Industries Inc	MHK	63.682	88.31	5,623.76				-3.08%	
Pentair PLC	PNR	165.299	64.54	10,668.40	0.04%	1.36%	0.00%	6.22%	0.00%
GE HealthCare Technologies Inc	GEHC	455.243	68.46	31,165.94	0.11%	0.18%	0.00%	12.70%	0.01%
Vertex Pharmaceuticals Inc	VRTX	257.683	354.81	91,428.51	0.31%			13.38%	0.04%
Amcor PLC	AMCR	1445.343	9.48	13,701.85	0.05%	5.27%	0.00%	1.33%	0.00%
Meta Platforms Inc	META	2219.607	327.15	726,144.43				24.05%	
T-Mobile US Inc	TMUS	1156.475	150.45	173,991.66		1.73%		38.46%	
United Rentals Inc	URI	67.781	476.02	32,265.11	0.11%	1.24%	0.00%	17.87%	0.02%
Honeywell International Inc	HON	659.251	195.92	129,160.46	0.44%	2.20%	0.01%	7.69%	0.03%
Alexandria Real Estate Equities Inc	ARE	173.775	109.4	19,010.99	0.06%	4.53%	0.00%	5.28%	0.00%
Delta Air Lines Inc	DAL	643.463	36.93	23,763.09		1.08%		30.85%	
Seagate Technology Holdings PLC	STX	209.184	79.1	16,546.45	0.06%	3.54%	0.00%	6.11%	0.00%
United Airlines Holdings Inc	UAL	328.017	39.4	12,923.87				46.54%	
News Corp	NWS	191.385	23.04	4,409.51		0.87%			
Centene Corp	CNC	534.201	73.68	39,359.93	0.13%			8.43%	0.01%
Martin Marietta Materials Inc	MLM	61.807	464.59	28,714.91		0.64%		21.60%	
Teradyne Inc	TER	152.879	92.23	14,100.03	0.05%	0.48%	0.00%	7.82%	0.00%
PayPal Holdings Inc	PYPL	1078.14	57.61	62,111.65	0.21%			6.26%	0.01%
Tesla Inc	TSLA	3178.921	240.08	763,195.35	2.60%			11.00%	0.29%
Arch Capital Group Ltd	ACGL	373.172	83.69	31,230.76	0.11%			10.00%	0.01%
Dow Inc	DOW	701.397	51.75	36,297.29		5.41%		-4.72%	
Everest Group Ltd	EG	43.39	410.55	17,813.76		1.71%		37.66%	
Teledyne Technologies Inc	TDY	47.185	402.96	19,013.67	0.06%			8.03%	0.01%
News Corp	NWSA	380.67	22.04	8,389.97		0.91%			
Exelon Corp	EXC	994.299	38.51	38,290.45	0.13%	3.74%	0.00%	4.00%	0.01%
Global Payments Inc	GPN	260.389	116.44	30,319.70	0.10%	0.86%	0.00%	13.33%	0.01%
Crown Castle Inc	CCI	433.689	117.28	50,863.05	0.17%	5.34%	0.01%	7.00%	0.01%
Aptiv PLC	APTV	282.862	82.84	23,432.29	0.08%			11.44%	0.01%
Align Technology Inc	ALGN	76.589	213.8	16,374.73					
Illumina Inc	ILMN	158.8	101.95	16,189.66				-51.00%	
Kenvue Inc	KVUE	1914.995	20.44	39,142.50		3.91%			
Targa Resources Corp	TRGP	222.976	90.45	20,168.18	0.07%	2.21%	0.00%	15.00%	0.01%
Bunge Global SA	BG	161.429	109.87	17,736.20		2.41%		-5.00%	
LKQ Corp	LKQ	267.598	44.53	11,916.14		2.69%			
Zoetis Inc	ZTS	459.114	176.67	81,111.67	0.28%	0.85%	0.00%	10.91%	0.03%
Digital Realty Trust Inc	DLR	302.846	138.78	42,028.97	0.14%	3.52%	0.01%	6.80%	0.01%
Equinix Inc	EQIX	93.883	815.01	76,515.58	0.26%	2.09%	0.01%	16.67%	0.04%
Las Vegas Sands Corp	LVS	764.491	46.12	35,258.32		1.73%			
Molina Healthcare Inc	MOH	58.3	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] Bloomberg Professional as of November 30, 2023
[5] Bloomberg Professional as of November 30, 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 November 30, 2023
[9] Equals [7] x [8]
[10] Value Line, as of November 30, 2023
[11] Equals [7] x [10]

Docket No. UE 433
Exhibit PAC/410
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

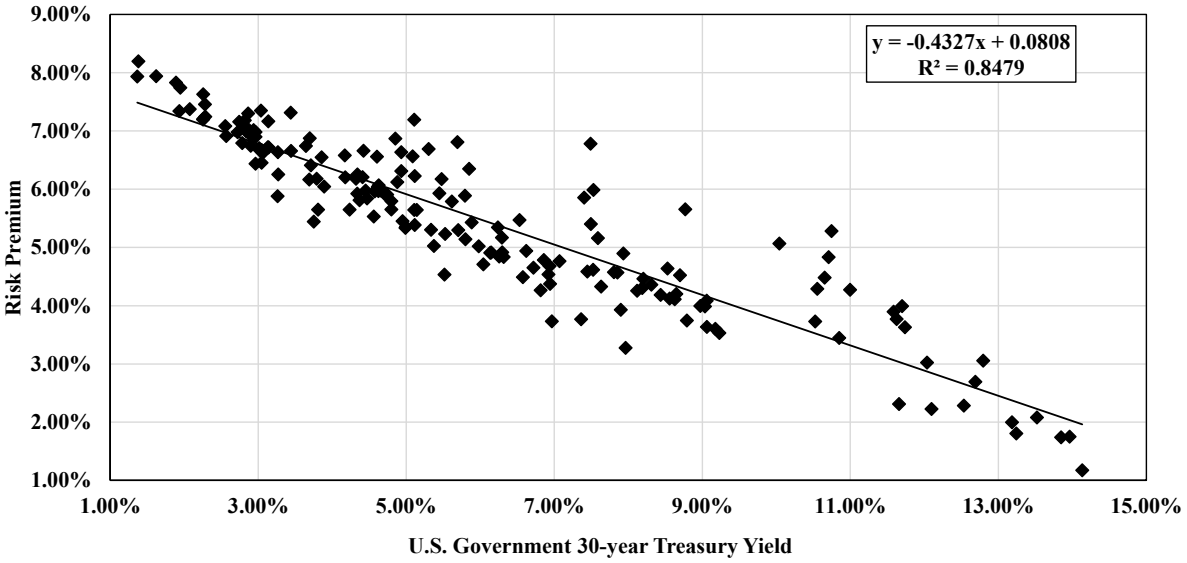
OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Risk Premium Approach

February 2024



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9205958
R Square	0.8474967
Adjusted R Square	0.8466202
Standard Error	0.0056565
Observations	176

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.03094	0.03094	966.95886	0.00000
Residual	174	0.00557	0.00003		
Total	175	0.03651			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0808	0.00	85.17	0.0000	0.0789	0.0827	0.0789	0.0827
U.S. Govt. 30-year Treasury	(0.4330)	0.01	(31.10)	0.0000	(0.4605)	(0.4056)	(0.4605)	(0.4056)

	[7]	[8]	[9]
	U.S. Govt. 30-year Treasury	Risk Premium	ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	4.77%	6.01%	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			10.60%

Notes:
[1] Regulatory Research Associates, rate cases through November 30, 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. 12, December 1, 2023, at 2
[6] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 14.
[7] See notes [4], [5] & [6]
[8] Equals 0.079161 + (-0.431626 x Column [7])
[9] Equals Column [7] + Column [8]

BOND YIELD PLUS RISK PREMIUM

Quarter	[1] Average Authorized VI Electric ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
1980.1	13.97%	11.66%	2.31%
1980.2	14.25%	10.52%	3.73%
1980.3	14.30%	10.85%	3.45%
1980.4	14.32%	12.10%	2.23%
1981.1	14.82%	12.53%	2.28%
1981.2	15.05%	13.24%	1.81%
1981.3	15.31%	14.13%	1.17%
1981.4	15.59%	13.85%	1.74%
1982.1	15.71%	13.96%	1.75%
1982.2	15.60%	13.52%	2.08%
1982.3	15.85%	12.79%	3.06%
1982.4	16.03%	10.75%	5.28%
1983.1	15.54%	10.71%	4.83%
1983.2	15.13%	10.65%	4.48%
1983.3	15.39%	11.62%	3.77%
1983.4	15.37%	11.74%	3.63%
1984.1	15.06%	12.04%	3.02%
1984.2	15.18%	13.18%	2.00%
1984.3	15.38%	12.69%	2.69%
1984.4	15.69%	11.70%	3.99%
1985.1	15.48%	11.58%	3.90%
1985.2	15.27%	11.00%	4.27%
1985.3	14.84%	10.55%	4.29%
1985.4	15.11%	10.04%	5.07%
1986.1	14.42%	8.77%	5.65%
1986.2	14.27%	7.49%	6.78%
1986.3	13.26%	7.40%	5.86%
1986.4	13.52%	7.53%	5.99%
1987.1	12.90%	7.49%	5.40%
1987.2	13.17%	8.53%	4.64%
1987.3	13.14%	9.06%	4.08%
1987.4	12.76%	9.23%	3.53%
1988.1	12.74%	8.63%	4.11%
1988.2	12.70%	9.06%	3.63%
1988.3	12.78%	9.18%	3.60%
1988.4	12.97%	8.97%	4.00%
1989.1	13.02%	9.04%	3.99%
1989.2	13.22%	8.70%	4.52%
1989.3	12.38%	8.12%	4.26%
1989.4	12.83%	7.93%	4.90%
1990.1	12.62%	8.44%	4.19%
1990.2	12.85%	8.65%	4.20%
1990.3	12.54%	8.79%	3.75%
1990.4	12.68%	8.56%	4.12%
1991.1	12.66%	8.20%	4.46%
1991.2	12.67%	8.31%	4.36%
1991.3	12.49%	8.19%	4.30%
1991.4	12.42%	7.85%	4.57%
1992.1	12.38%	7.81%	4.58%
1992.2	11.83%	7.90%	3.93%
1992.3	12.03%	7.45%	4.59%
1992.4	12.14%	7.52%	4.62%
1993.1	11.84%	7.07%	4.76%
1993.2	11.64%	6.86%	4.78%
1993.3	11.15%	6.32%	4.84%
1993.4	11.04%	6.14%	4.91%
1994.1	11.07%	6.58%	4.49%
1994.2	11.13%	7.36%	3.77%
1994.3	12.75%	7.59%	5.16%
1994.4	11.24%	7.96%	3.28%
1995.1	11.96%	7.63%	4.33%
1995.2	11.32%	6.94%	4.37%
1995.3	11.37%	6.72%	4.65%

1995.4	11.58%	6.24%	5.35%
1996.1	11.46%	6.29%	5.17%
1996.2	11.46%	6.92%	4.54%
1996.3	10.70%	6.97%	3.73%
1996.4	11.56%	6.62%	4.94%
1997.1	11.08%	6.82%	4.26%
1997.2	11.62%	6.94%	4.68%
1997.3	12.00%	6.53%	5.47%
1997.4	11.06%	6.15%	4.91%
1998.1	11.31%	5.88%	5.43%
1998.2	12.20%	5.85%	6.35%
1998.3	11.65%	5.48%	6.17%
1998.4	12.30%	5.11%	7.19%
1999.1	10.40%	5.37%	5.03%
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	11.21%	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	11.38%	5.45%	5.93%
2001.2	11.00%	5.70%	5.30%
2001.3	10.76%	5.53%	5.23%
2001.4	11.99%	5.30%	6.69%
2002.1	10.05%	5.52%	4.53%
2002.2	11.41%	5.62%	5.79%
2002.3	11.65%	5.09%	6.56%
2002.4	11.57%	4.93%	6.63%
2003.1	11.72%	4.85%	6.87%
2003.2	11.16%	4.60%	6.56%
2003.3	10.50%	5.11%	5.39%
2003.4	11.34%	5.11%	6.23%
2004.1	11.00%	4.88%	6.12%
2004.2	10.64%	5.34%	5.30%
2004.3	10.75%	5.11%	5.64%
2004.4	11.24%	4.93%	6.31%
2005.1	10.63%	4.71%	5.92%
2005.2	10.31%	4.47%	5.84%
2005.3	11.08%	4.42%	6.66%
2005.4	10.63%	4.65%	5.98%
2006.1	10.70%	4.63%	6.07%
2006.2	10.79%	5.14%	5.64%
2006.3	10.35%	5.00%	5.35%
2006.4	10.65%	4.74%	5.91%
2007.1	10.59%	4.80%	5.79%
2007.2	10.33%	4.99%	5.34%
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	10.54%	4.57%	5.96%
2008.3	10.43%	4.45%	5.98%
2008.4	10.39%	3.64%	6.74%
2009.1	10.75%	3.44%	7.31%
2009.2	10.75%	4.17%	6.58%
2009.3	10.50%	4.32%	6.18%
2009.4	10.59%	4.34%	6.25%
2010.1	10.59%	4.62%	5.97%
2010.2	10.18%	4.37%	5.81%
2010.3	10.40%	3.86%	6.55%
2010.4	10.38%	4.17%	6.20%
2011.1	10.09%	4.56%	5.53%
2011.2	10.26%	4.34%	5.92%
2011.3	10.57%	3.70%	6.88%
2011.4	10.39%	3.04%	7.35%
2012.1	10.30%	3.14%	7.17%
2012.2	9.95%	2.94%	7.01%
2012.3	9.90%	2.74%	7.16%

2012.4	10.16%	2.86%	7.30%
2013.1	9.85%	3.13%	6.72%
2013.2	9.86%	3.14%	6.72%
2013.3	10.12%	3.71%	6.41%
2013.4	9.97%	3.79%	6.18%
2014.1	9.86%	3.69%	6.16%
2014.2	10.10%	3.44%	6.66%
2014.3	9.90%	3.27%	6.63%
2014.4	9.94%	2.96%	6.98%
2015.1	9.64%	2.55%	7.08%
2015.2	9.83%	2.88%	6.94%
2015.3	9.40%	2.96%	6.44%
2015.4	9.86%	2.96%	6.90%
2016.1	9.70%	2.72%	6.98%
2016.2	9.48%	2.57%	6.91%
2016.3	9.74%	2.28%	7.46%
2016.4	9.83%	2.83%	7.00%
2017.1	9.72%	3.05%	6.67%
2017.2	9.64%	2.90%	6.75%
2017.3	10.00%	2.82%	7.18%
2017.4	9.91%	2.82%	7.09%
2018.1	9.69%	3.02%	6.66%
2018.2	9.75%	3.09%	6.66%
2018.3	9.69%	3.06%	6.63%
2018.4	9.52%	3.27%	6.25%
2019.1	9.72%	3.01%	6.70%
2019.2	9.58%	2.78%	6.79%
2019.3	9.53%	2.29%	7.25%
2019.4	9.89%	2.26%	7.63%
2020.1	9.72%	1.89%	7.83%
2020.2	9.58%	1.38%	8.19%
2020.3	9.30%	1.37%	7.93%
2020.4	9.56%	1.62%	7.94%
2021.1	9.45%	2.07%	7.38%
2021.2	9.47%	2.26%	7.21%
2021.3	9.27%	1.93%	7.34%
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	9.14%	3.26%	5.88%
2022.4	9.94%	3.89%	6.04%
2023.1	9.72%	3.75%	5.44%
2023.2	9.67%	3.81%	5.65%

Docket No. UE 433
Exhibit PAC/411
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Wildfire Risk Analysis

February 2024

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
OGE Energy Corporation	Arkansas	Relatively Low	2
	Oklahoma	Relatively Moderate	3
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	2.14
PacifiCorp	Oregon	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

Docket No. UE 433
Exhibit PAC/412
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Capital Expenditures Analysis

February 2024

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

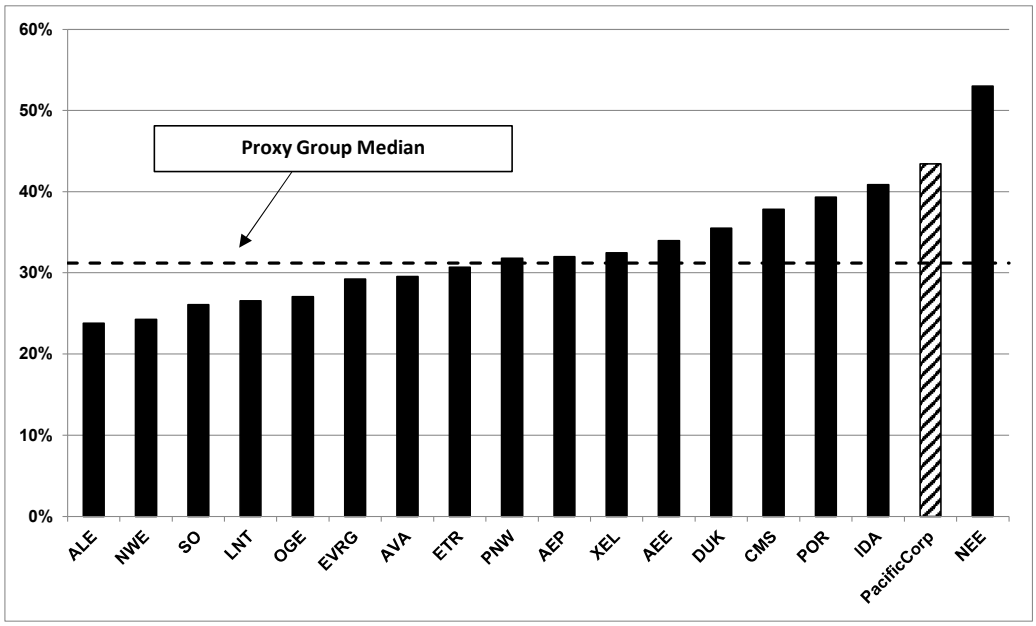
		[1]	[2]	[3]	[4]	[5]	
		2022	2024	2025	2026	Projected Cap. Ex. / 2022 Net Plant	Rank
ALLETE, Inc.	ALE						
Capital Spending per Share			$5.95	$6.60	$7.25		
Common Shares Outstanding			59.00	60.00	61.00		
Capital Expenditures			$351.1	$396.0	$442.3	23.8%	1
Net Plant		$5,004.0					
Alliant Energy Corporation	LNT						
Capital Spending per Share			$5.80	$5.60	$5.40		
Common Shares Outstanding			256.00	256.50	257.00		
Capital Expenditures			$1,484.8	$1,436.4	$1,387.8	26.5%	4
Net Plant		$16,247.0					
Ameren Corporation	AEE						
Capital Spending per Share			$12.55	$12.78	$13.00		
Common Shares Outstanding			269.00	277.00	285.00		
Capital Expenditures			$3,376.0	$3,538.7	$3,705.0	34.0%	12
Net Plant		$31,262.0					
American Electric Power Company	AEP						
Capital Spending per Share			$14.15	$14.08	$14.00		
Common Shares Outstanding			530.00	540.00	550.00		
Capital Expenditures			$7,499.5	$7,600.5	$7,700.0	32.0%	10
Net Plant		$71,283.0					
Avista Corporation	AVA						
Capital Spending per Share			$6.35	$6.55	$6.75		
Common Shares Outstanding			78.50	81.75	85.00		
Capital Expenditures			$498.5	$535.5	$573.8	29.5%	7
Net Plant		$5,444.7					
CMS Energy Corporation	CMS						
Capital Spending per Share			$9.50	$9.63	$9.75		
Common Shares Outstanding			295.00	297.50	300.00		
Capital Expenditures			$2,802.5	$2,863.4	$2,925.0	37.8%	14
Net Plant		$22,713.0					
Duke Energy Corporation	DUK						
Capital Spending per Share			$17.60	$17.18	$16.75		
Common Shares Outstanding			770.00	770.00	770.00		
Capital Expenditures			$13,552.0	$13,224.8	$12,897.5	35.5%	13
Net Plant		$111,748.0					
Entergy Corporation	ETR						
Capital Spending per Share			$19.00	$19.38	$19.75		
Common Shares Outstanding			$218.00	224.00	230.00		
Capital Expenditures			$4,142.0	$4,340.0	$4,542.5	30.7%	8
Net Plant		$42,477.0					
Evergy, Inc.	EVRG						
Capital Spending per Share			$9.25	$9.38	$9.50		
Common Shares Outstanding			230.00	230.00	230.00		
Capital Expenditures			$2,127.5	$2,156.3	$2,185.0	29.2%	6
Net Plant		$22,137.0					
IDACORP, Inc.	IDA						
Capital Spending per Share			$16.00	$13.50	$11.00		
Common Shares Outstanding			51.50	52.25	53.00		
Capital Expenditures			$824.0	$705.4	$583.0	40.8%	16
Net Plant		$5,173.0					

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

		[1]	[2]	[3]	[4]	[5]	
		2022	2024	2025	2026	Projected Cap. Ex. / 2022 Net Plant	Rank
NextEra Energy, Inc.	NEE						
Capital Spending per Share			$9.50	$9.63	$9.75		
Common Shares Outstanding			2025.00	2037.50	2050.00		
Capital Expenditures			$19,237.5	$19,610.9	$19,987.5	53.0%	18
Net Plant		$111,059.0					
NorthWestern Corporation	NWE						
Capital Spending per Share			$7.75	$7.38	$7.00		
Common Shares Outstanding			62.00	62.00	62.00		
Capital Expenditures			$480.5	$457.3	$434.0	24.2%	2
Net Plant		$5,657.5					
OGE Energy Corporation	OGE						
Capital Spending per Share			$4.75	$4.75	$4.75		
Common Shares Outstanding			200.20	200.20	200.20		
Capital Expenditures			$951.0	$951.0	$951.0	27.0%	5
Net Plant		$10,546.8					
Pinnacle West Capital Corporation	PNW						
Capital Spending per Share			$15.00	$15.00	$15.00		
Common Shares Outstanding			$118.00	119.00	120.00		
Capital Expenditures			$1,770.0	$1,785.0	$1,800.0	31.8%	9
Net Plant		$16,854.0					
Portland General Electric Company	POR						
Capital Spending per Share			$10.75	$10.88	$11.00		
Common Shares Outstanding			102.00	102.00	102.00		
Capital Expenditures			$1,096.5	$1,109.3	$1,122.0	39.3%	15
Net Plant		$8,465.0					
Southern Company	SO						
Capital Spending per Share			$7.85	$7.68	$7.50		
Common Shares Outstanding			1,070.00	1,070.00	1,070.00		
Capital Expenditures			$8,399.5	$8,212.3	$8,025.0	26.1%	3
Net Plant		$94,570.0					
Xcel Energy Inc.	XEL						
Capital Spending per Share			$9.25	$9.38	$9.50		
Common Shares Outstanding			553.00	556.50	560.00		
Capital Expenditures			$5,115.3	$5,217.2	$5,320.0	32.4%	11
Net Plant		$48,253.0					
PacifiCorp	PacificCorp						
Capital Expenditures [7]				$10,600.00		43.4%	17
Net Plant [8]		$24,400.0					

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		Percent
1	ALLETE, Inc.	ALE	23.8%
2	NorthWestern Corporation	NWE	24.2%
3	Southern Company	SO	26.1%
4	Alliant Energy Corporation	LNT	26.5%
5	OGE Energy Corporation	OGE	27.0%
6	Evergy, Inc.	EVRG	29.2%
7	Avista Corporation	AVA	29.5%
8	Entergy Corporation	ETR	30.7%
9	Pinnacle West Capital Corporation	PNW	31.8%
10	American Electric Power Company	AEP	32.0%
11	Xcel Energy Inc.	XEL	32.4%
12	Ameren Corporation	AEE	34.0%
13	Duke Energy Corporation	DUK	35.5%
14	CMS Energy Corporation	CMS	37.8%
15	Portland General Electric Company	POR	39.3%
16	IDACORP, Inc.	IDA	40.8%
17	PacifiCorp	PacificCorp	43.4%
18	NextEra Energy, Inc.	NEE	53.0%

Proxy Group Median	31.2%
Pacificorp as % of Median	139.2%

Notes:
PAC/412, pp. 1-2 col. [6]

Docket No. UE 433
Exhibit PAC/413
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BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Regulatory Risk Analysis

February 2024

COMPARISON OF OG&E AND PROXY GROUP COMPANIES
RISK ASSESSMENT

				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
					Decoupling / Revenue Stabilization				Capital Cost Recovery					
Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	Test Year	Revenue Decoupling	Formula-Based Rates	Straight Fixed-Variable	Total	Traditional Generation	Renewables/Non-Traditional Generation	Delivery Infrastructure	Environmental Compliance	Total	Fuel Adjustment Clause
ALLETE, Inc.	ALLETE (Minnesota Power)	Minnesota	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
Alliant Energy Corporation	Interstate Power & Light Co.	Iowa	Electric	Historical	No	No	No	No	No	Yes	No	Yes	Yes	Yes
	Interstate Power & Light Co.	Iowa	Gas	Historical	No	No	No	No	No	No	No	No	No	Yes
	Wisconsin Power & Light Co.	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	No	No	No	No	Yes
	Wisconsin Power & Light Co.	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	Yes
Ameren Corporation	Ameren Illinois Co.	Illinois	Electric	Historical	Partial	Yes	No	Yes	No	Yes	No	Yes	Yes	n/a
	Ameren Illinois Co.	Illinois	Gas	Fully Forecast	Partial	No	No	Yes	No	No	Yes	Yes	Yes	Yes
	Union Electric Co.	Missouri	Electric	Historical	Partial	No	No	Yes	No	Yes	Yes	No	Yes	Yes
	Union Electric Co.	Missouri	Gas	Historical	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes
American Electric Power Company	Southwestern Electric Power Co.	Arkansas	Electric	Historical	Partial	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes
	Indiana Michigan Power Co.	Indiana	Electric	Fully Forecast	Full	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
	Kentucky Power Co.	Kentucky	Electric	Fully Forecast	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes
	Southwestern Electric Power Co.	Louisiana	Electric	Historical	Partial	Yes	No	Yes	No	No	No	No	No	Yes
	Indiana Michigan Power Co.	Michigan	Electric	Fully Forecast	Partial	No	No	Yes	No	Yes	No	No	Yes	Yes
	Ohio Power Co.	Ohio	Electric	Partially Forecast	Partial	No	No	Yes	No	Yes	Yes	No	Yes	Yes
	Public Service Co. of Oklahoma	Oklahoma	Electric	Historical	Partial	No	No	Yes	No	Yes	Yes	No	Yes	Yes
	Kingsport Power Co.	Tennessee	Electric	Fully Forecast	No	No	No	No	No	No	No	No	No	Yes
	AEP Texas Inc.	Texas	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	n/a
	Southwestern Electric Power Co.	Texas	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Appalachian Power Co.	Virginia	Electric	Historical	No	No	No	No	Yes	No	No	Yes	Yes	Yes
	Appalachian Power Co./Wheeling Power Co.	West Virginia	Electric	Historical	No	No	No	No	No	No	No	Yes	Yes	Yes
Avista Corporation	Alaska Electric Light & Power Co.	Alaska	Electric	Historical	No	No	No	No	No	No	No	No	No	Yes
	Avista Corp.	Idaho	Electric	Historical	Full	No	No	Yes	No	No	No	No	No	Yes w/ sharing
	Avista Corp.	Idaho	Gas	Historical	Full	No	No	Yes	No	No	No	No	No	Yes
	Avista Corp.	Oregon	Gas	Fully Forecast	Partial	No	No	Yes	No	No	No	No	No	Yes
	Avista Corp.	Washington	Electric	Historical	Full	No	No	Yes	No	No	No	No	No	Yes w/ sharing
	Avista Corp.	Washington	Gas	Historical	Full	No	No	Yes	No	No	No	No	No	Yes w/ sharing
CMS Energy Corporation	Consumers Energy Co.	Michigan	Electric	Fully Forecast	No	No	No	No	No	Yes	No	No	Yes	Yes
	Consumers Energy Co.	Michigan	Gas	Fully Forecast	Partial	No	No	Yes	No	No	No	No	No	Yes
Duke Energy Corporation	Duke Energy Florida LLC	Florida	Electric	Fully Forecast	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes
	Duke Energy Indiana LLC	Indiana	Electric	Historical	Partial	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
	Duke Energy Kentucky Inc.	Kentucky	Electric	Fully Forecast	Partial	No	No	Yes	No	No	No	Yes	Yes	Yes
	Duke Energy Kentucky Inc.	Kentucky	Gas	Fully Forecast	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes
	Duke Energy Carolinas LLC/Duke Energy Progre	North Carolina	Electric	Historical	No	No	No	No	No	Yes	No	Yes	Yes	Yes
	Piedmont Natural Gas Co. Inc.	North Carolina	Gas	Historical	Full	No	No	Yes	No	No	Yes	No	Yes	Yes
	Duke Energy Ohio Inc.	Ohio	Electric	Partially Forecast	Partial	No	No	Yes	No	Yes	Yes	No	Yes	Yes
	Duke Energy Ohio Inc.	Ohio	Gas	Partially Forecast	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
	Duke Energy Carolinas LLC/Duke Energy Progre	South Carolina	Electric	Historical	No	No	No	No	No	Yes	No	Yes	Yes	Yes
	Piedmont Natural Gas Co. Inc.	South Carolina	Gas	Historical	Partial	No	No	Yes	No	No	No	No	No	Yes
	Piedmont Natural Gas Co. Inc.	Tennessee	Gas	Fully Forecast	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes

				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
					Decoupling / Revenue Stabilization				Capital Cost Recovery					
Proxy Group Company	Operating Subsidiary	Jurisdiction	Service	Test Year	Revenue Decoupling	Formula-Based Rates	Straight Fixed-Variable	Total	Traditional Generation	Renewables/Non-Traditional Generation	Delivery Infrastructure	Environmental Compliance	Total	Fuel Adjustment Clause
Entergy Corporation	Entergy Arkansas LLC	Arkansas	Electric	Fully Forecast	Partial	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes
	Entergy New Orleans LLC	Louisiana-NOCC	Electric	Partially Forecast	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
	Entergy New Orleans LLC	Louisiana-NOCC	Gas	Partially Forecast	No	Yes	No	Yes	No	No	No	No	No	Yes
	Entergy Louisiana LLC	Louisiana	Electric	Historical	Partial	Yes	No	Yes	No	No	No	Yes	Yes	Yes
	Entergy Louisiana LLC	Louisiana	Gas	Historical	No	Yes	No	Yes	No	No	Yes	No	Yes	Yes
	Entergy Mississippi LLC	Mississippi	Electric	Fully Forecast	Partial	Yes	No	Yes	No	No	No	No	No	Yes
	Entergy Texas Inc.	Texas	Electric	Historical	No	No	No	No	Yes	No	Yes	No	Yes	Yes
Evergy, Inc.	Evergy Kansas Central Inc	Kansas	Electric	Historical	Partial	No	No	Yes	No	Yes	No	Yes	Yes	Yes
	Evergy Metro Inc.	Kansas	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	Yes
	Evergy Metro Inc	Missouri	Electric	Historical	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes w/ sharing
	Evergy Missouri West Inc.	Missouri	Electric	Historical	Partial	No	No	Yes	No	Yes	Yes	No	Yes	Yes w/ sharing
IDACORP, Inc.	Idaho Power Co.	Idaho	Electric	Partially Forecast	Full	No	No	Yes	No	No	No	No	No	Yes w/ sharing
	Idaho Power Co.	Oregon	Electric	Partially Forecast	No	No	No	No	No	No	No	No	No	Yes
NextEra Energy, Inc.	Florida Power & Light Co.	Florida	Electric	Fully Forecast	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes
	Pivotal Utility Holdings Inc.	Florida	Gas	Fully Forecast	No	No	No	No	No	No	Yes	Yes	Yes	Yes
	Lone Star Transmission LLC	Texas	Electric	Historical	No	No	No	No	No	No	Yes	No	Yes	n/a
NorthWestern Corporation	NorthWestern Corporation	Montana	Electric	Historical	No	No	No	No	No	No	No	No	No	Yes w/ sharing
	NorthWestern Corporation	Montana	Gas	Historical	No	No	No	No	No	No	No	No	No	Yes
	NorthWestern Corporation	Nebraska	Gas	Historical	No	No	No	No	No	No	No	No	No	Yes
	NorthWestern Corporation	South Dakota	Electric	Historical	No	No	No	No	No	No	No	No	No	Yes
	NorthWestern Corporation	South Dakota	Gas	Historical	No	No	No	No	No	No	No	No	No	Yes
OGE Energy Corporation	Oklahoma Gas & Electric	Arkansas	Electric	Historical	Partial	No	Yes	Yes	No	No	Yes	No	Yes	Yes
	Oklahoma Gas & Electric	Oklahoma	Electric	Historical	Partial	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Pinnacle West Capital Corporation	Arizona Public Service Co.	Arizona	Electric	Historical	Partial	No	No	Yes	No	Yes	No	Yes	Yes	Yes
Portland General Electric Compan	Portland General Electric Co.	Oregon	Electric	Fully Forecast	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes
Southern Company	Alabama Power Co.	Alabama	Electric	Historical	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
	Atlanta Gas Light Co.	Georgia	Electric	Fully Forecast	No	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes
	Georgia Power Co.	Georgia	Gas	Fully Forecast	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	n/a
	Northern Illinois Gas Co.	Illinois	Gas	Fully Forecast	Partial	No	No	Yes	No	No	Yes	Yes	Yes	Yes
	Mississippi Power Co.	Mississippi	Electric	Fully Forecast	Partial	Yes	No	Yes	No	No	No	Yes	Yes	Yes
	Chattanooga Gas Co.	Tennessee	Gas	Historical	Partial	Yes	No	Yes	No	No	No	No	No	Yes
	Virginia Natural Gas Inc.	Virginia	Gas	Historical	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes
Xcel Energy Inc.	Public Service Co. of Colorado	Colorado	Electric	Historical	Partial	No	No	Yes	No	Yes	No	No	Yes	Yes
	Public Service Co. of Colorado	Colorado	Gas	Historical	Partial	No	No	Yes	No	No	Yes	No	Yes	Yes
	Northern States Power Co.-Minnesota	Minnesota	Electric	Fully Forecast	Partial	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
	Northern States Power Co.-Minnesota	Minnesota	Gas	Fully Forecast	No	No	No	No	No	No	Yes	No	Yes	Yes
	Southwestern Public Service Co.	New Mexico	Electric	Historical	No	No	No	No	No	Yes	No	No	Yes	Yes
	Northern States Power Co.-Minnesota	North Dakota	Electric	Fully Forecast	No	No	No	No	No	Yes	Yes	No	Yes	Yes
	Northern States Power Co.-Minnesota	North Dakota	Gas	Fully Forecast	No	No	Yes	Yes	No	No	No	No	No	Yes
	Northern States Power Co.-Minnesota	South Dakota	Electric	Historical	Partial	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
	Southwestern Public Service Co.	Texas	Electric	Historical	No	No	No	No	No	No	No	No	No	Yes
	Northern States Power Co.-Wisconsin	Wisconsin	Electric	Fully Forecast	No	No	No	No	No	No	No	No	No	Yes
	Northern States Power Co.-Wisconsin	Wisconsin	Gas	Fully Forecast	No	No	No	No	No	No	No	No	No	Yes
Proxy Group Average				Fully Forecast 30			Yes	50				Yes	56	Yes 67
				Partially Forecas 7			No	33				No	27	Yes w/ sharing 7
				Historical 46										
			% with ForecastTest Year:	44.6%		% with Form of Revenue Stabilization		60.2%				% with Form of Capital Cost Recovery	67.5%	% with Full FCA Cost Recovery 90.5%
PacifiCorp (Oregon) [11]				Historical	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes w/ sharing

Notes:
[1] Regulatory Research Associates, effective as of November 30, 2023
[2] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022. Operating subsidiaries not covered in this report were excluded from this exhibit.
[3] Company Form 10-K, Company Tariffs, S&P Capital IQ Pro
[4] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.
[5] Equals IF(AND([2]=No, [3]=No, [4]=No), No, Yes)
[6] - [9] 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] S&P Global Market Intelligence, Regulatory Focus: Adjustment Clauses, dated July 18, 2022.

Docket No. UE 433
Exhibit PAC/414
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

RRA Ranking Analysis

February 2024

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

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

		[1]	[2]
		RRA	
	Operation State	Rank	Numeric Rank
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
OGE Energy Corporation	Arkansas	Average/1	4
	Oklahoma	Average/3	6
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	4.69
PacifiCorp	Oregon	Average/2	5

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

Docket No. UE 433
Exhibit PAC/415
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

S&P Credit Supportiveness Ranking Analysis

February 2024

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
OGE Energy Corporation	Arkansas	Highly credit supportive	2
	Oklahoma	Very credit supportive	3
Pinnacle West Capital Corporation	Arizona	More credit supportive	4
Portland General Electric Company	Oregon	More credit supportive	4

COMPARISON OF S&P JURISDICTIONAL RANKINGS

		[1]	[2]
		S&P	
		Rank	Numeric Rank
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
PacifiCorp	Oregon	More credit supportive	4

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

Docket No. UE 433
Exhibit PAC/416
Witness: Ann E. Bulkley

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PACIFICORP

Exhibit Accompanying Direct Testimony of Ann E. Bulkley

Capital Structure Analysis

February 2024

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	47.91%	52.09%	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	52.77%	47.23%	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	61.26%	38.74%	0.00%	100.00%
NorthWestern Corporation	NWE	49.29%	50.71%	0.00%	100.00%
OGE Energy Corporation	OGE	53.98%	46.02%	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	55.70%	44.06%	0.24%	100.00%
Xcel Energy Inc.	XEL	54.44%	45.56%	0.00%	100.00%
Average		52.89%	47.03%	0.08%	
Median		52.77%	47.23%	0.00%	
Maximum		61.26%	54.48%	0.57%	
Minimum		45.52%	38.74%	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.