BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

PREPARED DIRECT TESTIMONY OF JAMES M. COYNE

RETURN ON EQUITY

ON BEHALF OF PIEDMONT NATURAL GAS COMPANY, INC.

APRIL 1, 2024

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I. Introduction and Purpose

Q. Please state your name and business address.

A. My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc. ("Concentric") as a Senior Vice President. Concentric is a management consulting and economic advisory firm, focused on the North American energy and water industries. Based in Marlborough, Massachusetts and with offices in Washington, D.C. and Calgary, Alberta, Concentric specializes in regulatory and litigation support, financial advisory services, energy market strategies, market assessments, energy commodity contracting and procurement, economic feasibility studies, and capital market analyses. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. On whose behalf are you testifying?

A. I am submitting this testimony to the North Carolina Utilities Commission ("Commission") on behalf Piedmont Natural Gas Company, Inc. ("Piedmont" or the "Company"), which is a wholly owned subsidiary of Duke Energy Corporation ("Duke Energy").

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

A. I am among Concentric's professionals who provide expert testimony before federal, state, and Canadian provincial agencies on matters pertaining to economics, finance, and public policy in the energy industry. I regularly advise regulatory agencies, utilities, generating companies, and

private equity investors on business issues pertaining to the utility industry. This work includes calculating the cost of capital for the purpose of ratemaking and providing expert testimony and studies on matters pertaining to rate policy, valuation, capital costs, and performance-based regulation. I have authored numerous articles on the energy industry, lectured on utility regulation for regulatory commission staff, and provided testimony before the Federal Energy Regulatory Commission ("FERC") as well as state and provincial jurisdictions in the U.S. and Canada, including this Commission. I hold a B.S. in Business Administration from Georgetown University and an M.S. in Resource Economics from the University of New Hampshire. My educational and professional background is summarized more fully in Exhibit JMC-1.

Q. Are you sponsoring any exhibits in this case?

A. Yes. My analyses and recommendations are supported by the data presented in Exhibits JMC-2 through JMC-10, which have been prepared by me or under my direction. I am sponsoring the following exhibits:

- JMC-2 – Summary of ROE Results
- JMC-3 – Proxy Group Screening Analysis
- JMC-4 – Constant Growth DCF Analysis
- JMC-5.1 – Forward Market Risk Premium
- JMC-5.2 – Forward CAPM Analysis
- JMC-5.3 – Historical CAPM Analysis
- JMC-6 – Risk Premium Analysis

- JMC-7 – Expected Earnings Analysis
- JMC-8 – Regulatory Risk Assessment
- JMC-9 – Flotation Cost Analysis
- JMC-10 – Capital Structure Analysis

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony is to present evidence and provide a recommendation for the appropriate return on equity ("ROE") for Piedmont for use in this general rate case proceeding. My Direct Testimony also discusses the reasonableness of the Company's proposed capital structure in comparison to the proxy group companies supporting my analysis and the probable impact of the proposed ROE on Piedmont customers in light of changing economic conditions.

II. Overview and Summary

Q. What is your conclusion regarding the appropriate cost of equity for Piedmont?

A. I have estimated Piedmont's ROE based on the results from several alternative cost of capital models: the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the Bond Yield Plus Risk Premium ("Risk Premium") model, and the Expected Earnings model. As shown in Exhibit JMC-2, these models produce a range of estimates of the cost of equity, with a four-model average of 10.15% to 10.69% depending on whether projected interest rates and a forward-looking market risk premium or current interest rates and a historical market risk premium

are used. Based on these analyses, and considering Piedmont's specific risk profile, I recommend an ROE of 10.50%.

Q. Please provide a brief overview of the analyses that you conducted to support your ROE recommendation.

A. As mentioned, my ROE recommendation is based on the range of results produced from four modeling methodologies. Analysts and academics understand that ROE models are tools to be used in the ROE estimation process, and that strict adherence to any single approach, or the specific results of any single approach, can lead to flawed conclusions. No model can exactly pinpoint the correct cost of equity, but each is designed to provide a reasonable estimate of the return required to attract equity investment. My analysis therefore considers the range of results produced by these four different models:

- The DCF analysis estimates the cost of equity based on market data on dividend yields and analysts' projected earnings per share growth rates from reputable third-party sources.
- The CAPM analysis is based on both current and forecast interest rates and both a forward-looking and historical market risk premium.
- The Risk Premium approach calculates the risk premium as the spread between authorized ROEs for natural gas utilities and Treasury bond yields.

- The Expected Earnings approach is based on projected returns on book equity that investors expect to receive over the next three to five years. My ROE recommendation is ultimately based on the range of results produced by these four methodologies.

My recommendation also considers the general economic and capital market environment and the influence capital market conditions exert over the results of the models. In addition, I consider Piedmont's business and regulatory risks in relation to a set of proxy companies to assist in the determination of the appropriate ROE and capital structure from within the range of my analytical results.

My risk assessment indicates that Piedmont is an average risk gas utility, and I consider this risk profile in relation to the results for an average risk utility represented by the proxy group companies.

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

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

- Section III provides background on the regulatory principles that guide the determination of ROE.
- Section IV presents a review of current and prospective economic and capital market conditions and the implications for utility cost of capital.
- Section V describes the criteria and approach for the selection of a proxy group of comparable companies.

- Section VI provides a description of the data and methodologies used to estimate the cost of equity, as well as the results of the ROE estimation models.
- Section VII provides an assessment of the business and regulatory risk factors I have considered in arriving at an appropriate ROE for Piedmont.
- Section VIII provides a comparison of key economic indicators in North Carolina to those nationwide.
- Section IX reviews Piedmont's proposed capital structure in the context of the proxy group.
- Section X summarizes my results, conclusions, and recommendations.

III. Regulatory Principles

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

A. The foundations of public utility regulation require that utilities receive a fair rate of return sufficient to attract needed capital to maintain important infrastructure for customers at reasonable rates. The basic tenets of this regulatory doctrine originate from several bellwether decisions by the United States Supreme Court, notably *Bluefield Waterworks and Improvement Company v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power Commission v. Hope*

Natural Gas Company, 320 U.S. 591 (1944) ("*Hope*"). In *Bluefield*, the Court stated:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties…
>
> The return should be reasonably sufficient to assure investor confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.

Later, in *Hope*, the Court established a standard for the ROE that remains the guiding principle for ratemaking regulatory proceedings to this day:

> [T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

Q. Has the Commission provided similar guidance?

A. Yes, the Commission explicitly embraces the constitutional standards for determining the appropriate ROE established in *Bluefield* and *Hope.* For example, in a December 2023 decision for Duke Energy Carolinas, LLC ("DEC"), the Commission cited the *Bluefield* and *Hope* decisions as establishing the following standards:

> To fix rates that do not allow a utility to recover its costs, including the cost of equity capital, would be an unconstitutional taking. In assessing the impact of changing economic conditions on customers in setting

> [an ROE], the Commission must still provide the public utility with the opportunity, by sound management, to (1) produce a fair profit for its shareholders, in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital.[1]

Q. Please explain how these principles apply in the context of the regulated rate of return.

A. Regulated utilities rely primarily on common stock and long-term debt to finance permanent property, plant, and equipment. The allowed rate of return for a regulated utility is based on its weighted average cost of capital, where the costs of the individual sources of capital (*i.e.*, debt and equity) are weighted by their respective book values. The ROE represents the cost of raising and retaining equity capital and is estimated by using one or more analytical techniques that employ market data to quantify investor requirements for equity returns. However, the ROE cannot be derived through quantitative metrics and models alone. To properly estimate the ROE, the financial, regulatory, and economic context must also be considered.

The DCF, CAPM, Risk Premium and Expected Earnings approaches, while fundamental to the ROE determination, are still only models. The results of these models cannot be mechanistically applied without also using informed judgment to consider economic and capital

[1] See *Order Accepting Stipulations, Granting Partial Rate Increase, Requiring Public Notice, and Modifying Lincoln CT CPCN Conditions*, Docket No. E-7, Subs 1134 and 1276 (December 15, 2023) ("2023 DEC Rate Case Order"), at 195.

market conditions and the relative risk of Piedmont as compared to the proxy group companies.

Based on these widely recognized standards, the Commission's order in this case should provide Piedmont with the opportunity to earn a ROE that is:

- Commensurate with returns on investments in enterprises having comparable risks;
- Adequate to attract capital on reasonable terms, thereby enabling Piedmont to provide safe, reliable service; and
- Sufficient to ensure the financial soundness of Piedmont's natural gas utility operations.

Importantly, a fair return must satisfy all three of these standards. The allowed ROE should enable Piedmont to finance capital expenditures on reasonable terms and provide the Company with the ability to raise capital under a full range of capital market circumstances.

Q. What are your conclusions regarding regulatory principles?

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, the utility must have the opportunity to recover invested capital and the market-required return on that capital. Because utility operations are capital-intensive, regulatory decisions should enable the utility to attract capital on favorable terms. The financial community carefully monitors the current and expected financial condition of utility

companies, as well as the regulatory environment in which they operate. In that respect, the regulatory environment is one of the most important factors considered by both debt and equity investors in their assessments of risk. It is therefore essential that the ROE authorized in this proceeding take into consideration the current and expected capital market conditions that Piedmont faces, as well as investors' expectations and requirements regarding both risks and returns. A reasonable ROE is required both for continued capital investment by Piedmont and to maintain confidence in North Carolina's regulatory environment among credit rating agencies and investors, as explained by Piedmont witness Karl Newlin in his Direct Testimony in this proceeding.

IV. Economic and Capital Market Conditions

Q. Why is it important to consider the effects of current and expected economic and financial market conditions when setting the appropriate ROE?

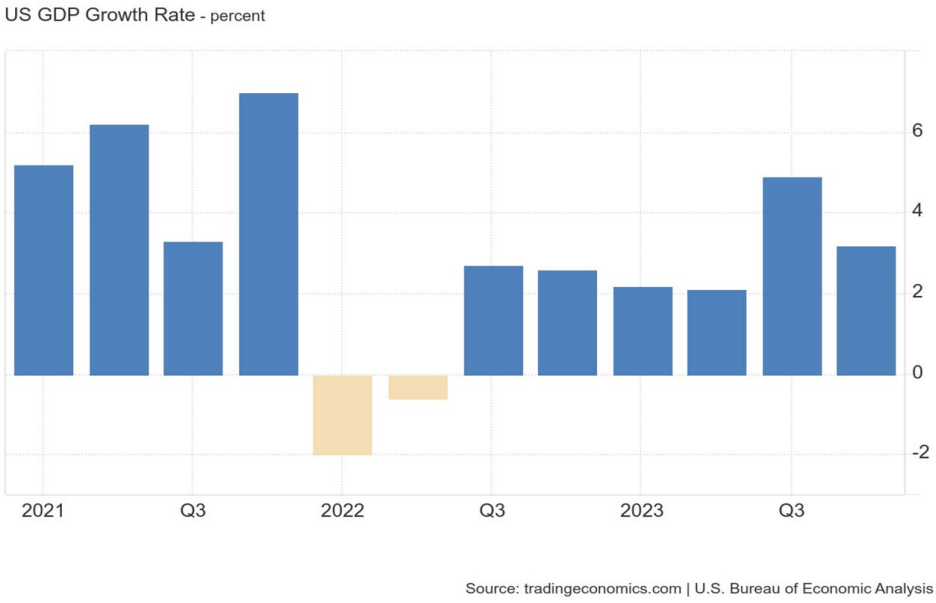
A. It is important to consider current and expected conditions in the general economy and financial markets because the authorized ROE for a public utility should allow the utility to attract investor capital at a reasonable cost under a variety of economic and financial market conditions, as underscored by the *Hope* and *Bluefield* decisions and the Commission's standards previously discussed. The standard ROE estimation tools, such as the DCF, CAPM, Risk Premium, and Expected Earnings models, each reflect the state of the general economy and financial markets by incorporating specific

economic and financial data. These inputs are, however, only samples of the various economic and market forces that determine a utility's required return. Consideration must be given to whether the assumptions relied on in the current or projected market data are appropriate. If investors do not expect current market conditions to be sustained in the future, it is possible that the ROE estimation models will not provide an accurate estimate of investors' forward-looking required return. Therefore, an assessment of current and projected market conditions is integral to any ROE recommendation.

Q. Please discuss economic conditions.

A. Economic conditions were unsettled in 2023 due to ongoing inflationary pressure and the prospects for weaker economic growth or a possible recession as the Federal Reserve continued to tighten monetary policy to combat higher than expected inflation. Real Gross Domestic Product ("GDP") grew at an annual rate of 2.5% in 2023 compared to 1.9% in 2022. Figure 1 shows that real GDP growth ranged from 2.1% to 2.7 % from the third quarter of 2022 through the second quarter of 2023, before expanding at an annualized rate of 4.9 % in the third quarter of 2023 and 3.2 % in the fourth quarter of 2023.

Figure 1: U.S. Real GDP Growth[2]



Q. Please discuss the changes in monetary policy that have occurred.

A. The U.S. Federal Reserve (the "Fed") continued to tighten monetary policy in 2023 to slow economic growth and combat higher than expected inflation. Specifically, the Fed raised the federal funds rate from a range of 0.00 to 0.25% in March 2022 to the current range of 5.25 to 5.50% as of January 2024. At the December 2023 Federal Open Market Committee ("FOMC") meeting, the Fed signaled that it was likely finished raising the federal funds rate. Capital markets interpreted this as an indication that the Fed would start cutting short-term interest rates sooner than expected. Contradicting this view, at the FOMC meeting on January 31, 2024, the Fed reiterated that it "does not expect it will be appropriate to reduce the [federal

[2] Source: https://tradingeconomics.com/united-states/GDP-growth.

funds] target range until it has gained greater confidence that inflation is moving sustainably toward 2 percent."[3] In early March of 2024, Chair Jerome Powell stated in his semi-annual Congressional testimony that the timing of future interest rate cuts remains dependent on progress toward achieving the Fed's goal of returning to the 2% inflation target.[4] More recently, following the FOMC's March 20, 2024 meeting, Chair Powell stated that, while it is likely the Fed may begin some level of federal funds target range reductions this year, "[t]he economic outlook is uncertain… and we remain highly attentive to inflation risks. We are prepared to maintain the current target range for the federal funds rate for longer, if appropriate."[5] Chair Powell further noted that the FOMC participants' median expectations are for a federal funds target range that remains "above the median longer-term funds rate" through at least 2026.[6]

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

A. The cost of equity for regulated utilities is being affected by several key factors, including: (1) the interest rate environment and central bank monetary policy; (2) inflationary pressure and the longer-term outlook for inflation; and (3) increased Beta coefficients for utilities since January 2020 demonstrating greater sector risk in the eyes of investors. In this section, I

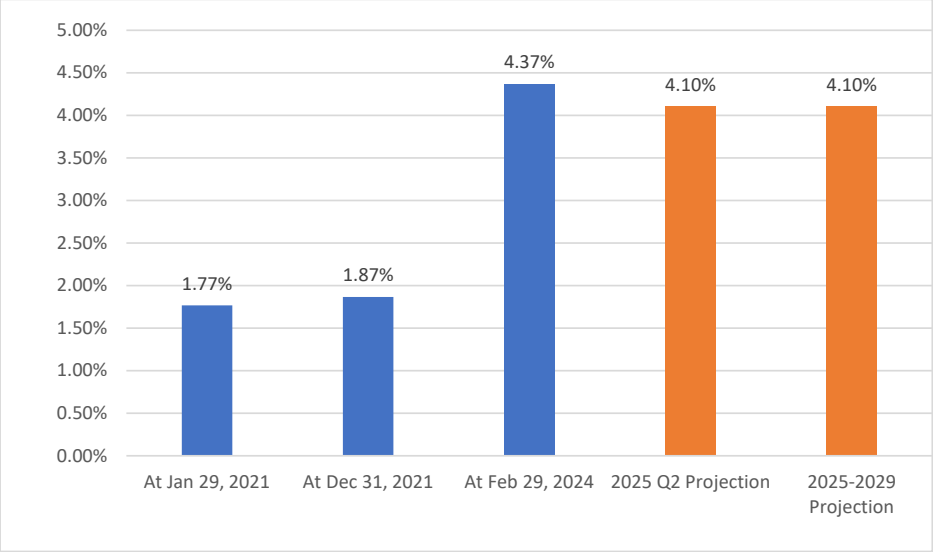
[3] U.S. Federal Reserve Board, Press Release, January 31, 2024.
[4] Semiannual Monetary Policy Report to Congress, Chair Jerome H. Powell, Before the Committee on Financial Services, U.S. House of Representatives, March 6, 2024.
[5] Transcript of Chair Powell's Press Conference, March 20, 2024, at 3.
[6] *Id*. at 4.

discuss each of these factors and how it affects the models used to estimate the cost of equity for regulated utilities.

Q. Please discuss the path of government bond yields and explain the implications for equity investors in the utility sector.

A. The 30-day average yield on 30-year Treasury bonds was 1.77% as of January 29, 2021 (when the ROE analysis in Piedmont's previous rate case was performed), and 1.87% as of December 31, 2021 (the period immediately preceding the Commission's approval of the settlement agreement in January 2022). As shown in Figure 2, as of February 29, 2024, the 30-day average yield on the 30-year Treasury bond increased to 4.37%. These 30-year Treasury yields are projected to remain at 4.10% in the second quarter of 2025[7] and 4.10% over the period from 2025-2029.[8]

Figure 2: Comparison of U.S. Treasury Bond Yields



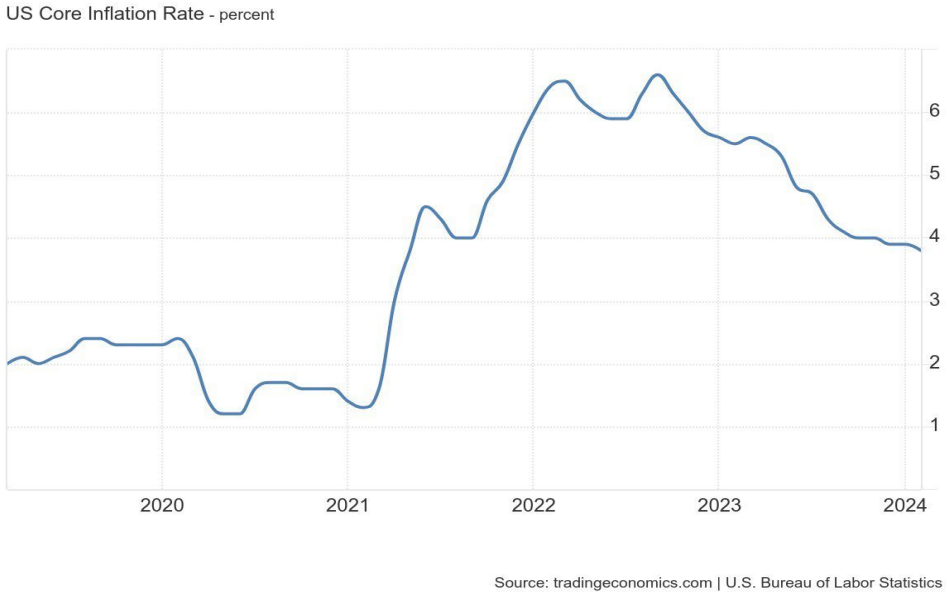
[7] Blue Chip Financial Forecasts, Vol. 43, Issue No. 3, March 1, 2024, at 2.
[8] Blue Chip Financial Forecasts, Vol. 42, Issue No. 12, December 1, 2023, at 14.

Higher government bond yields place pressure on the valuations of public utility companies. The utility sector was among the weakest performing sectors in 2023, with a total return for the S&P 500 Utilities Index of -7.0% compared to the total return for the S&P 500 Index of 26.6%. Notably, share prices for most companies in my gas distribution proxy group declined in 2023, and the dividend yields used in the DCF analysis for these companies increased.

Q. Please discuss the status of inflation.

A. As shown in Figure 3, the core inflation rate which excludes volatile food and energy prices was 3.8% for the 12-month period as of February 2024. While the consumer price index ("CPI") has declined from the extreme levels of June 2022 when it reached an annualized rate of 9.1%, the core inflation rate has been more persistent and remains well above the Fed's long-term target of 2.0%.

Figure 3: Core Inflation Rate[9]



Inflation expectations have been declining, as shown in the University of Michigan's consumer confidence survey, which indicated that U.S. consumers expect inflation of approximately 2.9% in 2024.[10] The Fed has indicated that it could start reducing the federal funds rate, which currently is in a range from 5.25 to 5.50%, in 2024 if inflationary pressure continues to decline. However, the timing or magnitude of any reductions in short-term interest rates remains unknown and is highly dependent on economic data.

[9] Source: https://tradingeconomics.com/united-states/core-inflation-rate.
[10] Source: University of Michigan Consumer Confidence Survey, March 1, 2024.

Q. Have you compared current conditions in capital markets to conditions at the time when the ROE analyses were performed in the DEC rate case and the prior Piedmont rate case?

A. Yes, I have. Figure 4 (below) shows a comparison of key interest rates as of February 29, 2024, to January 2023 when the analysis was performed in the DEC rate case; December 2021 when the Commission approved the settlement agreement in the last Piedmont rate case; and January 2021 when the analysis was performed in the prior Piedmont rate case. As shown in the Figure, interest rates on government and utility bonds are substantially higher than at the time of the previous DEC and Piedmont cases. This is one market indicator of the increase in the cost of capital for all segments of the economy, including regulated utilities.

Figure 4: Comparison of Interest Rates

Indicator	Jan. 2021 Piedmont NC testimony	Dec. 2021 Settlement approved in prior Piedmont NC case	Jan. 2023 Morin – DEC testimony	Feb. 2024 Piedmont NC
Federal Funds Rate	0.0% - 0.25%	0.0% - 0.25%	4.25% - 4.50%	5.25% - 5.50%
10-year Treasury bond	1.03%	1.49%	3.60%	4.18%
30-year Treasury bond	1.77%	1.87%	3.71%	4.37%
Moody's A-rated utility bond	2.86%	3.05%	5.27%	5.55%
Moody's Baa-rated utility bond	3.14%	3.28%	5.56%	5.78%
ROE recommendation	10.25%	9.60%	10.40%	10.50%

Q. Please discuss the Beta coefficients for gas distribution companies.

A. Beta is a measure of market risk in the CAPM, as discussed in more detail in Section VI of my Direct Testimony. Utilities have traditionally been considered less risky than the broader market and were viewed by investors as a safe haven during recessions and other periods of market uncertainty. Beta coefficients for regulated utilities have historically averaged 0.60 to 0.75. Figure 5 demonstrates that since January 2020 there has been a shift in investor perceptions regarding the relative risk of utilities to the broader market. While utilities remain less risky than the broad market, the Beta coefficients for the gas utilities in my proxy group have increased to the range of 0.80 to 0.95.

Figure 5: Beta Coefficients for Proxy Group

	January 2020	**February 2024**
Value Line Beta	0.650	0.875
Bloomberg Beta	0.689	0.842

In summary, utility betas have increased substantially since January 2020, indicating that investors perceive the utility sector as having greater market risk relative to the market than in prior periods. This is further evidence that the cost of equity for regulated utilities such as Piedmont has increased in recent years.

Q. What are your conclusions regarding the effects of the current market environment on the cost of equity for Piedmont?

A. Yields on government and utility bond yields increased sharply in 2022 and 2023, and total returns for the utility sector were weak relative to the broader market. In addition, the relative risk of the utility industry (as measured by Beta) increased compared to the broader market. Under these conditions, it is reasonable that equity investors would require a higher ROE to keep pace with the increases in lower-risk bonds and compensate them for the additional risks of owning common stock. These circumstances are reflected in the results of multiple models used to estimate the cost of equity, such as the DCF, CAPM, Risk Premium, and Expected Earnings approaches.

V. Proxy Group Selection

Q. Why is it necessary to select a proxy group to estimate the cost of equity for Piedmont?

A. Since ROE is a market-based concept and Piedmont is not publicly traded, it is necessary to establish a group of publicly traded companies comparable to Piedmont. Even if Piedmont were a publicly-traded entity, it is possible that transitory events could bias the Company's market value in one way or another in a given period of time. A significant benefit of using a proxy group is the ability to mitigate the effects of short-term events associated with any one company. The proxy companies used in my ROE analyses possess a set of business and operating characteristics similar to Piedmont's

natural gas utility operations, and therefore provide a reasonable basis for estimating the Company's ROE.

Q. Please provide a summary profile of Piedmont.

A. Piedmont is a wholly owned subsidiary of Duke Energy Corporation, providing natural gas distribution service to approximately 1.1 million residential, commercial, industrial and power generation customers in portions of North Carolina, South Carolina and Tennessee.[11] Approximately 810,000 customers are located in North Carolina, 99% of whom are residential or commercial. Piedmont has long-term issuer ratings from Moody's Investors Service ("Moody's") of A3 (Outlook: Stable) and S&P Global Ratings ("S&P") of BBB+ (Outlook: Stable).[12]

Q. Please describe the specific screening criteria you have utilized to select a proxy group.

A. I began with the nine investor-owned domestic natural gas distribution companies covered by Value Line and then screened companies according to the following criteria:

1. Consistently pays quarterly cash dividends and has not reduced or eliminated the dividend in the past two years;
2. Maintains an investment grade long-term issuer rating (BBB- or higher) from S&P;

[11] S&P Global Ratings, Piedmont Natural Gas Co. Inc. February 1, 2024, at 3.

[12] Source: S&P Capital IQ Pro, accessed March 8, 2024.

3. Covered by more than one equity analyst;
4. Has positive earnings growth rates published by at least two of the following sources: Value Line Investment Survey, Thomson First Call (as reported by Yahoo! Finance), Zack's Investment Research ("Zacks"), and S&P Capital IQ;
5. Derives more than 60% of net operating income from regulated operations (based on a three-year average from 2020-2022);
6. Derives more than 60% of regulated net operating income from natural gas distribution service (based on a three-year average from 2020-2022); and
7. Not involved in a merger or other transformative transaction for an approximate six-month period prior to my analysis.

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

A. Based on the screening criteria discussed above, I arrived at a proxy group consisting of the companies shown in Figure 6. The results of my screening process are shown in Exhibit JMC-3.

Figure 6: Proxy Group

Company	Ticker
Atmos Energy Corporation	ATO
New Jersey Resources Corporation	NJR
Northwest Natural Holding Company	NWN
ONE Gas, Inc.	OGS
Southwest Gas Holdings, Inc.	SWX
Spire, Inc.	SR

Q. Do your screening criteria result in a group of companies that investors would view as comparable to Piedmont?

A. Yes. I have selected this group of natural gas utilities to best align with the financial and operational characteristics of Piedmont. The proxy group screening criterion requiring an investment grade credit rating ensures that the proxy group companies, like Piedmont, are in sound financial condition. Additionally, I have screened on the percent of net operating income from regulated operations to differentiate between utilities that are protected by regulation and those with substantial unregulated operations or market-related risks. The proxy group also reflects Piedmont's natural gas operations. These screens collectively reflect key risk factors that investors consider in making investments in natural gas utilities.

Q. What is your conclusion with regard to the proxy group for Piedmont?

A. My conclusion is that my group of six natural gas utilities adequately reflects the broad set of risks that investors consider when investing in a U.S. regulated natural gas utility such as Piedmont. Later in my testimony, I will evaluate whether any adjustment should be made to the results of my ROE analyses to account for differences in Piedmont's company-specific risks relative to the proxy group companies.

VI. Determination of the Appropriate Cost of Equity

Q. What models did you use in your ROE analyses?

A. I have utilized four ROE estimation models: the Constant Growth DCF, the CAPM, the Bond Yield Plus Risk Premium, and Expected Earnings.[13] The following describes each of the models and inputs I have utilized to estimate Piedmont's cost of equity.

A. Constant Growth DCF Model

Q. Please describe the DCF approach.

A. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its simplest form, the DCF model expresses the ROE as the sum of the expected dividend yield and long-term growth rate:

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

Where "*k*" equals the required return, "*D*" is the current dividend, "*g*" is the expected growth rate, and "*P*" represents the subject company's stock price. Assuming a constant growth rate in dividends, the model may be rearranged to compute the ROE accordingly, as shown in Formula [2]:

$$r = \frac{D}{P} + g \qquad [2]$$

[13] In its 2023 DEC Rate Case Order, the Commission relied on the results of the DCF Constant Growth, CAPM, ECAPM, and Risk Premium models in determining the authorized rate of return. *See* 2023 DEC Rate Case Order at 203, 209 - 211.

Stated in this manner, the cost of common equity is equal to the dividend yield plus the dividend growth rate.

Q. What are the assumptions underlying the Constant Growth DCF model?

A. The Constant Growth DCF model is based on the following assumptions: (1) a constant average growth rate for earnings and dividends in perpetuity; (2) a stable dividend payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate.

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

A. I calculated DCF results for each of the proxy group companies using the following inputs:

1. Average stock prices for the historical period, over 30-, 90-, and 180-trading days through February 29, 2024;
2. Annualized dividend per share as of February 29, 2024; and
3. Company-specific earnings growth forecasts for the term *g*.

My application of the Constant Growth DCF model is provided in Exhibit JMC-4.

Q. Why did you use averaging periods of 30, 90, and 180 trading days?

A. It is important to use an average of recent trading days to calculate the term P in the DCF model to ensure that the calculated ROE is not skewed by anomalous events that may affect stock prices on any given trading day. At the same time, it is important to reflect the conditions that have defined

the financial markets over the recent past. In my view, consideration of those three averaging periods reasonably balances these interests.

Q. Did you adjust the dividend yield to account for periodic growth in dividends?

A. Yes, I did. Utility companies tend to increase their quarterly dividends at different times throughout the year, so it is reasonable to assume that such 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 the purposes of calculating this component of the DCF model. This adjustment ensures that the expected dividend yield is representative of the coming 12-month period. Accordingly, the DCF estimates reflect one-half of the expected growth in the dividend yield.[14]

Q. What sources of growth have you used in your DCF analysis?

A. I have used the consensus analyst five-year growth estimates in earnings per share ("EPS") from Thomson First Call, Zacks and S&P Capital IQ, as well as EPS growth rate estimates published by Value Line.

Q. Why did you focus on earnings per share growth?

A. The Constant Growth DCF model assumes that dividends grow at a constant rate in perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure, one must assume a constant payout ratio, and that earnings per share, dividends per share, and book value per share all grow at the same constant rate. Over the long term, however, dividend growth

[14] The expected dividend yield is calculated as $d_1 = d_0 (1 + ½ g)$.

can only be sustained by earnings growth. As noted by Brigham and Houston in their text, *Fundamentals of Financial Management*: "Growth in dividends occurs primarily as a result of growth in *earnings per share* (EPS)."[15] It is therefore important to focus on measures of long-term earnings growth from credible sources as an appropriate measure of long-term growth in the DCF model.

Q. Are other sources of growth available to investors?

A. Yes, although that does not mean that investors incorporate such estimates into their investment decisions. Academic studies suggest that investors base their investment decisions on analysts' expectations of growth in earnings.[16] I am not aware of any similar findings regarding non-earnings-based growth estimates. In addition, the only forward-looking growth rates that are available on a consensus basis are analysts' EPS growth rates. The fact that earnings growth projections are the only widely-accepted estimates of growth provides further support that earnings growth is the most meaningful measure of growth among the investment community.

[15] Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

[16] *See*, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts,* Financial Management, Summer 1992, at 65; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton's original conclusions.

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

A. The results of my Constant Growth DCF analysis are provided in Exhibit JMC-4 and summarized in Figure 7.

Figure 7: Constant Growth DCF Results

	Mean Low	Mean	Mean High
30-day average	8.93%	10.19%	11.33%
90-day average	8.87%	10.13%	11.27%
180-day average	8.73%	9.99%	11.13%

Q. How did you calculate the Mean High, Mean Low, and Overall Mean DCF results?

A. I calculated the Mean High DCF result using the maximum growth rate (*i.e.*, the maximum of the First Call, Value Line, and Zacks EPS growth rates) in combination with the expected dividend yield for each of the proxy group companies. I used a similar method to calculate the Mean Low DCF results, using the minimum growth rate for each company. The Mean results reflect the average growth rate from each source for each company in combination with the expected dividend yield.

B. CAPM Analysis

Q. Please briefly describe the general form of 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).[17] As shown in Equation [3], the CAPM is defined by four components, each of which must theoretically be a forward-looking estimate:

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

where:

K_e = the required ROE for a given security;

r_f = the risk-free rate of return;

β = the Beta of an individual security; and

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

The term $(r_m - r_f)$ represents the Market Risk Premium ("MRP"). According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

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

where:

r_e = the rate of return for the individual security or portfolio.

[17] Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

The variance of the market return, noted in Equation [4], is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the market reflects the extent to which the return on that security will respond to a given change in the market return. Thus, Beta represents the risk that the selected security will not be effective in diversifying systematic market risks.

Q. What risk-free rate did you use in your CAPM analysis?

A. Since both the CAPM and Risk Premium models assume long-term investment horizons, I used the Blue Chip forecast of the yield on 30-year Treasury bonds for 2025-2029 of 4.10% as my estimate of the risk-free rate.[18] That time period reflects a forward-looking view, which is the objective of the ROE analysis. I also considered CAPM results applying the 30-day average yield (as of February 29, 2024) on 30-year Treasury bonds of 4.37%.

Q. What measures of Beta did you use in your CAPM analysis?

A. As shown in Exhibit JMC-5.2, I considered two measures of Beta for the proxy group companies: (1) the Beta coefficients from Bloomberg (which are calculated using five years of weekly data against the S&P 500 Index); and (2) the reported Beta coefficients from Value Line (which are calculated using five years of weekly data against the New York Stock Exchange Composite Index). Beta coefficients for utilities have increased

[18] Blue Chip Financial Forecasts, Volume 42, No. 12, December 1, 2023, at 14.

substantially since January 2020, as utilities have traded more in line with the broader market. It is important to emphasize that Beta coefficients are calculated over a five-year period, so this recent increase is not a short-term market phenomenon. This trend began five years ago and represents a significant departure from how investors have viewed utilities in the past.

Q. What Market Risk Premium did you use in your CAPM analysis?

A. I calculated a forward-looking MRP using the Constant Growth DCF model to estimate the total market return for the S&P 500 Index, using projected earnings growth rates and dividend yields. As of February 29, 2024, the projected total market return is 14.21%, as shown in Exhibit JMC-5.1. I then calculated the forward-looking MRP by subtracting the risk-free rate (based on the five-year forecast of the 30-year Treasury bond of 4.10%) from the total market return. The forward-looking MRP is 10.11%. I also utilized the historical MRP from Kroll of 7.17%, which is based on the difference between the return on large company stocks less the income-only return on government bonds from 1926-2022, in combination with the current 30-year Treasury bond yield of 4.37%.

Q. What are the results of your CAPM analyses?

A. The CAPM results are shown in Exhibits JMC-5.2 and JMC-5.3 and summarized in Figure 8 below. The average CAPM results are 12.78% (using a forward-looking MRP and a long-term projected Treasury yield) and 10.52% (using a historical MRP and a current average Treasury yield).

Figure 8: CAPM results

	Forward MRP	Historical MRP
Bloomberg Beta	12.62%	10.40%
Value Line Beta	12.95%	10.64%
Average	12.78%	10.52%

C. Risk Premium Analysis

Q. Please describe the Risk Premium approach that you used.

A. In general terms, this approach recognizes that equity is riskier than debt because equity investors bear the residual risk associated with ownership. Equity investors, therefore, require a greater return (*i.e.*, a premium) than would a bondholder. The Risk Premium approach estimates the cost of equity as the sum of the Equity Risk Premium and the yield on a particular class of bonds.

$$ROE = RP + Y \qquad [5]$$

Where:

RP = Risk Premium (difference between allowed ROE and the 30-Year Treasury Yield) and

Y = Applicable bond yield.

Since the equity risk premium is not directly observable, it is typically estimated using a variety of approaches, some of which incorporate *ex-ante*, or forward-looking, estimates of the cost of equity and others that consider historical, or *ex-post*, estimates. For my Risk Premium analysis, I have relied on authorized returns from a large sample of natural gas utilities.

Q. What did your Risk Premium analysis reveal?

A. To estimate the relationship between risk premia and interest rates, I conducted a regression analysis using the following equation:

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

where:

RP = Risk Premium (difference between allowed ROEs and the 30-Year Treasury Yield);

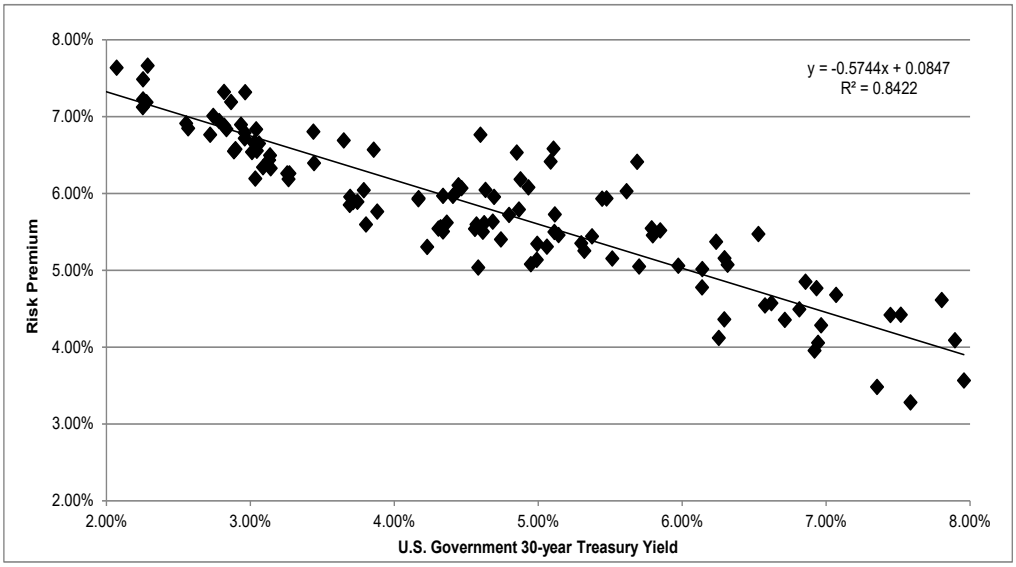
a = Intercept term;

b = Slope term; and

Y = 30-Year Treasury Yield.

Data regarding allowed ROEs were derived from 790 natural gas utility company rate cases from January 1, 1992, through February 29, 2024, as reported by Regulatory Research Associates.

Figure 9: Risk Premium Results – Natural Gas Utilities



As illustrated by Figure 9 (above), the risk premium varies with the level of bond yield, and generally increases as the bond yields decrease, and vice versa. In order to apply this relationship to current and expected bond yields, I consider three estimates of the 30-year Treasury yield, including the current 30-day average, a near-term Blue Chip consensus forecast for Q2 2024 – Q2 2025, and a Blue Chip consensus forecast for 2025–2029. I find this five-year result to be most applicable because investors typically have a multi-year view of their required returns. Based on the regression coefficients in Exhibit JMC-6, which allow for the estimation of the risk premium at varying bond yields, the results of my Risk Premium analysis are shown in Figure 10.

Figure 10: Risk Premium Results Using 30-Year Treasury Yield

	Using 30-Day Average Yield on 30-Year Treasury Bond	**Using Q2 2024–Q2 2025 Forecast for Yield on 30-Year Treasury Bond[19]**	**Using 2025-2029 Forecast for Yield 30-Year Treasury Bond[20]**
Yield	4.37%	4.18%	4.10%
Risk Premium	5.97%	6.07%	6.12%
Resulting ROE	10.33%	10.25%	10.22%

[19] Blue Chip Financial Forecasts, Vol. 43, No. 3, March 1, 2024, at 2.
[20] Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023, at 14.

D. Expected Earning Analysis

Q. Have you conducted any other analysis to estimate the cost of equity for Piedmont?

A. Yes. I have also conducted an Expected Earnings analysis to estimate the cost of equity for Piedmont based on the projected ROEs for the proxy group companies.

Q. What is an Expected Earnings Analysis?

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

The Expected Earnings approach relying on expected returns for like-risk companies is a core strength of the model and consistent with the basic tenets of *Hope*: "the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks." Since the Expected Earnings model provides an accounting-based approach that relies on investment analysts' projections of earnings on book equity, it affords the benefit of analyst insights,

knowledge and expertise in interpreting a given company's earnings prospects in the context of current market conditions.

Q. How is the Expected Earnings Approach calculated?

A. I relied on the projected ROE for the proxy companies as reported by Value Line for the period from 2026-2028. I then adjusted those projected ROEs to account for the fact that the ROEs reported by Value Line are calculated on the basis of common shares outstanding at the end of the period, as opposed to average shares outstanding over the entire period. As shown in Exhibit JMC-7, the Expected Earnings analysis results in a mean of 9.62%.

E. Evaluating Model Results

Q. Please explain how you have considered the results of the various financial models to arrive at your ROE recommendation.

A. I have considered the results of the DCF, CAPM, Bond Yield Plus Risk Premium, and Expected Earnings analyses. While I would typically rely on the results of analyses using projected interest rates, I also considered the range using current interest rates given the uncertainty associated with inflation and Federal Reserve actions. As shown in Figure 11, the four model average ranges from 10.15% to 10.69%, depending on the market risk premium and risk-free rate used in the CAPM.

Figure 11: ROE Results

	With forward CAPM and RP analysis with projected risk-free rate	With historical CAPM and RP analysis with current risk-free rate
Constant DCF – 90-day stock prices	10.13%	10.13%
CAPM – forward MRP, projected risk-free rate, five-year betas	12.78%	
CAPM – historical MRP, current risk-free rate, five-year betas		10.52%
Risk Premium – projected Treasury yield	10.22%	
Risk Premium – current Treasury yield		10.33%
Expected Earnings - Mean	9.62%	9.62%
Average	**10.69%**	**10.15%**

As discussed in the next Section of my testimony, this ROE estimate serves as a base prior to consideration of relative business and financial risks.

VII. Business and Financial Risks

Q. Are there factors specific to Piedmont's risk profile that you also considered in developing your ROE recommendation?

A. Yes, there are several factors that have a direct bearing on Piedmont's risk profile in relation to the proxy group. Those risk factors include: (1) the Company's capital expenditure program; (2) and regulatory risk relative to the proxy group companies. In addition, I considered the effect of flotation costs on the cost of equity.

A. Capital Expenditure Program

Q. Please discuss Piedmont's capital spending program.

A. The Company plans a major capital investment program over the 2024-2027 period, totaling approximately $2.66 billion in the North Carolina jurisdiction, or $666 million per year.[21] As with any utility facing substantial capital expenditure requirements, the Company's risk profile is 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. The absolute level of investment required will put significant pressure on the Company's need to raise capital, and the terms will have lasting impacts for the Company's customers.

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

[21] See G-1 Item 32 of Piedmont's application for support for these forecasted capital expenditures.

> 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.[22]

With regard to Piedmont's credit profile, Moody's acknowledged the Company's elevated capital expenditure program as a credit challenge and observed "Given its large capital expenditure program, Piedmont will continue to rely on external financing sources to maintain an adequate liquidity profile."[23] S&P's most recent credit report provides a similar assessment:

> We expect Piedmont Natural Gas Co. Inc.'s financial measures to reflect the lower end of the range for its financial risk profile category. These measures include funding its large capital spending programs in a credit-supportive manner and maintaining effective regulatory risk management across its jurisdictions. Piedmont has a large capital spending program, about four times that of depreciation expense, that will generate negative discretionary cash flow and potentially strain credit metrics, although we expect this spending to reflect low-risk, regulated investments. Our base case assumes a funds from operations (FFO) to debt ratio of 14%-16%, which is in the lower end of the range for the company's financial risk profile category. As such, we use a

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

[23] Moody's Investor Service, "Piedmont Natural Gas Company, Inc., Update to credit analysis," June 30, 2023, at 5.

negative comparable ratings analysis modifier to capture this risk.[24]

To the extent that Piedmont's rates do not permit the Company an opportunity to recover its full cost of doing business, Piedmont will face increased pressure on its credit metrics. Maintaining access to capital markets on favorable terms is especially important for utilities and their customers during periods of significant capital investment.

Q. What is your conclusion regarding how Piedmont's projected capital expenditure program affects the Company's risk profile and cost of equity?

A. My primary conclusion is that Piedmont's capital spending program will require the Company to maintain access to capital markets on favorable terms and conditions. The magnitude of Piedmont's capital program places pressure on its cash flows and credit metrics. For these reasons, it is important that the authorized ROE be set at a level that enables Piedmont to continue to attract both debt and equity capital on favorable terms under a variety of economic and financial market conditions.

B. Regulatory Risk

Q. Please explain how the regulatory framework 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

[24] S&P Global Ratings, "Piedmont Natural Gas Co. Inc., February 1, 2024, at 203".

services, the utility must have the opportunity to recover invested capital and the market-required return on such capital. Regulatory commissions recognize that, because utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms, thereby balancing the long-term interests of investors and customers. In that respect, and as discussed in Company witness Newlin's Direct Testimony, the regulatory framework in which a utility operates is one of the most important factors in both debt and equity investors' risk assessments. Because investors have many investment alternatives, even within a given market sector, the Company's authorized return must be adequate on a relative basis to ensure its ability to attract capital under a variety of economic and financial market conditions.

Q. Do credit rating agencies consider the regulatory framework in establishing a company's credit rating?

A. Yes. Both Moody's and S&P consider the overall regulatory framework in establishing credit ratings. Moody's establishes credit ratings based on four key factors:

Figure 12: Moody's Rating Factors

Factor	Weighting
Regulatory Framework	25%
Ability to Recover Costs and Earn Returns	25%
Diversification	10%
Financial Strength	40%
Total	**100%**

Two of these factors (i.e., regulatory framework and the ability to recover costs and earn returns) are based on the regulatory environment, meaning

that half of Moody's overall assessment of business and financial risk for regulated utilities is based upon the regulatory environment.[25] Moody's further subdivides the first two factors, Regulatory Framework and the Ability to Recover Costs and Earn Returns, into sub-factors to help "provide more granularity and transparency on the overall regulatory environment, which is the most important consideration for this sector."[26] Similarly, S&P has identified the regulatory environment as an important factor, stating, "we believe the fundamental regulatory environment in the jurisdictions in which a utility operates often influence credit quality the most."[27]

Q. Please explain the effect of regulatory risk on Piedmont's ability to raise capital and the impact on customers.

A. Given Piedmont's capital spending plan, and the consequent need to raise capital, it is important that the Company maintain access to capital markets at reasonable rates. Moody's and S&P consider North Carolina to be a credit supportive jurisdiction in part due to constructive ratemaking and the allowance of reasonable returns.[28] It is important this be maintained. As discussed in the Direct Testimony of Piedmont witness Brian Weisker, Piedmont's capital expenditure program is designed to benefit and deliver value for customers. Given the significant level of planned capital

[25] Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, June 23, 2017, at 4.
[26] *Id*. at 3.
[27] S&P, *Utility Regulatory Assessments for U.S. Investor-Owned Utilities*, January 7, 2014, at 2.
[28] Moody's Investor Service, "Piedmont Natural Gas Company, Inc., Update to credit analysis," June 30, 2023, at 4.

expenditures, any increases in borrowing costs due to a lower credit rating could have a significant negative effect on the costs to Piedmont's customers.

Q. Have you performed an analysis of the regulatory mechanisms for Piedmont as compared to those for the proxy group companies?

A. Yes. While Piedmont has a number of regulatory mechanisms, it is instructive to look at the overall regulatory cost recovery mechanisms available to the proxy companies when evaluating the relative regulatory risk of the Company. I have conducted an analysis of the regulatory mechanisms that are in place for Piedmont compared with those for the operating utility companies held by the proxy group. The results of my analysis are presented in Exhibit JMC-8. Specifically, I examined the following factors that affect the regulatory risk of Piedmont and the proxy group companies: (1) test year convention; (2) rate base convention; (3) purchased gas costs; (4) revenue decoupling; (5) and capital cost recovery.

In North Carolina, Piedmont uses a historical test year adjusted for known and measurable changes, which exposes the Company to regulatory lag. As shown in Exhibit JMC-8, 35% of the operating companies in the proxy group provide service in jurisdictions that allow the use of a fully or partially forecasted test year, thereby reducing regulatory lag. Similar to 71% of the operating companies in the proxy group, Piedmont uses a year-end rate base in North Carolina, which provides more timely cost recovery of capital investments, while 29% of the proxy group use average rate base.

Piedmont has a purchased gas adjustment clause that allows the Company to pass through purchased gas costs to customers, as do 100% of the operating utilities held by the proxy group companies. Like approximately 95% of the operating companies held by the proxy group, Piedmont has a revenue decoupling mechanism that protects against volumetric risk. Piedmont also has a capital cost tracking mechanism for delivery infrastructure in North Carolina, as do 59% of the operating utilities held by the proxy group companies that have capital cost tracking mechanisms that allow them to recover capital investments between rate cases. When viewed as a whole from an investor perspective, although the regulatory mechanisms available to Piedmont in North Carolina are generally similar to those for the proxy companies, Piedmont faces slightly greater regulatory risk on the basis of the test year convention.

C. Flotation Costs

Q. What are flotation costs?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These costs include out-of-pocket expenditures for preparation, filing, underwriting, and other costs of issuance of common stock. To the extent that a company is denied the opportunity to recover prudently incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diminishing the utility's ability to attract adequate capital on reasonable terms.

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

A. The authorized ROE is the only ratemaking mechanism through which these necessary costs may be recovered. Flotation costs are reflected on the utility's balance sheet as "paid in capital" and are not expensed on the utility's income statement. When a company issues common stock, flotation costs are incurred and netted against the proceeds from the issuance, reducing the amount available for investment in rate base by the amount of the flotation costs.

Q. Do academic and financial experts recognize the need to consider flotation costs in a utility's cost of equity?

A. Yes. Dr. Roger Morin, a recognized expert in regulatory economics and finance, notes:

> The costs of issuing these securities are just as real as operating and maintenance expenses or costs incurred to build utility plants, and fair regulatory treatment must permit recovery of these costs…. The simple fact of the matter is that common equity capital is not free….[Flotation costs] must be recovered through a rate of return adjustment. [29]

According to Dr. Shannon Pratt, a published expert in cost of capital estimation:

> Flotation costs occur when new issues of stock or debt are sold to the public. The firm usually incurs several kinds of flotation or transaction costs, which reduce the actual proceeds received by the firm. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the firm's required returns on these proceeds equate to a higher

[29] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at 321.

> return to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the cash flow to discount, or by incorporating the cost into the cost of capital. Because flotation costs are not typically applied to operating cash flow, one must incorporate them into the cost of capital.[30]

Q. What are the flotation costs for the proxy group companies?

A. Based on the proxy group issuance costs shown in Exhibit JMC-9, I conclude that flotation costs for the proxy group companies have equaled roughly 3.51% of gross equity raised. To properly reflect these issuance costs in my cost of capital estimates, it would be appropriate to increase the authorized ROE by approximately 16 basis points for Piedmont, as shown in Exhibit JMC-9, to allow the Company the opportunity to recover flotation costs.

VIII. Economic Conditions in North Carolina

Q. Did you consider the economic conditions in North Carolina in arriving at your ROE recommendation?

A. Yes, I did. As a preliminary matter, I understand that the Commission must balance the interests of investors and customers in setting the ROE. As the Commission has stated, " ... the Commission is and must always be mindful of the North Carolina Supreme Court's command that the Commission's task is to set rates as low as possible consistent with the dictates of the

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

United States and North Carolina Constitutions."[31] In that regard, the return should be neither excessive nor confiscatory; it should be the minimum amount needed to meet the *Hope* and *Bluefield* Comparable Risk, Capital Attraction, and Financial Integrity standards.

The Commission also has found that the role of cost of capital experts is to determine the investor-required return, not to estimate increments or decrements of return in connection with consumers' economic environment. As the Commission pointed out:

> ... adjusting investors' required costs based on factors upon which investors do not base their willingness to invest is an unsupportable theory or concept. The proper way to take into account customer ability to pay is in the Commission's exercise of fixing rates as low as reasonably possible without violating constitutional proscriptions against confiscation of property. This is in accord with the "end result" test of Hope. This the Commission has done.[32]

The North Carolina Supreme Court agreed, and upheld the Commission's Order on Remand.[33] The North Carolina Supreme Court has also, however, made clear that the Commission "must make findings of fact regarding the impact of changing economic conditions on customers when determining

[31] See *Order Granting General Rate Increase*, Docket No. E-7, Sub 1026 (Sept. 24, 2013), at 24; see also *Order on Remand*, Docket No. E-22, Sub 479 (July 23, 2015), at 40 (stating in a Virginia Electric and Power Company d/b/a Dominion Energy North Carolina ("DENC") rate case remand order ("DENC Remand Order") that "the Commission in every case seeks to comply with the North Carolina Supreme Court's mandate that the Commission establish rates as low as possible within Constitutional limits.").

[32] See *Order on Remand*, Docket No. E-7, Sub 989 (October 23, 2013), at 34-35; see also DENC Remand Order, at 26 (stating that the Commission is not required to "isolate and quantify the effect of changing economic conditions on consumers in order to determine the appropriate rate of return on equity").

[33] State of North Carolina ex rel. Utilities Commission v. Cooper, 766 S.E.2d 827 (2014).

the proper ROE for a public utility."[34] In *Cooper II,* which addressed an appeal of the Commission's order on DENC's previous base rate application, the North Carolina Supreme Court directed the Commission on remand to "make additional findings of fact concerning that impact of changing economic conditions on customers."[35] The Commission made such additional findings of fact in its order on remand.[36] In light of the *Cooper II* decision and the North Carolina Supreme Court precedent that preceded it,[37] I understand the Commission's need to consider economic conditions in the State and as such, I have undertaken several analyses to provide such a review.

Q. Please describe the specific economic indicators that you reviewed.

A. I started by reviewing the economic outlook for North Carolina and the U.S. based on projections from TD Economics. I also reviewed the historical performance of the following economic indicators for both North Carolina and the U.S.: 1) real GDP growth; 2) the unemployment rate, including the seasonally unadjusted unemployment rates in the counties served by Piedmont; 3) measures of personal income and disposable income; and 4) residential natural gas prices. The section that follows discusses this economic data, starting with the current forecast for 2024 and 2025.

[34] State of North Carolina ex rel. Utilities Commission v. Cooper, 758 S.E.2d 635, 642 (2014) ("Cooper II").
[35] Cooper II, 758 S.E.2d at 643.
[36] DENC Remand Order at 4-10.
[37] State of North Carolina ex rel. Utilities Commission v. Cooper, 366 N.C. 484, 739 S.E.2d 541 (2013) ("Cooper I").

Q. Please discuss the economic outlook for North Carolina as compared to the U.S. overall.

A. Since the estimation of the cost of capital is a forward-looking analysis, I reviewed the economic forecast for North Carolina compared to the U.S. for 2024 and 2025, based on a December 2023 report from TD Economics. Figure 13 summarizes the key economic indicators provided in that report. As shown, North Carolina's economic outlook is stronger than the U.S. averages over this period with the exception of unemployment in 2025. The projected decline in home prices is generally considered favorable for consumers.

Figure 13: Summary of Key Economic Indicators[38]

Economic Indicator	NC 2024	U.S. 2024	NC 2025	U.S. 2025
GDP Growth (% change)	2.0%	1.5%	2.1%	1.7%
Employment (% change)	0.8%	0.7%	0.6%	0.4%
Unemployment Rate (average %)	4.0%	4.2%	4.2%	4.1%
Population (% change)	1.2%	0.65%	1.2%	0.5%
Home Prices (% change)	(0.6)%	0.6%	(1.8)%	(1.0)%

TD Economics describes the outlook for economic growth in North Carolina as follows:

> The Tar Heel State economy continues to be a magnet for investment, especially in the manufacturing space, helping to drive growth of 2.8% this year. Even so, the expansion cycle is beginning to show its age, with employment gains losing some steam recently. Like elsewhere, the braking force of higher interest rates will continue to take a toll on growth. Despite this, we anticipate North Carolina will keep an edge over the

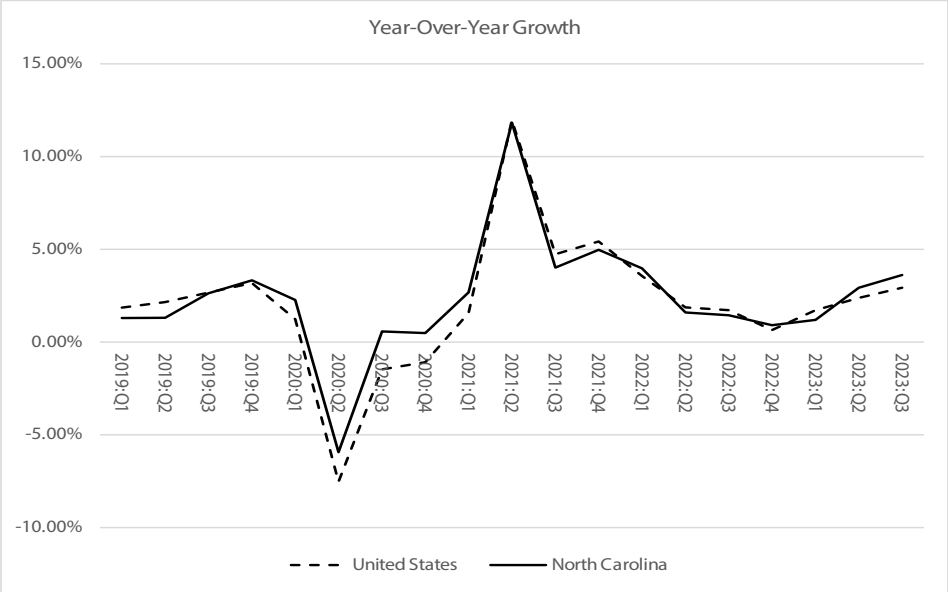
[38] Source: TD Economics, State Economic Forecast, December 20, 2023, at 10.

nation, with growth estimated to moderate to a still-decent 2% next year.[39]

Q. Please discuss how economic growth in North Carolina has compared historically to the national average since 2019.

A. There has been a strong correlation between real GDP growth in North Carolina and nationwide (approximately 97.6%). Immediately prior to and since the COVID-19 pandemic subsided, the U.S. real GDP growth rate has been similar to that in North Carolina.

Figure 14: Real GDP Growth[40]



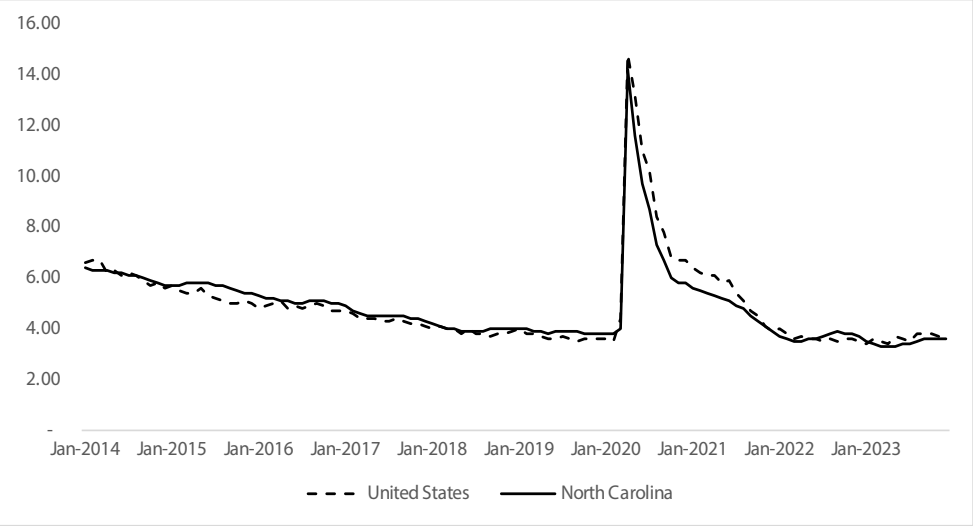
Q. Please discuss the historical unemployment rate in North Carolina and the U.S. over the past decade.

A. The unemployment rate has fallen substantially in North Carolina and the U.S. generally since the COVID-19 pandemic of 2020 and 2021, when the

[39] *Id.* at 7.
[40] Source: Bureau of Economic Analysis.

rates peaked at 14.2% and 14.8%, respectively, in April 2020. The unemployment rate in North Carolina was lower than the national rate during the COVID-19 pandemic but has tracked closely since the latter portion of 2021. By December 2023, the unemployment rate in North Carolina had declined to 3.6% compared to 3.7% nationally.

Figure 15: Unemployment Rate[41]



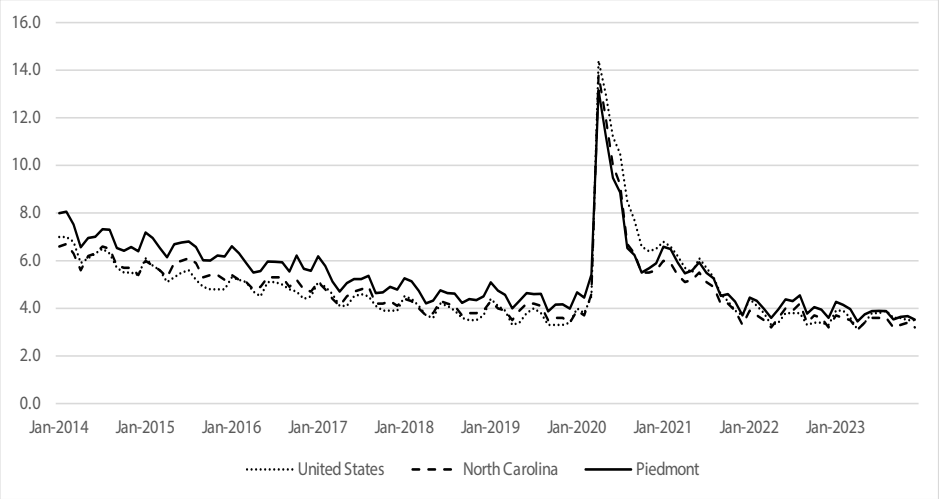
Since the Company's last rate was completed in January 2022, the unemployment rate in North Carolina has remained fairly steady, ranging from 3.3% in the Spring of 2023 to 3.9% in September 2022. Over the entire period from 2014-2023, the correlation between North Carolina's unemployment rate and the national rate was approximately 97.8%.

I also reviewed the unemployment rate in the counties served by Piedmont compared to the national average. At its peak in April 2020 during the COVID pandemic, the (not seasonally adjusted) unemployment

[41] Source: Bureau of Economic Analysis.

rate in those counties reached 13.2% (1.2 percentage points higher than the State-wide average); by December 2023 it had fallen to approximately 3.5% compared to the state-wide average of 3.2%. Since the Company's last rate filing in January 2021, the Piedmont counties' unemployment rate has fallen from 6.5% to 3.5%. From 2014-2023, the correlation in unemployment rates between the counties served by Piedmont and North Carolina overall was approximately 97.6%.

Figure 16: Unemployment Rate in Piedmont Natural Gas Counties[42]



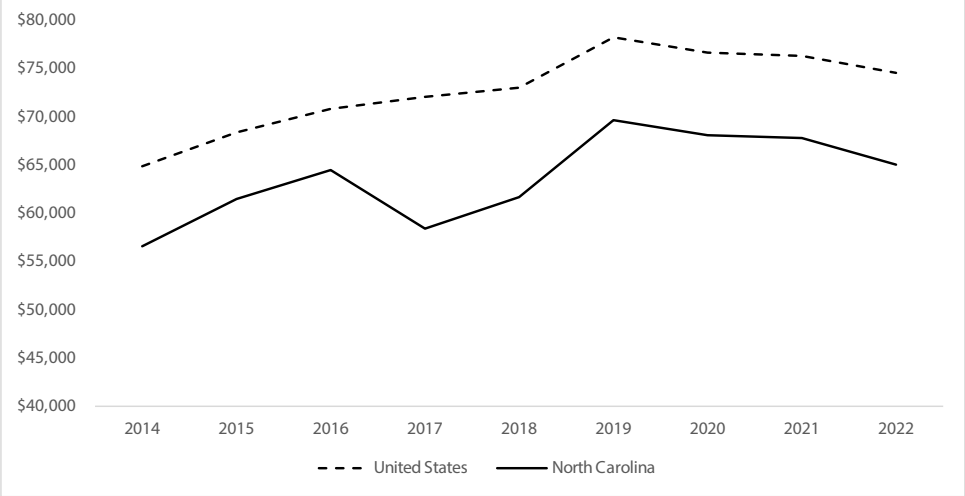
Q. Please discuss your comparison of historical median household income.

A. The correlation in median household income between North Carolina and the U.S. is relatively strong at 89.9% from 2013-2022. Since 2014, median household income in North Carolina has grown at a slightly faster annual rate than the national median income (1.51% vs. 1.41%; *see* Figure 17, below). To help put household income in perspective, North Carolina had

[42] Source: Bureau of Labor Statistics, St. Louis Federal Reserve.

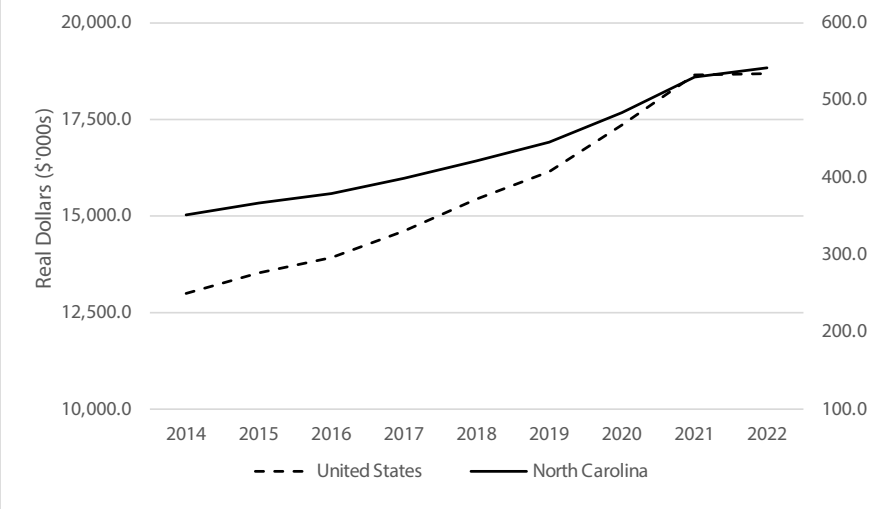
the 26th lowest cost of living index of the 50 states and the District of Columbia in 2023, according to the Missouri Economic Research and Information Center.[43]

Figure 17: Median Household Income



Similarly, as shown in Figure 18, since 2014, the trend in disposable income for both North Carolina and the U.S. has generally been increasing.

Figure 18: Disposable Income[44]

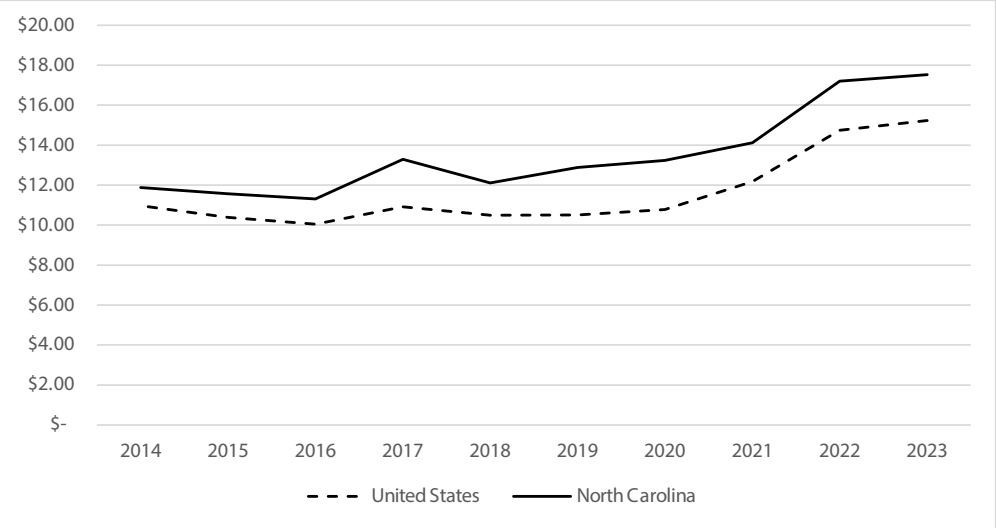


[43] Source: https://meric.mo.gov/data/cost-living-data-series. Accessed March 11, 2024.
[44] Source: Bureau of Economic Analysis. Data is seasonally adjusted.

Q. Please discuss how natural gas prices in North Carolina have compared to the U.S. average over the past decade.

A. In 2023, residential natural gas prices (measured in dollars per thousand cubic feet ("MCF")) in North Carolina were approximately 15% higher than the national average, which is consistent with the long-term average during the last ten years (2014-2023) of 16.2 % (*see* Figure 19).

Figure 19: Natural Gas Prices ($/MCF)[45]



Q. Please summarize your analyses and conclusions regarding key economic indicators in North Carolina compared to the U.S.

A. Based on the data presented above, I draw the following conclusions:

- The State's GDP remains highly correlated with national GDP and has grown similarly to the national economy since 2014.

[45] Source: https://www.eia.gov/dnav/ng/NG_PRI_SUM_A_EPG0_PRS_DMCF_M.htm as of December each year.

- North Carolina's unemployment rate has fallen from its peak in April 2020 of 14.2% to 3.7% as of December 2023, in line with the national average.
- Although the unemployment rate in the counties served by Piedmont is slightly above the national and state-wide averages, it too has fallen considerably since its peak in April 2020.
- Median household income has grown at a somewhat slower pace in North Carolina than the national average. While the median income remains below the national average, the overall cost of living in North Carolina is near the national average.

Based on the economic indicators discussed above, North Carolina and the counties within Piedmont's service territory have experienced economic improvement since the Company's last rate case. As discussed above, that improvement is projected to continue.

Q. In your opinion, is the proposed ROE fair and reasonable to Piedmont, its shareholders and its customers, and not unduly burdensome to Piedmont customers considering the impact of these changing economic conditions?

A. Yes. Based on the comparison of economic indicators discussed in my Direct Testimony, I believe that my ROE recommendation for Piedmont of 10.50% is fair and reasonable to Piedmont, its shareholders, and its customers in light of the effect of these evolving economic conditions.

IX. Capital Structure

Q. What is Piedmont's proposed capital structure?

A. Piedmont is proposing a financial capital structure consisting of 53.00% common equity, 46.30% long-term debt and 0.70% short-term debt.

Q. How have you assessed the reasonableness of Piedmont's proposed capital structure with respect to the proxy group?

A. The proxy group has been selected to reflect comparable companies in terms of business and financial risks. Therefore, it is appropriate to compare the financial capital structures of the proxy group companies to the financial capital structure proposed by Piedmont in order to assess whether the Company's capital structure is reasonable and consistent with industry standards for companies with commensurate risk. I calculated the weighted average capital structures for each of the proxy group operating companies for the most recent two years. Exhibit JMC-10 shows that Piedmont's proposed common equity ratio of 53.00% is slightly higher than the mean common equity ratio for the proxy group of 51.64%, but well within the range of actual common equity ratios of 42.33% to 60.01% for the operating companies held by the proxy group over this period.

Q. What is your conclusion regarding the appropriateness of Piedmont's proposed capital structure in this proceeding?

A. Based on the analysis presented in Exhibit JMC-10, my conclusion is that Piedmont's proposed financial capital structure is reasonable. Sufficient equity in the capital structure is an important factor for maintaining

Piedmont's financial integrity and investment grade credit rating, and it is an essential component of Piedmont's financial policies enabling access to capital on favorable terms in a variety of market circumstances.

X. Conclusion

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

A. Based on the analyses provided in my Direct Testimony, I have established a range of ROE results shown previously in Figure 12 (also see Exhibit JMC-2 for summary table). The DCF, CAPM, Risk Premium and Expected Earnings analyses produce a range of estimates of the Company's cost of equity, with a four-model average of 10.15% to 10.69%. From within that range, and considering the Company's comparable risk profile to the proxy group companies and somewhat greater weight on the forward looking estimates, I recommend an ROE of 10.50%.

Q. What is your recommendation regarding the capital structure for Piedmont in this proceeding?

A. I support Piedmont's proposed financial capital structure of 53.00% common equity and 46.30% long-term debt and 0.70% short-term debt as reasonable relative to the range of capital structures for the operating companies held by the proxy group.

Q. Does this conclude your Direct Testimony?

A. Yes, it does.

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
DOCKET NO. G-9, SUB 837

EXHIBIT JMC-1

JAMES M. COYNE
SENIOR VICE PRESIDENT

Mr. Coyne provides financial, regulatory, strategic, and litigation support services to clients in the natural gas, power, and utilities industries. Drawing upon his industry and regulatory expertise, he regularly advises utilities, public agencies and investors on business strategies, investment evaluations, and matters pertaining to rate and regulatory policy. Prior to Concentric, Mr. Coyne worked in senior consulting positions focused on North American utilities industries, in corporate planning for an integrated energy company, and in regulatory and policy positions in Maine and Massachusetts. He has authored numerous articles on the energy industry and provided testimony and expert reports before federal, state and provincial jurisdictions in the U.S. and Canada. Mr. Coyne holds a B.S. in Business from Georgetown University and an M.S. in Resource Economics from the University of New Hampshire.

AREAS OF EXPERTISE

Energy Regulation

- Rate policy
- Cost of capital
- Incentive regulation
- Fuels and power markets

Management and Business Strategy

- Fuels and power market assessments
- Investment feasibility
- Corporate and business unit planning
- Benchmarking and productivity analysis

Financial and Economic Advisory

- Valuation analysis
- Due diligence
- Buy and sell-side advisory

Litigation Support and Expert Testimony

- Rate and regulatory policy
- Fuels and power markets
- Contract litigation
- Valuation and damages

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2006 – Present)
Senior Vice President
Vice President

FTI Consulting (Lexecon) (2002 – 2006)
Senior Managing Director – Energy Practice

Arthur Andersen LLP (2000 – 2002)
Managing Director, Andersen Corporate Finance – Energy and Utilities

Navigant Consulting, Inc. (1996 – 2000)
Managing Director, Financial Services Practice
Senior Vice President, Strategy Practice

TotalFinaElf (1990 – 1996)
Manager, Corporate Planning and Development
Manager, Investor Relations
Manager of Strategic Planning and Vice President, Natural Gas Division

Arthur D. Little, Inc. (1989 – 1990)
Senior Consultant – International Energy Practice

DRI/McGraw-Hill (1984 – 1989)
Director, North American Natural Gas Consulting
Senior Economist, U.S. Electricity Service

Massachusetts Energy Facilities Siting Council (1982 – 1984)
Senior Economist – Gas and Electric Utilities

Maine Office of Energy Resources (1981 – 1982)
State Energy Economist

EDUCATION

University of New Hampshire
M.S., Resource Economics, *with honors*, 1981

Georgetown University
B.S., Business Administration and Economics, *cum laude*, 1975

DESIGNATIONS AND AFFILIATIONS

Community Rowing Inc., Board of Directors, 2015 - 2019

Georgetown University, Alumni Admissions Interviewer, 1988 – current

NASD General Securities Representative and Managing Principal (Series 7, 63 and 24 Certifications), 2001

American Petroleum Institute, CEO's Liaison to Management and Policy Committees, 1994-1996

National Petroleum Council, Regulatory and Policy Task Forces, 1992

President, International Association for Energy Economics, Dallas Chapter, 1995

Gas Research Institute, Economics Advisory Committee, 1990-1993

NARUC, Advanced Regulatory Studies Program, Michigan State University, 1984

PUBLICATIONS AND RESEARCH

"Advancing FERC's Methodology for Determining Allowed ROEs for Electric Transmission Companies," submitted to FERC on behalf of EEI, James Coyne, Joshua Nowak and Julie Lieberman, May, 2020.

"Regulator Rationale for Ratepayer-Funded Electricity and Natural Gas Innovation", James M. Coyne, Robert C. Yardley, Jr. and Jessalyn G. Pryciak, Energy Regulation Quarterly, Volume 6, Issue 3, 2018.

"Stimulating Innovation on Behalf of Canada's Electricity and Natural Gas Consumers" (with Robert Yardley), prepared for the Canadian Gas Association and Canadian Electricity Association, May 2015.

"Autopilot Error: Why Similar U.S. and Canadian Risk Profiles Yield Varied Rate-making Results" (with John Trogonoski), Public Utilities Fortnightly, May 2010

"A Comparative Analysis of Return on Equity of Natural Gas Utilities" (with Dan Dane and Julie Lieberman), prepared for the Ontario Energy Board, June 2007

"Do Utilities Mergers Deliver?" (with Prescott Hartshorne), Public Utilities Fortnightly, June 2006

"Winners and Losers: Utility Strategy and Shareholder Return" (with Prescott Hartshorne), Public Utilities Fortnightly, October 2004

"Winners and Losers in Restructuring: Assessing Electric and Gas Company Financial Performance" (with Prescott Hartshorne), white paper distributed to clients and press, August 2003

"The New Generation Business," commissioned by the Electric Power Research Institute (EPRI) and distributed to EPRI members to contribute to a series on the changes in the Power Industry, December 2001

Potential for Natural Gas in the United States, Volume V, Regulatory and Policy Issues (co-author), National Petroleum Council, December 1992

"Natural Gas Outlook," articles on U.S. natural gas markets, published quarterly in the Data Resources Energy Review and Natural Gas Review, 1984-1989

SELECTED SPEAKING ENGAGEMENTS

"The Market Risk Premium: An In-Depth Review", Society of Utility and Regulatory Financial Analysts 53rd Financial Forum, Richmond, VA, April 28,2022

"Energy Sector in Transition", Ontario Energy Association, Toronto, ON, September 24, 2018.

"Understanding Regulated Utilities in Today's Capital Markets", NARUC Annual Meeting, La Quinta, CA, November 14, 2016.

"Rate of Return: Where the Regulatory Rubber Meets the Road," CAMPUT Annual Conference, Montreal, Quebec, May 17, 2016.

"Innovations in Utility Business Models and Regulation", The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2015 Energy Regulation Course, Queens University, Kingston, Ontario, June 2015

"M&A and Valuations," Panelist at Infocast Utility Scale Solar Summit, September 2010

"The Use of Expert Evidence," The Canadian Association of Members of Public Utility Tribunals (CAMPUT) 2010 Energy Regulation Course, Queens University, Kingston, Ontario, June 2010

"A Comparative Analysis of Return on Equity for Utilities in Canada and the U.S.", The Canadian Association of Members of Public Utility Tribunals (CAMPUT) Annual Conference, Banff, Alberta, April 22, 2008

"Nuclear Power on the Verge of a New Era," moderator for a client event co-hosted by Sutherland Asbill & Brennan and Lexecon, Washington D.C., October 2005

"The Investment Implications of the Repeal of PUCHA," Skadden Arps Client Conference, New York, NY, October 2005

"Anatomy of the Deal," First Annual Energy Transactions Conference, Newport, RI, May 2005

"The Outlook for Wind Power," Skadden Arps Annual Energy and Project Finance Seminar, Naples, FL, March 2005

"Direction of U.S. M&A Activity for Utilities," Energy and Mineral Law Foundation Conference, Sanibel Island, FL, February 2002

"Outlook for U.S. Merger & Acquisition Activity," Utility Mergers & Acquisitions Conference, San Antonio, TX, October 2001

"Investor Perspectives on Emerging Energy Companies," Panel Moderator at Energy Venture Conference, Boston, MA, June 2001

"Electric Generation Asset Transactions: A Practical Guide," workshop conducted at the 1999 Thai Electricity and Gas Investment Briefing, Bangkok, Thailand, July 1999

"New Strategic Options for the Power Sector," Electric Utility Business Environment Conference, Denver, CO, May 1999

"Electric and Gas Industries: Moving Forward Together," New England Gas Association Annual Meeting, November 1998

"Opportunities and Challenges in the Electric Marketplace," Electric Power Research Institute, July 1998

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Alberta Beverage Container Management Board				
Alberta Beverage Container Management Board	2016 2019	Expert for the Board	N/A	Return Margin on Bottle Depots
Alberta Utilities Commission				
ATCO Utilities Group	2008 2009	ATCO Gas; ATCO Pipelines Ltd.; ATCO Electric Ltd.	Application No. 1578571 / Proceeding ID. 85	2009 Generic Cost of Capital Proceeding (Gas & Electric)
Enmax Power Corporation	2017	Enmax	22570	Cost of Common Equity
Enmax Power Corporation	2020	Enmax	24110	2021 Generic Cost of Capital
Enmax Power Corporation	2023	Enmax	27084	2024 and Beyond Cost of Capital Parameters
American Arbitration Association				
TransCanada Corporation	2004	TransCanada Corporation	AAA Case No. 50T 1810018804	Valuation of Natural Gas Pipeline
British Columbia Utilities Commission				
FortisBC	2012	FortisBC Utilities	G-20-12	Cost of Capital Adjustment Mechanisms
FortisBC	2015 2016	FortisBC Utilities	G-129-16	Cost of Capital (Gas and Electric Distribution)
FortisBC	2022	FortisBC Utilities	G-217-22	Cost of Capital (Gas and Electric Distribution)
California Public Utilities Commission				
San Diego Gas & Electric Company	2019	San Diego Gas & Electric Company	A-19-04-014	Cost of Capital (Electric & Gas Distribution)
San Diego Gas & Electric Company	2021	San Diego Gas & Electric Company	A-21-08-014	Cost of Capital (Electric & Gas Distribution)
Southern California Gas Company	2022	Southern California Gas Company	A-22-04-011	Cost of Capital (Gas Distribution)
San Diego Gas & Electric Company	2022	San Diego Gas & Electric Company	A-22-04-012	Cost of Capital (Electric & Gas Distribution)
Canada Energy Regulator				
Enbridge Pipelines Inc.	2021	Enbridge Pipelines Inc.	RH-001-2020	Cost of Capital (Oil Pipeline)
Connecticut Department of Public Utility Control				
Aquarion Water Company of CT/ Macquarie Securities	2007	Aquarion Water Company of CT	DPUC Docket No. 07-05-19	Return on Equity (Water)

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Federal Energy Regulatory Commission				
Atlantic Power Corporation	2007	Atlantic Path 15, LLC	ER08-374-000	Return on Equity (Electric)
Atlantic Power Corporation	2010	Atlantic Path 15, LLC	ER11-2909-000	Return on Equity (Electric)
Atlantic Power Corporation	2011	Atlantic Path 15, LLC	ER11-2909 and EL11-29	Rate of Return (Electric Transmission)
Startrans IO, LLC	2012	Startrans IO, LLC	ER-13-272-000	Cost of Capital (Electric Transmission)
Startrans IO, LLC	2015	Startrans IO, LLC	ER-16-194-000 and EL16-25-000	Cost of Capital (Electric Transmission)
Northern States Power Company	2019	Northern States Power Company	ER20-26-000	Cost of Capital (Electric Transmission)
PPL Electric Utilities Corp.	2020	PP&l Industrial Customer Alliance v. PPL Electric	EL20-48-000	Answering Testimony in Response to a Section 206 ROE Complaint
South First Energy Operating Companies	2020	South First Energy Operating Companies	ER21-253-000	Cost of Capital (Electric Transmission)
DCR Transmission, L.L.C.	2023	DCR Transmission, L.L.C.	ER23-___-000	Cost of Capital (Electric Transmission)
Florida Public Service Commission				
Florida Power & Light Company	2021	Florida Power & Light Company	Docket No. 20210015-EI	Cost of Capital (Electric)
Georgia Public Service Commission				
Georgia Power Company	2022	Georgia Power Company	44280	Cost of Capital (Electric)
Hawaii Public Utility Commission				
The Gas Company	2017	The Gas Company	Docket No. 2017-0105	Cost of Capital (Gas Distribution)
Maine Public Utilities Commission				
Bangor Hydro Electric Company	1998	Bangor Hydro Electric Company	MPUC Docket No. 98-820	Transaction-Related Financial Advisory Services, Valuation
Central Maine Power Company	2007	Central Maine Power Company	MPUC Docket No. 2007-215	Sales Forecast
Enmax Corporation	2019	Enmax Corporation	2019-00097	Regulatory Approval of Emera Maine Acquisition

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Versant Power	2021	Versant Power	MPUC Docket No. 2020-00316	Cost of Capital (Electric)
Versant Power	2022	Versant Power	2022-00255	Cost of Capital (Electric)
Versant Power	2024	Versant Power	2023-00336	Cost of Capital (Electric)
Maryland State Board of Contract Appeals				
Green Planet Power Solutions	2018	Green Planet Power Solutions and Maryland Bio Energy LLC v. Maryland Department of General Services	MSBCA 3061	Contract Litigation, Power Purchase Agreement, Damages Analysis
Massachusetts Superior Court				
Burncoat Pond Watershed District	2010	Central Water District v. Burncoat Pond Watershed District	WDCV 2001-0105	Valuation/Eminent Domain
Minnesota Public Utilities Commission				
Northern States Power Company	2015 2016	Northern States Power Company	E-002-GR-15-826	Cost of Capital (Electric)
Northern States Power Company	2017	Northern States Power Company	E002/M-17-797 G002/M-17-787 E002/M-17-818	Cost of Capital (Electric and Gas Rate Riders for Transmission, Renewable Generation and Gas Distribution)
New Brunswick Energy and Utilities Board				
Liberty Utilities (Gas New Brunswick) LP	2021	Liberty Utilities (Gas New Brunswick) LP	491	Cost of Capital (Gas)
Newfoundland and Labrador Board of Commissioners of Public Utilities				
Newfoundland Power	2016	Newfoundland Power	2016 GRA	Cost of Capital (Electric)
Newfoundland Power	2018	Newfoundland Power	2018 GRA	Cost of Capital (Electric)
Newfoundland Power	2021	Newfoundland Power	2021 GRA	Cost of Capital (Electric)
Newfoundland Power	2023	Newfoundland Power		Cost of Capital (Electric)
New Jersey Board of Public Utilities				

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Conectiv	2000-2001	Atlantic City Electric Company	NJBPU Docket No. EM00020106	Transaction-Related Financial Advisory Services
North Carolina Utilities Commission				
Duke Energy Carolinas, LLC	2023	Duke Energy Carolinas, LLC	E-7, Sub 1276	Return on Equity (Electric) Rebuttal
Piedmont Natural Gas Company	2024	Piedmont Natural Gas Company	G-9, Sub 837	Return on Equity (Gas Distribution)
Nova Scotia Utility and Review Board				
Nova Scotia Power Inc.	2012	Nova Scotia Power Inc.	2013 GRA	Return on Equity/Business Risk (Electric)
Nova Scotia Power Inc.	2022	Nova Scotia Power Inc.	2022 GRA	Return on Equity/Business Risk (Electric)
Eastward Energy Inc.	2023	Eastward Energy Inc.	M10960	Return on Equity/Business Risk (Gas)
Public Utility Commission of Ohio				
Duke Ohio, Inc.	2022	Duke Ohio, Inc.	22-507-GA-AIR	Return on Equity (Gas)
Public Utility Commission of Oregon				
Northwest Natural Gas	2023	Northwest Natural Gas	UG-490	Return on Equity (Gas)
Ontario Energy Board				
Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	2009	Enbridge Gas Distribution and Hydro One Networks and the Coalition of Large Distributors	EB-2009-0084	Ontario Energy Board's 2009 Consultative Process on Cost of Capital Review (Gas & Electric)
Enbridge Gas Distribution	2012	Enbridge Gas Distribution	EB-2011-0354	Industry Benchmarking Study and Cost of Capital (Gas Distribution)
Enbridge Gas Distribution	2014	Enbridge Gas Distribution	EB-2012-0459	Incentive Regulation Plan and Industry Productivity Study
Ontario Power Generation	2016	Ontario Power Generation	EB-2016-0152	Cost of Capital (Electric Generation)
Ontario Power Generation	2020	Ontario Power Generation	EB-2020-0290	Capital Structure (Electric Generation)
Enbridge Gas Distribution	2022	Enbridge Gas Distribution	EB-2022-0200	Capital Structure and Business Risk

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Prince Edward Island Regulatory and Appeals Commission				
Maritime Electric Company	2015	Maritime Electric Company	UE20942	Return on Capital (Electric)
Maritime Electric Company	2022	Maritime Electric Company	UE20946	Return on Capital (Electric)
Public Utilities Commission of Ohio				
Duke Energy Ohio, Inc.	2022	Duke Energy Ohio, Inc.	2022-00372	Cost of Capital (Gas Distribution)
Duke Energy Ohio, Inc.	2023	Duke Energy Ohio, Inc.	22-507-GA-AIR	Cost of Capital (Gas)
Régie de l'énergie du Québec				
Gaz Métro	2012	Gaz Métro	R-3809-2012	Return on Equity/Business Risk/ Capital Structure (Gas Distribution)
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2013	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3842-2013	Return on Equity/Business Risk (Electric)
Hydro-Québec Distribution	2014	Hydro-Québec Distribution	R-3905-2014	Remuneration of Deferral Accounts
Hydro-Québec Distribution and Hydro- Québec TransÉnergie	2015-2017	Hydro-Québec Distribution and Hydro- Québec TransÉnergie	R-3897-2014	Performance-Based Ratemaking
South Carolina Public Service Commission				
Piedmont Natural Gas Company	2022	Piedmont Natural Gas Company	2022-89-G	Return on Equity (Gas Distribution)
Duke Energy Progress	2022	Duke Energy Progress	Docket No. 2022-254-E	Return on Equity (Electric) Rebuttal
Duke Energy Carolinas	2024	Duke Energy Carolinas	2023-388-E	Return on Equity (Electric)
South Dakota Public Service Commission				
Northern States Power Company-MN	2012	Northern States Power Company-MN	EL 11-019	Return on Equity
Texas Public Utility Commission				
Texas New Mexico Power Company	2004	Texas New Mexico Power Company	PUC Docket No. 29206	Auction Process and Stranded Cost Recovery

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
U.S. Department of Commerce				
Government of Québec	2017	Duty Investigation of Uncoated Groundwood Paper from Canada	PUC Docket No. 29206	Contracting for Renewable Resources, Market Analysis, Damages Analysis
Vermont Public Service Board				
Vermont Gas Systems, Inc.	2006	Vermont Gas Systems, Inc.	VPSB Docket No. 7109	Models of Incentive Regulation
Vermont Gas Systems, Inc.	2012	Vermont Gas Systems, Inc.	Docket No. 7803A	Cost of Capital (Gas Distribution)
Green Mountain Power Corporation	2013	Green Mountain Power Corporation	Docket No. 8191	Return on Equity (Electric)
Vermont Gas Systems, Inc.	2016	Vermont Gas Systems, Inc.	Docket No. 8698/8710	Return on Equity (Gas Distribution)
Green Mountain Power Corporation	2017	Green Mountain Power Corporation	Docket No. Tariff-8677	Return on Equity (Electric)
Green Mountain Power Corporation	2018	Green Mountain Power Corporation	18-0974	Return on Equity (Electric)
Vermont Gas Systems, Inc.	2023	Vermont Gas Systems, Inc.	23-0561	Return on Equity (Gas Distribution) Rebuttal
State Corporation of Virginia				
Dominion Energy Virginia	2021	Virginia Electric and Power Company	PUR-2021-00058	Cost of Capital (Electric)
Wisconsin Public Service Commission				
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-170	Return on Equity (Electric)
Wisconsin Power and Light Company	2007	Wisconsin Power and Light Company	PSCW Docket No. 6680-CE-171	Return on Equity (Electric)
Northern States Power Company	2011	Northern States Power Company	PSCW Docket No. 4220-UR-117	Return on Equity (Electric)
Northern States Power Company	2013	Northern States Power Company	PSCW Docket No. 4220-UR-119	Return on Equity (Gas & Electric)
Northern States Power Company	2015	Northern States Power Company	PSCW Docket No. 4220-UR-121	Return on Equity (Gas & Electric)
Northern States Power Company	2017 2019	Northern States Power Company	PSCW Docket No. 4220-UR-123, 4220-UR-124	Return on Equity (Gas & Electric)
Northern States Power Company	2021	Northern States Power Company	4220-UR-125	Cost of Capital (Electric, Affidavit)

SPONSOR	DATE	CASE/APPLICANT	DOCKET	SUBJECT
Northern States Power Company	2023	Northern States Power Company	4220-UR-126	Cost of Capital (Electric & Gas)
Yukon Utilities Board				
ATCO Electric Yukon	2016	ATCO Electric Yukon	2016-2017 GRA	Return on Equity (Electric)

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
DOCKET NO. G-9, SUB 837

EXHIBIT JMC-2

SUMMARY OF ROE MODEL RESULTS

	Forecast Interest Rates	Current Interest Rates
Constant Growth DCF - 90 day stock prices	10.13%	10.13%
CAPM - Forward MRP	12.78%	
CAPM - Historical MRP		10.52%
Risk Premium		10.33%
Risk Premium	10.22%	
Expected Earnings	9.62%	9.62%
Average Model Results	**10.69%**	**10.15%**

PIEDMONT NATURAL GAS COMPANY, INC.
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EXHIBIT JMC-3

U.S. GAS PROXY GROUP

Company	Ticker	[1] S&P Rating	[2] Pays Dividends (Yes/No)	[3] Postive Earnings Growth by more than one Analyst (Yes/No)	[4] Regulated Income / Total Income (%) > 60%	[5] Regulated Gas Income / Total Regulated Income (%) > 60%	[6] Involved in Merger (Yes/No)
Atmos Energy Corporation	ATO	A-	Yes	Yes	100%	66%	No
New Jersery Resources Corporation	NJR	n/a	Yes	Yes	66%	92%	No
Northwest Natural Holding Company	NWN	n/a	Yes	Yes	100%	91%	No
ONE Gas, Inc.	OGS	A-	Yes	Yes	100%	100%	No
Southwest Gas Holdings, Inc.	SWX	BBB-	Yes	Yes	77%	100%	No
Spire, Inc.	SR	A-	Yes	Yes	89%	100%	No
Average					89%	92%	

Notes:

[1] Source: SNL Financial; New Jersey Natural Gas Co is rated A1 by Moody's and Northwest Natural Gas is rated Baa1 by Moody's.

[2] Source: Bloomberg Professional

[3] Source: Value Line, Zacks, Yahoo Finance, and S&P Capital IQ

[4] Source: Company 10-K reports, average of three most recent years

[5] Source: Company 10-K reports, average of three most recent years

[6] Source: Bloomberg Professional

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
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EXHIBIT JMC-4

30-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] S&P Capital IQ Earnings Growth	[9] Average Growth	[10] Low DCF ROE	[11] Mean DCF ROE	[12] High DCF ROE
Atmos Energy Corporation	ATO	$3.22	$113.18	2.84%	2.95%	7.00%	7.50%	7.30%	7.25%	7.26%	9.94%	10.21%	10.45%
New Jersey Resources Corporation	NJR	$1.68	$41.47	4.05%	4.18%	5.00%	6.00%	6.00%	7.60%	6.15%	9.15%	10.33%	10.17%
Northwest Natural Holding Company	NWN	$1.95	$37.18	5.24%	5.36%	6.50%	2.80%	3.70%	5.00%	4.50%	8.12%	9.86%	11.91%
ONE Gas, Inc.	OGS	$2.64	$60.30	4.38%	4.48%	4.00%	5.00%	5.00%	5.00%	4.75%	8.47%	9.23%	9.49%
Southwest Gas Holdings, Inc.	SWX	$2.48	$60.54	4.10%	4.23%	10.00%	4.00%	5.00%	n/a	6.33%	8.18%	10.56%	14.30%
Spire, Inc.	SR	$3.02	$58.88	5.13%	5.27%	4.50%	6.36%	5.60%	6.24%	5.68%	9.74%	10.95%	11.65%
PROXY GROUP MEAN				4.29%	4.41%	6.17%	5.28%	5.43%	6.22%	5.77%	8.93%	10.19%	11.33%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of February 29, 2024
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: S&P Capital IQ Pro
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])

90-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] S&P Capital IQ Earnings Growth	[9] Average Growth	[10] Low DCF ROE	[11] Mean DCF ROE	[12] High DCF ROE
Atmos Energy Corporation	ATO	$3.22	$113.20	2.84%	2.95%	7.00%	7.50%	7.30%	7.25%	7.26%	9.94%	10.21%	10.45%
New Jersey Resources Corporation	NJR	$1.68	$42.54	3.95%	4.07%	5.00%	6.00%	6.00%	7.60%	6.15%	9.05%	10.22%	10.07%
Northwest Natural Holding Company	NWN	$1.95	$37.71	5.17%	5.29%	6.50%	2.80%	3.70%	5.00%	4.50%	8.04%	9.79%	11.84%
ONE Gas, Inc.	OGS	$2.64	$61.40	4.30%	4.40%	4.00%	5.00%	5.00%	5.00%	4.75%	8.39%	9.15%	9.41%
Southwest Gas Holdings, Inc.	SWX	$2.48	$60.82	4.08%	4.21%	10.00%	4.00%	5.00%	n/a	6.33%	8.16%	10.54%	14.28%
Spire, Inc.	SR	$3.02	$59.98	5.04%	5.18%	4.50%	6.36%	5.60%	6.24%	5.68%	9.65%	10.85%	11.56%
PROXY GROUP MEAN				4.23%	4.35%	6.17%	5.28%	5.43%	6.22%	5.77%	8.87%	10.13%	11.27%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of February 29, 2024
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: S&P Capital IQ Pro
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])

180-DAY CONSTANT GROWTH DCF

Company		[1] Annualized Dividend	[2] Stock Price	[3] Dividend Yield	[4] Expected Dividend Yield	[5] Value Line Earnings Growth	[6] Yahoo! Finance Earnings Growth	[7] Zacks Earnings Growth	[8] S&P Capital IQ Earnings Growth	[9] Average Growth	[10] Low DCF ROE	[11] Mean DCF ROE	[12] High DCF ROE
Atmos Energy Corporation	ATO	$3.22	$114.36	2.82%	2.92%	7.00%	7.50%	7.30%	7.25%	7.26%	9.91%	10.18%	10.42%
New Jersey Resources Corporation	NJR	$1.68	$43.25	3.88%	4.00%	5.00%	6.00%	6.00%	7.60%	6.15%	8.98%	10.15%	10.00%
Northwest Natural Holding Company	NWN	$1.95	$39.35	4.96%	5.07%	6.50%	2.80%	3.70%	5.00%	4.50%	7.83%	9.57%	11.62%
ONE Gas, Inc.	OGS	$2.64	$68.05	3.88%	3.97%	4.00%	5.00%	5.00%	5.00%	4.75%	7.96%	8.72%	8.98%
Southwest Gas Holdings, Inc.	SWX	$2.48	$61.86	4.01%	4.14%	10.00%	4.00%	5.00%	n/a	6.33%	8.09%	10.47%	14.21%
Spire, Inc.	SR	$3.02	$60.27	5.01%	5.15%	4.50%	6.36%	5.60%	6.24%	5.68%	9.62%	10.83%	11.53%
PROXY GROUP MEAN				4.09%	4.21%	6.17%	5.28%	5.43%	6.22%	5.77%	8.73%	9.99%	11.13%

Notes
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of February 29, 2024
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [8])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Source: S&P Capital IQ Pro
[9] Equals Average ([5], [6], [7], [8])
[10] Equals [3] x (1 + 0.50 x Minimum ([5], [6], [7], [8]) + Minimum ([5], [6], [7], [8])
[11] Equals [4] + [9]
[12] Equals [3] x (1 + 0.50 x Maximum ([5], [6], [7], [8]) + Maximum ([5], [6], [7], [8])

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
DOCKET NO. G-9, SUB 837

EXHIBIT JMC-5.1

MARKET RISK PREMIUM CALCULATION USING CAP. WEIGHTED VALUE LINE GROWTH RATES

[13] Cap. Weighted Estimate of the S&P 500 Dividend Yield	1.44%
[14] Cap. Weighted Estimate of the S&P 500 Growth Rate	12.68%
[15] Cap. Weighted S&P 500 Estimated Required Market Re	14.21%

Notes:
[13] Source: Bloomberg Professional, as of February 29, 2024
[14] Source: Bloomberg Professional, as of February 29, 2024 and Value Line, as of February 29, 2024
[15] Equals ([13] x (1 + (0.5 x [14]))) + [14]

Name	Ticker	Shares Outst'g	Price	Dividend Yield	Value Line Long-Term Growth Estimate	Market Cap Excl. n/a Growth	% of Total Market Cap.	Cap. Weighted Div. Yield	Cap. Weighted Long-Term Growth
LyondellBasell Industries NV	LYB	324.52	100.28	4.99	0.00	32,543.17	0.08%	0.39%	0.0000%
American Express Co	AXP	723.87	219.42	1.09	8.50	158,831.56	0.38%	0.41%	3.22%
Verizon Communications Inc	VZ	4204.27	40.02	6.65	1.50	168,254.97	0.40%	2.67%	0.60%
Broadcom Inc	AVGO	463.42	1300.49	1.61	30.00	602,674.38	1.44%	2.32%	43.13%
Boeing Co/The	BA	610.14	203.72	n/a		0.00	0.00%		
Caterpillar Inc	CAT	499.38	333.96	1.56	13.00	166,771.94	0.40%	0.62%	5.17%
JPMorgan Chase & Co	JPM	2880.37	186.06	2.26	8.50	535,921.83	1.28%	2.89%	10.87%
Chevron Corp	CVX	1857.27	152.01	4.29	16.50	282,323.46	0.67%	2.89%	11.11%
Coca-Cola Co/The	KO	4312.46	60.02	3.23	8.00	258,833.61	0.62%	2.00%	4.94%
AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
Extra Space Storage Inc	EXR	211.58	140.97	4.60	5.00	29,825.73	0.07%	0.33%	0.36%
Exxon Mobil Corp	XOM	3967.84	104.52	3.64	8.00	414,719.05	0.99%	3.60%	7.91%
Phillips 66	PSX	427.82	142.51	2.95	17.50	60,969.20	0.15%	0.43%	2.55%
General Electric Co	GE	1088.33	156.89	0.20	29.50	170,748.72	0.41%	0.08%	12.02%
HP Inc	HPQ	978.48	28.33	3.89	12.50	27,720.37	0.07%	0.26%	0.83%
Home Depot Inc/The	HD	995.26	380.61	2.36	6.50	378,806.67	0.90%	2.14%	5.87%
Monolithic Power Systems Inc	MPWR	48.66	720.04	0.69	15.00	35,037.87	0.08%	0.06%	1.25%
International Business Machines Corp	IBM	916.75	185.03	3.59	3.00	169,625.33	0.40%	1.45%	1.21%
Johnson & Johnson	JNJ	2408.77	161.38	2.95	4.50	388,726.82	0.93%	2.74%	4.17%
Lululemon Athletica Inc	LULU	121.08	467.09	n/a	16.50	56,552.92	0.13%		2.23%
McDonald's Corp	MCD	722.05	292.28	2.29	10.00	211,041.07	0.50%	1.15%	5.03%
Merck & Co Inc	MRK	2532.64	127.15	2.42	8.50	322,025.68	0.77%	1.86%	6.53%
3M Co	MMM	552.70	92.12	6.56	4.50	50,914.72	0.12%	0.80%	0.55%
American Water Works Co Inc	AWK	194.76	118.54	2.39	3.00	23,086.26	0.06%	0.13%	0.17%
Bank of America Corp	BAC	7872.66	34.52	2.78	5.00	271,764.15	0.65%	1.80%	3.24%
Pfizer Inc	PFE	5646.78	26.56	6.33	2.00	149,978.42	0.36%	2.26%	0.72%
Procter & Gamble Co/The	PG	2353.02	158.94	2.37	6.00	373,989.16	0.89%	2.11%	5.35%
AT&T Inc	T	7152.79	16.93	6.56	1.50	121,096.77	0.29%	1.89%	0.43%
Travelers Cos Inc/The	TRV	229.13	220.96	1.81	10.50	50,627.68	0.12%	0.22%	1.27%
RTX Corp	RTX	1326.83	89.67	2.63	12.00	118,976.58	0.28%	0.75%	3.41%
Analog Devices Inc	ADI	495.91	191.82	1.92	11.50	95,125.07	0.23%	0.44%	2.61%
Walmart Inc	WMT	8052.79	58.61	1.42	6.50	471,974.14	1.13%	1.59%	7.32%
Cisco Systems Inc	CSCO	4049.19	48.37	3.31	6.50	195,859.18	0.47%	1.55%	3.04%
Intel Corp	INTC	4228.00	43.05	1.16		0.00	0.00%	0.00%	
General Motors Co	GM	1154.43	40.98	1.17	8.50	47,308.66	0.11%	0.13%	0.96%
Microsoft Corp	MSFT	7430.44	413.64	0.73	10.50	3,073,525.55	7.33%	5.32%	76.99%
Dollar General Corp	DG	219.50	145.31	1.62	2.00	31,895.11	0.08%	0.12%	0.15%
Cigna Group/The	CI	292.36	336.14	1.67	12.00	98,272.21	0.23%	0.39%	2.81%
Kinder Morgan Inc	KMI	2219.37	17.39	6.50	15.00	38,594.84	0.09%	0.60%	1.38%
Citigroup Inc	C	1911.37	55.49	3.82	2.50	106,061.75	0.25%	0.97%	0.63%
American International Group Inc	AIG	680.95	72.89	1.98	14.00	49,634.74	0.12%	0.23%	1.66%
Altria Group Inc	MO	1763.46	40.91	9.58	6.00	72,143.23	0.17%	1.65%	1.03%
HCA Healthcare Inc	HCA	264.50	311.70	0.85	10.00	82,444.34	0.20%	0.17%	1.97%
International Paper Co	IP	346.35	35.36	5.23	6.00	12,247.08	0.03%	0.15%	0.18%
Hewlett Packard Enterprise Co	HPE	1299.83	15.23	3.41	7.50	19,796.40	0.05%	0.16%	0.35%
Abbott Laboratories	ABT	1735.18	118.64	1.85	4.00	205,862.23	0.49%	0.91%	1.96%
Aflac Inc	AFL	577.01	80.74	2.48	8.00	46,587.63	0.11%	0.28%	0.89%
Air Products and Chemicals Inc	APD	222.30	234.04	3.03	10.50	52,027.33	0.12%	0.38%	1.30%
Royal Caribbean Cruises Ltd	RCL	256.65	123.35	n/a		0.00	0.00%		
Hess Corp	HES	307.15	145.75	1.20	19.50	44,767.40	0.11%	0.13%	2.08%
Archer-Daniels-Midland Co	ADM	533.38	53.11	3.77	7.50	28,327.86	0.07%	0.25%	0.51%
Automatic Data Processing Inc	ADP	410.79	251.13	2.23	11.00	103,161.94	0.25%	0.55%	2.71%
Verisk Analytics Inc	VRSK	143.39	241.90	0.64	8.00	34,686.04	0.08%	0.05%	0.66%
AutoZone Inc	AZO	17.29	3006.02	n/a	13.00	51,980.10	0.12%		1.61%
Linde PLC	LIN	481.58	448.82	1.24	8.50	216,140.94	0.52%	0.64%	4.38%
Avery Dennison Corp	AVY	80.51	216.53	1.50	9.50	17,432.61	0.04%	0.06%	0.40%
Enphase Energy Inc	ENPH	135.76	127.01	n/a	21.00	17,242.75	0.04%		0.86%
MSCI Inc	MSCI	79.09	560.97	1.14	12.50	44,367.68	0.11%	0.12%	1.32%
Ball Corp	BALL	315.64	64.02	1.25	10.50	20,207.40	0.05%	0.06%	0.51%
Axon Enterprise Inc	AXON	75.30	307.37	n/a	21.50	23,145.88	0.06%		1.19%
Dayforce Inc	DAY	156.60	69.76	n/a		0.00	0.00%		
Carrier Global Corp	CARR	898.36	55.58	1.37	13.50	49,931.07	0.12%	0.16%	1.61%
Bank of New York Mellon Corp/The	BK	754.44	56.09	3.00	7.00	42,316.37	0.10%	0.30%	0.71%
Otis Worldwide Corp	OTIS	405.46	95.30	1.43	11.50	38,639.86	0.09%	0.13%	1.06%
Baxter International Inc	BAX	507.83	40.92	2.83	4.00	20,780.28	0.05%	0.14%	0.20%
Becton Dickinson & Co	BDX	288.90	235.55	1.61	5.50	68,050.87	0.16%	0.26%	0.89%
Berkshire Hathaway Inc	BRK/B	1310.81	409.40	n/a	6.00	536,643.57	1.28%		7.68%
Best Buy Co Inc	BBY	215.40	80.88	4.65	3.00	17,421.23	0.04%	0.19%	0.12%
Boston Scientific Corp	BSX	1467.10	66.21	n/a	15.00	97,136.43	0.23%		3.48%
Bristol-Myers Squibb Co	BMY	2022.19	50.75	4.73		0.00	0.00%	0.00%	

AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
Brown-Forman Corp	BF/B	306.48	60.23	1.45	16.50	18,458.99	0.04%	0.06%	0.73%
Coterra Energy Inc	CTRA	751.85	25.78	3.26		0.00	0.00%	0.00%	
Campbell Soup Co	CPB	298.10	42.64	3.47	5.00	12,710.98	0.03%	0.11%	0.15%
Hilton Worldwide Holdings Inc	HLT	252.16	204.32	0.29		0.00	0.00%	0.00%	
Carnival Corp	CCL	1119.45	15.86	n/a		0.00	0.00%		
Qorvo Inc	QRVO	96.55	114.55	n/a	14.50	11,059.57	0.03%		0.38%
Builders FirstSource Inc	BLDR	121.94	195.18	n/a	11.00	23,800.25	0.06%		0.62%
UDR Inc	UDR	329.22	35.50	4.73	17.00	11,687.45	0.03%	0.13%	0.47%
Clorox Co/The	CLX	124.11	153.31	3.13	11.00	19,026.69	0.05%	0.14%	0.50%
Paycom Software Inc	PAYC	57.55	182.39	0.82	21.00	10,496.73	0.03%	0.02%	0.53%
CMS Energy Corp	CMS	291.76	57.37	3.59	5.50	16,738.50	0.04%	0.14%	0.22%
Colgate-Palmolive Co	CL	823.15	86.52	2.22	8.50	71,219.02	0.17%	0.38%	1.44%
EPAM Systems Inc	EPAM	57.83	304.40	n/a	20.50	17,602.54	0.04%		0.86%
Comerica Inc	CMA	132.49	49.38	5.75	0.50	6,542.36	0.02%	0.09%	0.01%
Conagra Brands Inc	CAG	478.01	28.08	4.99	3.50	13,422.38	0.03%	0.16%	0.11%
Airbnb Inc	ABNB	438.09	157.47	n/a		0.00	0.00%		
Consolidated Edison Inc	ED	344.92	87.21	3.81	6.00	30,080.82	0.07%	0.27%	0.43%
Corning Inc	GLW	853.47	32.24	3.47	17.50	27,516.00	0.07%	0.23%	1.15%
Cummins Inc	CMI	141.86	268.61	2.50	7.50	38,104.21	0.09%	0.23%	0.68%
Caesars Entertainment Inc	CZR	216.30	43.47	n/a		0.00	0.00%		
Danaher Corp	DHR	739.70	253.14	0.43	7.50	187,248.16	0.45%	0.19%	3.35%
Target Corp	TGT	461.66	152.92	2.88	11.00	70,597.35	0.17%	0.48%	1.85%
Deere & Co	DE	278.36	365.05	1.61	5.00	101,614.59	0.24%	0.39%	1.21%
Dominion Energy Inc	D	836.77	47.83	5.58	0.50	40,022.85	0.10%	0.53%	0.05%
Dover Corp	DOV	139.90	165.38	1.23	6.50	23,136.17	0.06%	0.07%	0.36%
Alliant Energy Corp	LNT	252.72	47.75	4.02	6.50	12,067.33	0.03%	0.12%	0.19%
Steel Dynamics Inc	STLD	158.16	133.82	1.37	2.00	21,164.30	0.05%	0.07%	0.10%
Duke Energy Corp	DUK	771.00	91.83	4.46	5.00	70,800.93	0.17%	0.75%	0.84%
Regency Centers Corp	REG	184.58	61.95	4.33	15.50	11,434.79	0.03%	0.12%	0.42%
Eaton Corp PLC	ETN	399.50	289.00	1.30	12.50	115,455.50	0.28%	0.36%	3.44%
Ecolab Inc	ECL	285.51	224.84	1.01	7.00	64,194.74	0.15%	0.16%	1.07%
Revvity Inc	RVTY	123.53	109.59	0.26	-2.50	13,537.65	0.03%	0.01%	-0.08%
Emerson Electric Co	EMR	571.70	106.85	1.97	6.50	61,086.15	0.15%	0.29%	0.95%
EOG Resources Inc	EOG	580.00	114.46	3.18	15.00	66,387.03	0.16%	0.50%	2.38%
Aon PLC	AON	198.30	315.99	0.78	9.50	62,660.19	0.15%	0.12%	1.42%
Entergy Corp	ETR	212.81	101.57	4.45	0.50	21,615.42	0.05%	0.23%	0.03%
Equifax Inc	EFX	123.96	273.59	0.57	5.50	33,913.12	0.08%	0.05%	0.44%
EQT Corp	EQT	440.43	37.15	1.70		0.00	0.00%	0.00%	
IQVIA Holdings Inc	IQV	182.01	247.16	n/a	11.50	44,986.58	0.11%		1.23%
Gartner Inc	IT	77.97	465.56	n/a	7.50	36,298.78	0.09%		0.65%
FedEx Corp	FDX	249.89	248.97	2.02	7.00	62,215.86	0.15%	0.30%	1.04%
FMC Corp	FMC	124.76	56.39	4.11	10.00	7,035.27	0.02%	0.07%	0.17%
Brown & Brown Inc	BRO	285.80	84.21	0.62	6.50	24,067.39	0.06%	0.04%	0.37%
Ford Motor Co	F	3902.78	12.44	1.45	37.00	48,550.60	0.12%	0.17%	4.29%
NextEra Energy Inc	NEE	2023.71	55.19	3.73	8.50	111,688.78	0.27%	0.99%	2.26%
Franklin Resources Inc	BEN	526.56	27.45	4.52	2.00	14,454.02	0.03%	0.16%	0.07%
Garmin Ltd	GRMN	191.78	137.35	2.18	5.00	26,340.57	0.06%	0.14%	0.31%
Freeport-McMoRan Inc	FCX	1434.41	37.81	1.59	12.50	54,235.00	0.13%	0.21%	1.62%
Dexcom Inc	DXCM	385.52	115.07	n/a		0.00	0.00%		
General Dynamics Corp	GD	273.98	273.25	1.93	10.00	74,865.04	0.18%	0.35%	1.79%
General Mills Inc	GIS	567.89	64.18	3.68	5.50	36,447.18	0.09%	0.32%	0.48%
Genuine Parts Co	GPC	139.42	149.26	2.68	9.00	20,810.28	0.05%	0.13%	0.45%
Atmos Energy Corp	ATO	150.84	112.91	2.85	7.00	17,031.34	0.04%	0.12%	0.28%
WW Grainger Inc	GWW	49.17	973.46	0.76	11.50	47,867.95	0.11%	0.09%	1.31%
Halliburton Co	HAL	890.10	35.07	1.94	27.50	31,215.88	0.07%	0.14%	2.05%
L3Harris Technologies Inc	LHX	190.11	211.66	2.19	10.50	40,238.26	0.10%	0.21%	1.01%
Healthpeak Properties Inc	PEAK	547.17	16.75	7.16	14.50	9,165.15	0.02%	0.16%	0.32%
Insulet Corp	PODD	69.93	164.00	n/a		0.00	0.00%		
Catalent Inc	CTLT	180.74	57.34	n/a	21.00	10,363.52	0.02%		0.52%
Fortive Corp	FTV	351.38	85.13	0.38	15.00	29,912.98	0.07%	0.03%	1.07%
Hershey Co/The	HSY	149.34	187.92	2.92	9.50	28,063.22	0.07%	0.20%	0.64%
Synchrony Financial	SYF	406.84	41.30	2.42	47.00	16,802.66	0.04%	0.10%	1.88%
Hormel Foods Corp	HRL	547.69	35.32	3.20	7.50	19,344.34	0.05%	0.15%	0.35%
Arthur J Gallagher & Co	AJG	216.80	243.93	0.98	22.00	52,884.02	0.13%	0.12%	2.78%
Mondelez International Inc	MDLZ	1346.48	73.07	2.33	11.00	98,387.07	0.23%	0.55%	2.58%
CenterPoint Energy Inc	CNP	629.43	27.50	2.91	8.50	17,309.38	0.04%	0.12%	0.35%
Humana Inc	HUM	120.65	350.32	1.01	8.50	42,267.16	0.10%	0.10%	0.86%
Willis Towers Watson PLC	WTW	102.48	272.61	1.29	9.00	27,937.35	0.07%	0.09%	0.60%
Illinois Tool Works Inc	ITW	298.80	262.15	2.14	9.00	78,330.42	0.19%	0.40%	1.68%
CDW Corp/DE	CDW	134.22	246.21	1.01	7.00	33,045.08	0.08%	0.08%	0.55%
Trane Technologies PLC	TT	227.07	281.97	1.19	14.50	64,027.49	0.15%	0.18%	2.21%
Interpublic Group of Cos Inc/The	IPG	378.73	31.40	4.20	8.50	11,891.97	0.03%	0.12%	0.24%
International Flavors & Fragrances Inc	IFF	255.32	75.50	2.12	0.50	19,276.28	0.05%	0.10%	0.02%
Generac Holdings Inc	GNRC	60.27	112.51	n/a	11.00	6,780.87	0.02%		0.18%
NXP Semiconductors NV	NXPI	256.46	249.73	1.62	8.50	64,045.51	0.15%	0.25%	1.30%
Kellanova	K	340.68	55.15	4.06	1.50	18,788.39	0.04%	0.18%	0.07%
Broadridge Financial Solutions Inc	BR	117.77	203.58	1.57	9.50	23,976.02	0.06%	0.09%	0.54%
Kimberly-Clark Corp	KMB	336.88	121.17	4.03	7.00	40,820.11	0.10%	0.39%	0.68%
Kimco Realty Corp	KIM	671.72	19.76	4.86	11.00	13,273.23	0.03%	0.15%	0.35%
Oracle Corp	ORCL	2748.92	111.68	1.43	10.00	306,999.61	0.73%	1.05%	7.32%
Kroger Co/The	KR	719.42	49.61	2.34	6.00	35,690.58	0.09%	0.20%	0.51%
Lennar Corp	LEN	245.57	158.51	1.26	4.50	38,925.14	0.09%	0.12%	0.42%
Eli Lilly & Co	LLY	950.16	753.68	0.69	19.00	716,119.60	1.71%	1.18%	32.46%
Bath & Body Works Inc	BBWI	225.94	45.70	1.75	26.50	10,325.50	0.02%	0.04%	0.65%
Charter Communications Inc	CHTR	145.23	293.93	n/a	12.50	42,685.98	0.10%		1.27%
Loews Corp	L	222.20	75.13	0.33	24.50	16,693.96	0.04%	0.01%	0.98%
Lowe's Cos Inc	LOW	574.00	240.67	1.83	8.00	138,144.58	0.33%	0.60%	2.64%
Hubbell Inc	HUBB	53.63	380.67	1.28	10.00	20,414.19	0.05%	0.06%	0.49%
IDEX Corp	IEX	75.65	235.90	1.09	6.00	17,844.66	0.04%	0.05%	0.26%
Marsh & McLennan Cos Inc	MMC	491.66	202.27	1.40	9.00	99,447.26	0.24%	0.33%	2.14%
Masco Corp	MAS	219.77	76.76	1.51	6.00	16,869.16	0.04%	0.06%	0.24%

AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
S&P Global Inc	SPGI	314.10	428.38	0.85	7.50	134,554.16	0.32%	0.27%	2.41%
Medtronic PLC	MDT	1327.82	83.36	3.31	6.50	110,687.33	0.26%	0.87%	1.72%
Viatris Inc	VTRS	1187.57	12.37	3.88		0.00	0.00%	0.00%	
CVS Health Corp	CVS	1258.45	74.37	3.58	8.50	93,590.93	0.22%	0.80%	1.90%
DuPont de Nemours Inc	DD	417.58	69.19	2.20	9.50	28,892.57	0.07%	0.15%	0.65%
Micron Technology Inc	MU	1103.91	90.61	0.51	22.00	100,025.19	0.24%	0.12%	5.25%
Motorola Solutions Inc	MSI	166.13	330.39	1.19	11.00	54,888.68	0.13%	0.16%	1.44%
Cboe Global Markets Inc	CBOE	105.58	192.00	1.15	13.00	20,271.74	0.05%	0.06%	0.63%
Laboratory Corp of America Holdings	LH	84.10	215.83	1.33	-2.00	18,151.30	0.04%	0.06%	-0.09%
Newmont Corp	NEM	1152.55	31.25	3.20	8.00	36,017.25	0.09%	0.27%	0.69%
NIKE Inc	NKE	1217.23	103.93	1.42	17.00	126,506.19	0.30%	0.43%	5.13%
NiSource Inc	NI	447.53	26.06	4.07	9.50	11,662.50	0.03%	0.11%	0.26%
Norfolk Southern Corp	NSC	225.88	253.38	2.13	7.50	57,233.98	0.14%	0.29%	1.02%
Principal Financial Group Inc	PFG	235.87	80.86	3.41	5.50	19,072.29	0.05%	0.16%	0.25%
Eversource Energy	ES	349.09	58.70	4.87	5.50	20,491.35	0.05%	0.24%	0.27%
Northrop Grumman Corp	NOC	150.04	461.02	1.62	8.00	69,169.60	0.17%	0.27%	1.32%
Wells Fargo & Co	WFC	3577.44	55.59	2.52	10.50	198,870.06	0.47%	1.19%	4.98%
Nucor Corp	NUE	240.75	192.30	1.12	2.00	46,295.26	0.11%	0.12%	0.22%
Occidental Petroleum Corp	OXY	879.50	60.61	1.45	15.50	53,306.43	0.13%	0.18%	1.97%
Omnicom Group Inc	OMC	197.99	88.39	3.17	7.00	17,500.60	0.04%	0.13%	0.29%
ONEOK Inc	OKE	583.16	75.12	5.27	15.00	43,806.90	0.10%	0.55%	1.57%
Raymond James Financial Inc	RJF	209.03	120.32	1.50	12.50	25,150.25	0.06%	0.09%	0.75%
PG&E Corp	PCG	2133.51	16.69	0.24	8.50	35,608.25	0.08%	0.02%	0.72%
Parker-Hannifin Corp	PH	128.41	535.45	1.11	12.50	68,757.67	0.16%	0.18%	2.05%
Rollins Inc	ROL	483.89	44.07	1.36	9.00	21,324.81	0.05%	0.07%	0.46%
PPL Corp	PPL	737.12	26.37	3.91	7.50	19,437.96	0.05%	0.18%	0.35%
ConocoPhillips	COP	1176.41	112.54	2.77	9.00	132,392.96	0.32%	0.88%	2.84%
PulteGroup Inc	PHM	212.11	108.38	0.74	8.50	22,988.70	0.05%	0.04%	0.47%
Pinnacle West Capital Corp	PNW	113.31	68.33	5.15	2.50	7,742.61	0.02%	0.10%	0.05%
PNC Financial Services Group Inc/The	PNC	397.81	147.20	4.21	6.50	58,557.34	0.14%	0.59%	0.91%
PPG Industries Inc	PPG	235.26	141.60	1.84	3.00	33,312.11	0.08%	0.15%	0.24%
Progressive Corp/The	PGR	585.68	189.56	0.21	14.50	111,020.93	0.26%	0.06%	3.84%
Veralto Corp	VLTO	246.54	86.42	0.42		0.00	0.00%	0.00%	
Public Service Enterprise Group Inc	PEG	498.59	62.40	3.85	4.00	31,111.83	0.07%	0.29%	0.30%
Robert Half Inc	RHI	105.21	80.40	2.64	7.00	8,458.80	0.02%	0.05%	0.14%
Cooper Cos Inc/The	COO	198.74	93.60	n/a	9.50	18,602.16	0.04%		0.42%
Edison International	EIX	383.93	68.02	4.59	4.50	26,114.58	0.06%	0.29%	0.28%
Schlumberger NV	SLB	1432.74	48.33	2.28	26.00	69,244.42	0.17%	0.38%	4.29%
Charles Schwab Corp/The	SCHW	1773.48	66.78	1.50	10.00	118,432.66	0.28%	0.42%	2.83%
Sherwin-Williams Co/The	SHW	254.47	332.03	0.86	7.00	84,490.01	0.20%	0.17%	1.41%
West Pharmaceutical Services Inc	WST	73.30	358.36	0.22	7.50	26,267.43	0.06%	0.01%	0.47%
J M Smucker Co/The	SJM	106.18	120.17	3.53	5.50	12,759.17	0.03%	0.11%	0.17%
Snap-on Inc	SNA	52.71	275.66	2.70	7.50	14,531.14	0.03%	0.09%	0.26%
AMETEK Inc	AME	231.01	180.18	0.62	13.00	41,623.92	0.10%	0.06%	1.29%
Uber Technologies Inc	UBER	2076.50	79.50	n/a		0.00	0.00%		
Southern Co/The	SO	1091.52	67.25	4.16	6.50	73,404.38	0.18%	0.73%	1.14%
Truist Financial Corp	TFC	1334.53	34.98	5.95	6.00	46,681.86	0.11%	0.66%	0.67%
Southwest Airlines Co	LUV	596.67	34.27	2.10		0.00	0.00%	0.00%	
W R Berkley Corp	WRB	256.55	83.60	0.53	15.00	21,447.50	0.05%	0.03%	0.77%
Stanley Black & Decker Inc	SWK	153.80	89.29	3.63	3.50	13,732.98	0.03%	0.12%	0.11%
Public Storage	PSA	175.83	283.87	4.23	7.50	49,912.58	0.12%	0.50%	0.89%
Arista Networks Inc	ANET	312.63	277.54	n/a	17.00	86,768.44	0.21%		3.52%
Sysco Corp	SYY	497.83	80.97	2.47	16.00	40,309.30	0.10%	0.24%	1.54%
Corteva Inc	CTVA	704.88	53.52	1.20	13.50	37,725.18	0.09%	0.11%	1.21%
Texas Instruments Inc	TXN	909.29	167.33	3.11	3.50	152,151.16	0.36%	1.13%	1.27%
Textron Inc	TXT	192.85	89.07	0.09	16.00	17,177.51	0.04%	0.00%	0.66%
Thermo Fisher Scientific Inc	TMO	381.31	570.18	0.27	6.50	217,416.48	0.52%	0.14%	3.37%
TJX Cos Inc/The	TJX	1139.68	99.14	1.34	17.00	112,987.58	0.27%	0.36%	4.58%
Globe Life Inc	GL	93.71	126.93	0.71	9.00	11,894.36	0.03%	0.02%	0.26%
Johnson Controls International plc	JCI	681.48	59.27	2.50	11.00	40,391.14	0.10%	0.24%	1.06%
Ulta Beauty Inc	ULTA	48.56	548.56	n/a	13.50	26,639.17	0.06%		0.86%
Union Pacific Corp	UNP	609.78	253.69	2.05	6.00	154,694.58	0.37%	0.76%	2.21%
Keysight Technologies Inc	KEYS	174.90	154.30	n/a	13.00	26,987.07	0.06%		0.84%
UnitedHealth Group Inc	UNH	921.93	493.60	1.52	13.00	455,066.62	1.09%	1.65%	14.11%
Blackstone Inc	BX	714.64	127.82	2.94	15.00	91,345.80	0.22%	0.64%	3.27%
Marathon Oil Corp	MRO	577.20	24.25	1.81	25.50	13,997.03	0.03%	0.06%	0.85%
Bio-Rad Laboratories Inc	BIO	23.42	325.88	n/a	11.50	7,633.09	0.02%		0.21%
Ventas Inc	VTR	402.46	42.29	4.26	23.00	17,020.12	0.04%	0.17%	0.93%
VF Corp	VFC	388.82	16.34	2.20	9.00	6,353.25	0.02%	0.03%	0.14%
Vulcan Materials Co	VMC	132.23	265.85	0.69	9.50	35,152.55	0.08%	0.06%	0.80%
Weyerhaeuser Co	WY	729.52	34.38	2.33	-2.00	25,080.93	0.06%	0.14%	-0.12%
Whirlpool Corp	WHR	54.64	107.39	6.52	-1.00	5,868.22	0.01%	0.09%	-0.01%
Williams Cos Inc/The	WMB	1216.75	35.94	5.29	10.00	43,730.00	0.10%	0.55%	1.04%
Constellation Energy Corp	CEG	319.38	168.45	0.84		0.00	0.00%	0.00%	
WEC Energy Group Inc	WEC	315.56	78.49	4.26	6.00	24,768.46	0.06%	0.25%	0.35%
Adobe Inc	ADBE	452.00	560.28	n/a	14.50	253,246.56	0.60%		8.76%
AES Corp/The	AES	710.29	15.20	4.54	14.00	10,796.36	0.03%	0.12%	0.36%
Expeditors International of Washington Inc	EXPD	143.90	119.60	1.15	-1.00	17,210.32	0.04%	0.05%	-0.04%
Amgen Inc	AMGN	535.92	273.83	3.29	5.00	146,750.70	0.35%	1.15%	1.75%
Apple Inc	AAPL	15441.88	180.75	0.53	8.50	2,791,119.99	6.66%	3.54%	56.60%
Autodesk Inc	ADSK	213.92	258.17	n/a	10.00	55,226.44	0.13%		1.32%
Cintas Corp	CTAS	101.37	628.61	0.86	14.00	63,722.82	0.15%	0.13%	2.13%
Comcast Corp	CMCSA	3962.41	42.85	2.89	9.00	169,789.40	0.41%	1.17%	3.65%
Molson Coors Beverage Co	TAP	198.00	62.42	2.82	42.00	12,359.28	0.03%	0.08%	1.24%
KLA Corp	KLAC	135.23	682.30	0.85	10.50	92,270.16	0.22%	0.19%	2.31%
Marriott International Inc/MD	MAR	289.49	249.87	0.83	17.50	72,333.62	0.17%	0.14%	3.02%
Fiserv Inc	FI	590.40	149.27	n/a	9.50	88,129.46	0.21%		2.00%
McCormick & Co Inc/MD	MKC	251.44	68.86	2.44	4.50	17,314.23	0.04%	0.10%	0.19%
PACCAR Inc	PCAR	523.88	110.89	0.97	5.00	58,093.50	0.14%	0.13%	0.69%
Costco Wholesale Corp	COST	443.73	743.89	0.55	10.50	330,084.82	0.79%	0.43%	8.27%
Stryker Corp	SYK	380.26	349.07	0.92	10.00	132,738.75	0.32%	0.29%	3.17%

AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
Tyson Foods Inc	TSN	286.34	54.24	3.61	6.00	15,531.03	0.04%	0.13%	0.22%
Lamb Weston Holdings Inc	LW	144.37	102.21	1.41	12.00	14,756.26	0.04%	0.05%	0.42%
Applied Materials Inc	AMAT	830.90	201.62	0.63	4.00	167,525.45	0.40%	0.25%	1.60%
American Airlines Group Inc	AAL	653.54	15.68	n/a		0.00	0.00%		
Cardinal Health Inc	CAH	243.23	111.98	1.79	6.50	27,237.23	0.06%	0.12%	0.42%
Cincinnati Financial Corp	CINF	156.67	114.00	2.84	10.50	17,859.81	0.04%	0.12%	0.45%
Paramount Global	PARA	611.78	11.04	1.81	-2.50	6,754.07	0.02%	0.03%	-0.04%
DR Horton Inc	DHI	331.82	149.44	0.80	3.00	49,586.73	0.12%	0.09%	0.35%
Electronic Arts Inc	EA	267.35	139.48	0.54	17.50	37,289.98	0.09%	0.05%	1.56%
Fair Isaac Corp	FICO	24.85	1269.91	n/a	19.50	31,559.80	0.08%		1.47%
Fastenal Co	FAST	572.34	73.01	2.14	6.50	41,786.18	0.10%	0.21%	0.65%
M&T Bank Corp	MTB	166.62	139.74	3.72		0.00	0.00%	0.00%	
Xcel Energy Inc	XEL	555.16	52.69	4.16	6.00	29,251.17	0.07%	0.29%	0.42%
Fifth Third Bancorp	FITB	681.05	34.34	4.08	4.00	23,387.39	0.06%	0.23%	0.22%
Gilead Sciences Inc	GILD	1245.78	72.10	4.27	13.50	89,820.38	0.21%	0.92%	2.89%
Hasbro Inc	HAS	138.79	50.29	5.57	8.50	6,979.80	0.02%	0.09%	0.14%
Huntington Bancshares Inc/OH	HBAN	1448.35	13.04	4.75	8.00	18,886.43	0.05%	0.21%	0.36%
Welltower Inc	WELL	568.88	92.16	2.65	12.00	52,427.80	0.13%	0.33%	1.50%
Biogen Inc	BIIB	145.36	216.99	n/a	-6.50	31,541.88	0.08%		-0.49%
Northern Trust Corp	NTRS	204.84	82.13	3.65	4.00	16,823.67	0.04%	0.15%	0.16%
Packaging Corp of America	PKG	89.62	181.19	2.76	9.00	16,238.97	0.04%	0.11%	0.35%
Paychex Inc	PAYX	359.82	122.62	2.90	10.00	44,121.37	0.11%	0.31%	1.05%
QUALCOMM Inc	QCOM	1116.00	157.79	2.03	5.50	176,093.64	0.42%	0.85%	2.31%
Ross Stores Inc	ROST	336.67	148.96	0.90	14.00	50,149.77	0.12%	0.11%	1.67%
IDEXX Laboratories Inc	IDXX	83.09	575.23	n/a	11.00	47,795.29	0.11%		1.25%
Starbucks Corp	SBUX	1132.20	94.90	2.40	9.00	107,445.78	0.26%	0.62%	2.31%
KeyCorp	KEY	933.84	14.27	5.75		0.00	0.00%	0.00%	
Fox Corp	FOXA	239.30	29.79	1.75	8.00	7,128.60	0.02%	0.03%	0.14%
Fox Corp	FOX	235.58	27.38	1.90		0.00	0.00%	0.00%	
State Street Corp	STT	301.94	73.73	3.74		0.00	0.00%	0.00%	
Norwegian Cruise Line Holdings Ltd	NCLH	425.66	19.39	n/a		0.00	0.00%		
US Bancorp	USB	1558.13	41.96	4.67	4.50	65,379.26	0.16%	0.73%	0.70%
A O Smith Corp	AOS	121.31	82.90	1.54	11.50	10,056.43	0.02%	0.04%	0.28%
Gen Digital Inc	GEN	636.91	21.49	2.33	10.50	13,687.20	0.03%	0.08%	0.34%
T Rowe Price Group Inc	TROW	223.66	113.35	4.38	1.50	25,351.52	0.06%	0.26%	0.09%
Waste Management Inc	WM	401.60	205.65	1.36	6.00	82,588.63	0.20%	0.27%	1.18%
Constellation Brands Inc	STZ	182.80	248.52	1.43	6.50	45,428.46	0.11%	0.16%	0.70%
DENTSPLY SIRONA Inc	XRAY	207.36	32.68	1.96	12.00	6,776.62	0.02%	0.03%	0.19%
Zions Bancorp NA	ZION	148.16	39.43	4.16	2.50	5,841.75	0.01%	0.06%	0.03%
Invesco Ltd	IVZ	449.20	15.41	5.19	3.00	6,922.23	0.02%	0.09%	0.05%
Intuit Inc	INTU	279.98	662.89	0.54	14.50	185,595.28	0.44%	0.24%	6.42%
Morgan Stanley	MS	1635.27	86.04	3.95	7.50	140,698.46	0.34%	1.33%	2.52%
Microchip Technology Inc	MCHP	540.39	84.14	2.14	10.00	45,468.25	0.11%	0.23%	1.08%
Chubb Ltd	CB	405.76	251.67	1.37	16.00	102,117.37	0.24%	0.33%	3.90%
Hologic Inc	HOLX	234.73	73.80	n/a	-1.00	17,323.22	0.04%		-0.04%
Citizens Financial Group Inc	CFG	458.76	31.39	5.35	4.50	14,400.38	0.03%	0.18%	0.15%
Jabil Inc	JBL	127.55	144.09	0.22	16.00	18,378.10	0.04%	0.01%	0.70%
O'Reilly Automotive Inc	ORLY	59.04	1087.42	n/a	11.00	64,198.01	0.15%		1.68%
Allstate Corp/The	ALL	263.07	159.52	2.31	11.00	41,964.45	0.10%	0.23%	1.10%
Equity Residential	EQR	379.29	60.21	4.40	-5.00	22,837.11	0.05%	0.24%	-0.27%
BorgWarner Inc	BWA	229.78	31.13	1.41	6.50	7,153.05	0.02%	0.02%	0.11%
Keurig Dr Pepper Inc	KDP	1387.59	29.91	2.88	12.50	41,502.85	0.10%	0.28%	1.24%
Host Hotels & Resorts Inc	HST	703.60	20.74	3.86	51.00	14,592.66	0.03%	0.13%	1.78%
Incyte Corp	INCY	224.53	58.36	n/a	8.50	13,103.34	0.03%		0.27%
Simon Property Group Inc	SPG	325.91	148.14	5.27	3.50	48,280.75	0.12%	0.61%	0.40%
Eastman Chemical Co	EMN	117.34	87.74	3.69	6.00	10,295.76	0.02%	0.09%	0.15%
AvalonBay Communities Inc	AVB	142.03	177.03	3.84	6.00	25,142.69	0.06%	0.23%	0.36%
Prudential Financial Inc	PRU	359.00	108.99	4.77	3.00	39,127.41	0.09%	0.45%	0.28%
United Parcel Service Inc	UPS	726.82	148.26	4.40	2.50	107,757.89	0.26%	1.13%	0.64%
Walgreens Boots Alliance Inc	WBA	862.38	21.26	4.70	-1.50	18,334.11	0.04%	0.21%	-0.07%
STERIS PLC	STE	98.81	232.91	0.89	10.00	23,014.77	0.05%	0.05%	0.55%
McKesson Corp	MCK	131.41	521.41	0.48	8.00	68,517.45	0.16%	0.08%	1.31%
Lockheed Martin Corp	LMT	241.64	428.24	2.94	9.00	103,481.20	0.25%	0.73%	2.22%
Cencora Inc	COR	199.48	235.60	0.87	8.00	46,997.96	0.11%	0.10%	0.90%
Capital One Financial Corp	COF	380.37	137.61	1.74	4.00	52,343.13	0.12%	0.22%	0.50%
Waters Corp	WAT	59.20	337.42	n/a	10.00	19,976.28	0.05%		0.48%
Nordson Corp	NDSN	57.19	265.65	1.02	9.50	15,193.05	0.04%	0.04%	0.34%
Dollar Tree Inc	DLTR	217.87	146.68	n/a	9.00	31,957.46	0.08%		0.69%
Darden Restaurants Inc	DRI	119.41	170.71	3.07	13.00	20,384.65	0.05%	0.15%	0.63%
Evergy Inc	EVRG	229.58	49.54	5.19	7.50	11,373.54	0.03%	0.14%	0.20%
Match Group Inc	MTCH	268.01	36.04	n/a	13.50	9,659.15	0.02%		0.31%
Domino's Pizza Inc	DPZ	34.81	448.35	1.35	11.50	15,608.41	0.04%	0.05%	0.43%
NVR Inc	NVR	3.19	7625.57	n/a	3.50	24,295.07	0.06%		0.20%
NetApp Inc	NTAP	206.03	89.12	2.24	8.00	18,361.48	0.04%	0.10%	0.35%
Old Dominion Freight Line Inc	ODFL	108.84	442.48	0.47	8.50	48,158.20	0.11%	0.05%	0.98%
DaVita Inc	DVA	87.70	126.97	n/a	11.50	11,135.27	0.03%		0.31%
Hartford Financial Services Group Inc/The	HIG	297.35	95.84	1.96	8.00	28,498.02	0.07%	0.13%	0.54%
Iron Mountain Inc	IRM	292.28	78.64	3.31	5.50	22,984.58	0.05%	0.18%	0.30%
Estee Lauder Cos Inc/The	EL	232.93	148.58	1.78	8.00	34,608.89	0.08%	0.15%	0.66%
Cadence Design Systems Inc	CDNS	272.24	304.38	n/a	12.00	82,864.11	0.20%		2.37%
Tyler Technologies Inc	TYL	42.28	437.14	n/a	10.00	18,480.53	0.04%		0.44%
Universal Health Services Inc	UHS	59.97	167.06	0.48	6.00	10,018.59	0.02%	0.01%	0.14%
Skyworks Solutions Inc	SWKS	160.23	104.92	2.59		0.00	0.00%	0.00%	
Quest Diagnostics Inc	DGX	110.71	124.89	2.40	2.50	13,826.20	0.03%	0.08%	0.08%
Rockwell Automation Inc	ROK	114.59	285.08	1.75	9.50	32,667.89	0.08%	0.14%	0.74%
Kraft Heinz Co/The	KHC	1213.10	35.28	4.54	5.00	42,798.17	0.10%	0.46%	0.51%
American Tower Corp	AMT	466.35	198.86	3.42	5.50	92,738.76	0.22%	0.76%	1.22%
Regeneron Pharmaceuticals Inc	REGN	107.94	966.09	n/a		0.00	0.00%		
Amazon.com Inc	AMZN	10387.38	176.76	n/a	19.50	1,836,073.47	4.38%		85.41%
Jack Henry & Associates Inc	JKHY	72.87	173.77	1.27	6.50	12,662.27	0.03%	0.04%	0.20%
Ralph Lauren Corp	RL	39.04	185.92	1.61	13.00	7,259.06	0.02%	0.03%	0.23%

AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
Boston Properties Inc	BXP	156.94	64.72	6.06	-1.00	10,157.22	0.02%	0.15%	-0.02%
Amphenol Corp	APH	599.86	109.24	0.81	12.50	65,528.16	0.16%	0.13%	1.95%
Howmet Aerospace Inc	HWM	410.30	66.55	0.30	17.00	27,305.73	0.07%	0.02%	1.11%
Pioneer Natural Resources Co	PXD	233.62	235.19	4.35	8.50	54,945.79	0.13%	0.57%	1.11%
Valero Energy Corp	VLO	332.48	141.46	3.03	9.50	47,032.90	0.11%	0.34%	1.07%
Synopsys Inc	SNPS	152.54	573.73	n/a	12.50	87,519.07	0.21%		2.61%
Etsy Inc	ETSY	118.49	71.69	n/a	2.00	8,494.69	0.02%		0.04%
CH Robinson Worldwide Inc	CHRW	116.89	74.08	3.29	3.50	8,659.29	0.02%	0.07%	0.07%
Accenture PLC	ACN	666.51	374.78	1.38	12.50	249,795.37	0.60%	0.82%	7.45%
TransDigm Group Inc	TDG	55.61	1177.74	n/a	21.00	65,489.41	0.16%		3.28%
Yum! Brands Inc	YUM	281.34	138.42	1.94	10.50	38,942.53	0.09%	0.18%	0.98%
Prologis Inc	PLD	924.88	133.27	2.88	2.50	123,258.89	0.29%	0.85%	0.74%
FirstEnergy Corp	FE	574.44	36.61	4.48	4.50	21,030.29	0.05%	0.22%	0.23%
VeriSign Inc	VRSN	100.90	195.29	n/a	13.00	19,704.76	0.05%		0.61%
Quanta Services Inc	PWR	145.75	241.51	0.15	15.00	35,199.84	0.08%	0.01%	1.26%
Henry Schein Inc	HSIC	128.51	76.47	n/a	7.50	9,826.85	0.02%		0.18%
Ameren Corp	AEE	262.95	71.19	3.76	6.50	18,719.05	0.04%	0.17%	0.29%
ANSYS Inc	ANSS	87.02	334.17	n/a	8.50	29,078.81	0.07%		0.59%
FactSet Research Systems Inc	FDS	38.09	462.58	0.85	11.00	17,617.82	0.04%	0.04%	0.46%
NVIDIA Corp	NVDA	2500.00	791.12	0.02	40.00	1,977,800.00	4.72%	0.10%	188.73%
Cognizant Technology Solutions Corp	CTSH	497.84	79.02	1.52	8.00	39,339.47	0.09%	0.14%	0.75%
Intuitive Surgical Inc	ISRG	352.33	385.60	n/a	13.50	135,856.91	0.32%		4.38%
Take-Two Interactive Software Inc	TTWO	170.59	146.93	n/a		0.00	0.00%		
Republic Services Inc	RSG	314.61	183.60	1.17	10.50	57,762.58	0.14%	0.16%	1.45%
eBay Inc	EBAY	518.00	47.28	2.28	7.00	24,491.04	0.06%	0.13%	0.41%
Goldman Sachs Group Inc/The	GS	325.56	389.05	2.83	1.50	126,660.29	0.30%	0.85%	0.45%
SBA Communications Corp	SBAC	108.11	209.23	1.87	22.00	22,619.65	0.05%	0.10%	1.19%
Sempra	SRE	629.33	70.60	3.51	6.50	44,430.56	0.11%	0.37%	0.69%
Moody's Corp	MCO	182.50	379.42	0.90	6.50	69,244.15	0.17%	0.15%	1.07%
ON Semiconductor Corp	ON	427.33	78.92	n/a	14.50	33,724.80	0.08%		1.17%
Booking Holdings Inc	BKNG	34.17	3468.83	1.01	22.00	118,533.39	0.28%	0.29%	6.22%
F5 Inc	FFIV	58.81	187.22	n/a	10.00	11,009.66	0.03%		0.26%
Akamai Technologies Inc	AKAM	151.53	110.92	n/a	5.00	16,807.71	0.04%		0.20%
Charles River Laboratories International Inc	CRL	51.35	254.19	n/a	7.00	13,052.66	0.03%		0.22%
MarketAxess Holdings Inc	MKTX	37.87	213.41	1.39	8.50	8,081.41	0.02%	0.03%	0.16%
Devon Energy Corp	DVN	635.00	44.06	3.99	9.50	27,978.10	0.07%	0.27%	0.63%
Alphabet Inc	GOOGL	5893.00	138.46	n/a		0.00	0.00%		
Bio-Techne Corp	TECH	157.19	73.57	0.43	11.00	11,564.62	0.03%	0.01%	0.30%
Teleflex Inc	TFX	47.06	222.79	0.61	9.00	10,483.61	0.03%	0.02%	0.23%
Allegion plc	ALLE	87.55	127.87	1.50	10.00	11,195.53	0.03%	0.04%	0.27%
Netflix Inc	NFLX	432.76	602.92	n/a	13.00	260,919.66	0.62%		8.09%
Warner Bros Discovery Inc	WBD	2439.69	8.79	n/a		0.00	0.00%		
Agilent Technologies Inc	A	293.04	137.36	0.69	8.00	40,252.25	0.10%	0.07%	0.77%
Trimble Inc	TRMB	245.69	61.19	n/a	5.50	15,033.59	0.04%		0.20%
Elevance Health Inc	ELV	232.67	501.25	1.30	12.50	116,625.34	0.28%	0.36%	3.48%
CME Group Inc	CME	359.99	220.35	2.09	7.50	79,324.24	0.19%	0.40%	1.42%
Juniper Networks Inc	JNPR	324.38	37.03	2.38	10.50	12,011.83	0.03%	0.07%	0.30%
BlackRock Inc	BLK	148.94	811.34	2.51	7.50	120,842.60	0.29%	0.72%	2.16%
DTE Energy Co	DTE	206.11	108.35	3.77	4.50	22,331.91	0.05%	0.20%	0.24%
Celanese Corp	CE	108.91	151.97	1.84	4.50	16,550.44	0.04%	0.07%	0.18%
Nasdaq Inc	NDAQ	575.21	56.20	1.57	7.00	32,326.63	0.08%	0.12%	0.54%
Philip Morris International Inc	PM	1552.46	89.96	5.78	5.00	139,659.03	0.33%	1.93%	1.67%
Ingersoll Rand Inc	IR	403.44	91.33	0.09	12.50	36,845.81	0.09%	0.01%	1.10%
Salesforce Inc	CRM	968.00	308.82	0.52	18.00	298,937.76	0.71%	0.37%	12.84%
Roper Technologies Inc	ROP	107.02	544.73	0.55	8.50	58,298.09	0.14%	0.08%	1.18%
Huntington Ingalls Industries Inc	HII	39.59	291.62	1.78	10.00	11,545.53	0.03%	0.05%	0.28%
MetLife Inc	MET	723.02	69.74	2.98	7.50	50,423.41	0.12%	0.36%	0.90%
Tapestry Inc	TPR	229.37	47.53	2.95	16.50	10,901.77	0.03%	0.08%	0.43%
CSX Corp	CSX	1959.13	37.94	1.27	7.50	74,329.54	0.18%	0.22%	1.33%
Edwards Lifesciences Corp	EW	601.30	84.87	n/a	10.50	51,032.33	0.12%		1.28%
Ameriprise Financial Inc	AMP	100.29	407.36	1.33	11.00	40,854.54	0.10%	0.13%	1.07%
Zebra Technologies Corp	ZBRA	51.38	279.48	n/a	-2.50	14,359.96	0.03%		-0.09%
Zimmer Biomet Holdings Inc	ZBH	205.08	124.36	0.77	6.50	25,504.25	0.06%	0.05%	0.40%
Camden Property Trust	CPT	106.97	94.48	4.36	-3.00	10,106.43	0.02%	0.11%	-0.07%
CBRE Group Inc	CBRE	305.70	91.89	n/a	5.00	28,090.41	0.07%		0.34%
Mastercard Inc	MA	925.72	474.76	0.56	16.00	439,496.25	1.05%	0.58%	16.78%
CarMax Inc	KMX	157.92	79.00	n/a	-3.50	12,475.76	0.03%		-0.10%
Intercontinental Exchange Inc	ICE	572.62	138.42	1.30	6.50	79,261.51	0.19%	0.25%	1.23%
Fidelity National Information Services Inc	FIS	576.47	69.19	2.08		0.00	0.00%	0.00%	
Chipotle Mexican Grill Inc	CMG	27.42	2688.77	n/a	22.50	73,728.76	0.18%		3.96%
Wynn Resorts Ltd	WYNN	112.08	105.20	0.95	27.00	11,790.61	0.03%	0.03%	0.76%
Live Nation Entertainment Inc	LYV	230.80	96.98	n/a		0.00	0.00%		
Assurant Inc	AIZ	51.98	181.45	1.59	10.50	9,431.41	0.02%	0.04%	0.24%
NRG Energy Inc	NRG	208.02	55.32	2.95	-2.50	11,507.72	0.03%	0.08%	-0.07%
Monster Beverage Corp	MNST	1040.64	59.10	n/a	13.00	61,501.59	0.15%		1.91%
Regions Financial Corp	RF	918.86	18.63	5.15	9.00	17,118.44	0.04%	0.21%	0.37%
Baker Hughes Co	BKR	1000.88	29.59	2.84		0.00	0.00%	0.00%	
Mosaic Co/The	MOS	321.69	31.16	2.70	-3.00	10,023.83	0.02%	0.06%	-0.07%
Expedia Group Inc	EXPE	130.77	136.82	n/a		0.00	0.00%		
CF Industries Holdings Inc	CF	188.34	80.72	2.48	7.50	15,202.64	0.04%	0.09%	0.27%
APA Corp	APA	301.55	29.79	3.36	19.50	8,983.26	0.02%	0.07%	0.42%
Leidos Holdings Inc	LDOS	135.78	127.86	1.19	7.50	17,360.70	0.04%	0.05%	0.31%
Alphabet Inc	GOOG	5671.00	139.78	n/a	13.00	792,692.38	1.89%		24.58%
First Solar Inc	FSLR	106.85	153.89	n/a	27.50	16,442.99	0.04%		1.08%
TE Connectivity Ltd	TEL	308.80	143.56	1.64	10.50	44,331.18	0.11%	0.17%	1.11%
Discover Financial Services	DFS	250.56	120.70	2.32	4.00	30,241.99	0.07%	0.17%	0.29%
Visa Inc	V	1581.59	282.64	0.74	13.50	447,020.60	1.07%	0.78%	14.40%
Mid-America Apartment Communities Inc	MAA	116.69	125.68	4.68	-12.50	14,665.35	0.03%	0.16%	-0.44%
Xylem Inc/NY	XYL	241.77	127.05	1.13	15.50	30,716.88	0.07%	0.08%	1.14%
Marathon Petroleum Corp	MPC	361.36	169.23	1.95	15.50	61,152.78	0.15%	0.28%	2.26%
Tractor Supply Co	TSCO	107.92	254.32	1.73	11.50	27,445.45	0.07%	0.11%	0.75%

AbbVie Inc	ABBV	1766.47	176.05	3.52	2.00	310,987.57	0.74%	2.61%	1.48%
Walt Disney Co/The	DIS	1834.30	111.58	0.81	30.00	204,671.42	0.49%	0.39%	14.65%
FleetCor Technologies Inc	FLT	71.85	279.27	n/a	15.50	20,066.67	0.05%		0.74%
Advanced Micro Devices Inc	AMD	1615.79	192.53	n/a	25.50	311,087.47	0.74%		18.92%
ResMed Inc	RMD	147.09	173.72	1.11	11.50	25,552.13	0.06%	0.07%	0.70%
Mettler-Toledo International Inc	MTD	21.48	1247.22	n/a	9.00	26,789.04	0.06%		0.58%
VICI Properties Inc	VICI	1042.70	29.93	5.55	8.00	31,208.10	0.07%	0.41%	0.60%
Copart Inc	CPRT	961.46	53.15	n/a	7.00	51,101.71	0.12%		0.85%
Jacobs Solutions Inc	J	125.65	146.65	0.79	10.00	18,426.72	0.04%	0.03%	0.44%
Albemarle Corp	ALB	117.40	137.85	1.16	-4.50	16,184.00	0.04%	0.04%	-0.17%
Fortinet Inc	FTNT	763.03	69.11	n/a	24.00	52,733.07	0.13%		3.02%
Moderna Inc	MRNA	382.07	92.24	n/a	-20.00	35,242.41	0.08%		-1.68%
Essex Property Trust Inc	ESS	64.18	231.40	4.24	1.50	14,851.95	0.04%	0.15%	0.05%
CoStar Group Inc	CSGP	408.41	87.03	n/a	14.00	35,543.84	0.08%		1.19%
Realty Income Corp	O	861.12	52.11	5.91	5.50	44,873.17	0.11%	0.63%	0.59%
Westrock Co	WRK	256.97	45.29	2.67	10.00	11,638.04	0.03%	0.07%	0.28%
Westinghouse Air Brake Technologies Corp	WAB	177.03	141.29	0.57	12.00	25,012.43	0.06%	0.03%	0.72%
Pool Corp	POOL	38.38	398.12	1.11	14.00	15,278.25	0.04%	0.04%	0.51%
Western Digital Corp	WDC	325.86	59.47	n/a	13.00	19,378.89	0.05%		0.60%
PepsiCo Inc	PEP	1374.43	165.34	3.06	7.50	227,248.09	0.54%	1.66%	4.07%
Diamondback Energy Inc	FANG	178.45	182.52	6.75		0.00	0.00%	0.00%	
Palo Alto Networks Inc	PANW	323.10	310.55	n/a		0.00	0.00%		
ServiceNow Inc	NOW	205.00	771.34	n/a	61.00	158,124.70	0.38%		23.01%
Church & Dwight Co Inc	CHD	243.78	100.12	1.13	6.00	24,406.95	0.06%	0.07%	0.35%
Federal Realty Investment Trust	FRT	82.78	100.85	4.32	2.50	8,347.86	0.02%	0.09%	0.05%
MGM Resorts International	MGM	319.68	43.28	n/a	25.00	13,835.66	0.03%		0.83%
American Electric Power Co Inc	AEP	515.18	85.19	4.13	6.50	43,887.84	0.10%	0.43%	0.68%
Invitation Homes Inc	INVH	611.96	34.07	3.29		0.00	0.00%	0.00%	
PTC Inc	PTC	119.55	183.01	n/a	29.00	21,879.21	0.05%		1.51%
JB Hunt Transport Services Inc	JBHT	103.30	206.31	0.83	8.50	21,311.41	0.05%	0.04%	0.43%
Lam Research Corp	LRCX	131.10	938.25	0.85	9.00	123,007.39	0.29%	0.25%	2.64%
Mohawk Industries Inc	MHK	63.70	118.62	n/a	2.50	7,555.62	0.02%		0.05%
GE HealthCare Technologies Inc	GEHC	455.36	91.28	0.13		0.00	0.00%	0.00%	
Pentair PLC	PNR	165.34	77.79	1.18	12.00	12,861.41	0.03%	0.04%	0.37%
Vertex Pharmaceuticals Inc	VRTX	258.31	420.74	n/a	9.50	108,680.51	0.26%		2.46%
Amcor PLC	AMCR	1445.34	9.06	5.52	11.50	13,094.81	0.03%	0.17%	0.36%
Meta Platforms Inc	META	2200.05	490.13	0.41	17.00	1,078,310.02	2.57%	1.05%	43.73%
T-Mobile US Inc	TMUS	1186.87	163.30	1.59	20.00	193,815.54	0.46%	0.74%	9.25%
United Rentals Inc	URI	67.19	693.27	0.94	17.00	46,582.20	0.11%	0.10%	1.89%
Alexandria Real Estate Equities Inc	ARE	174.97	124.73	4.07	10.00	21,823.76	0.05%	0.21%	0.52%
Honeywell International Inc	HON	652.18	198.73	2.17	10.50	129,608.13	0.31%	0.67%	3.25%
Delta Air Lines Inc	DAL	643.32	42.27	0.95		0.00	0.00%	0.00%	
United Airlines Holdings Inc	UAL	328.02	45.49	n/a		0.00	0.00%		
Seagate Technology Holdings PLC	STX	209.51	93.05	3.01	15.00	19,495.00	0.05%	0.14%	0.70%
News Corp	NWS	191.10	27.99	0.71		0.00	0.00%	0.00%	
Centene Corp	CNC	534.86	78.43	n/a	12.50	41,949.31	0.10%		1.25%
Martin Marietta Materials Inc	MLM	61.82	577.71	0.51	12.50	35,715.19	0.09%	0.04%	1.07%
Teradyne Inc	TER	153.08	103.59	0.46	12.50	15,857.66	0.04%	0.02%	0.47%
PayPal Holdings Inc	PYPL	1071.74	60.34	n/a	12.00	64,668.91	0.15%		1.85%
Tesla Inc	TSLA	3184.79	201.88	n/a	13.50	642,945.41	1.53%		20.71%
Arch Capital Group Ltd	ACGL	374.15	87.59	n/a	24.00	32,771.89	0.08%		1.88%
Dow Inc	DOW	702.29	55.88	5.01	3.00	39,244.13	0.09%	0.47%	0.28%
Everest Group Ltd	EG	43.38	368.88	1.90	10.00	16,002.75	0.04%	0.07%	0.38%
Teledyne Technologies Inc	TDY	47.38	427.27	n/a	8.00	20,242.34	0.05%		0.39%
News Corp	NWSA	380.02	26.88	0.74	19.00	10,215.05	0.02%	0.02%	0.46%
Exelon Corp	EXC	994.30	35.84	4.24		0.00	0.00%	0.00%	
Global Payments Inc	GPN	257.99	129.70	0.77	13.50	33,460.65	0.08%	0.06%	1.08%
Crown Castle Inc	CCI	434.22	109.94	5.69	7.00	47,737.60	0.11%	0.65%	0.80%
Aptiv PLC	APTV	279.04	79.49	n/a	33.50	22,180.57	0.05%		1.77%
Align Technology Inc	ALGN	75.10	302.42	n/a	17.00	22,712.95	0.05%		0.92%
Illumina Inc	ILMN	158.90	139.83	n/a	-6.00	22,218.99	0.05%		-0.32%
Kenvue Inc	KVUE	1915.00	19.00	4.21		0.00	0.00%	0.00%	
Targa Resources Corp	TRGP	223.16	98.24	2.04		0.00	0.00%	0.00%	
Bunge Global SA	BG	143.42	94.37	2.81	1.50	13,534.36	0.03%	0.09%	0.05%
LKQ Corp	LKQ	266.61	52.29	2.29	7.00	13,940.88	0.03%	0.08%	0.23%
Zoetis Inc	ZTS	457.87	198.33	0.87	9.00	90,808.76	0.22%	0.19%	1.95%
Equinix Inc	EQIX	94.62	888.82	1.92	15.00	84,101.04	0.20%	0.38%	3.01%
Digital Realty Trust Inc	DLR	311.61	146.81	3.32	-3.00	45,747.17	0.11%	0.36%	-0.33%
Molina Healthcare Inc	MOH	58.40	393.91	n/a	12.50	23,004.34	0.05%		0.69%
Las Vegas Sands Corp	LVS	753.62	54.52	1.47		0.00	0.00%	0.00%	

PIEDMONT NATURAL GAS COMPANY, INC.
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EXHIBIT JMC-5.2

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA
K = Rf + β (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] ROE (K)
Atmos Energy Corporation	ATO	4.10%	0.85	14.21%	10.11%	12.70%
New Jersey Resources Corporation	NJR	4.10%	0.95	14.21%	10.11%	13.71%
Northwest Natural Holding Company	NWN	4.10%	0.85	14.21%	10.11%	12.70%
ONE Gas, Inc.	OGS	4.10%	0.85	14.21%	10.11%	12.70%
Southwest Gas Holdings, Inc.	SWX	4.10%	0.90	14.21%	10.11%	13.20%
Spire, Inc.	SR	4.10%	0.85	14.21%	10.11%	12.70%
Mean			0.88			12.95%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Value Line, as of February 29, 2024
[3] Source: JMC-5.1 Forward MRP
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA
K = Rf + β (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] ROE (K)
Atmos Energy Corporation	ATO	4.10%	0.83	14.21%	10.11%	12.51%
New Jersey Resources Corporation	NJR	4.10%	0.86	14.21%	10.11%	12.79%
Northwest Natural Holding Company	NWN	4.10%	0.74	14.21%	10.11%	11.61%
ONE Gas, Inc.	OGS	4.10%	0.84	14.21%	10.11%	12.59%
Southwest Gas Holdings, Inc.	SWX	4.10%	0.91	14.21%	10.11%	13.31%
Spire, Inc.	SR	4.10%	0.87	14.21%	10.11%	12.88%
Mean			0.84			12.62%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, 5-Year Betas as of February 29, 2024
[3] Source: JMC-5.1 Forward MRP
[4] Equals [3] - [1]
[5] Equals [1] + [2] x [4]

12.78%

PIEDMONT NATURAL GAS COMPANY, INC.
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EXHIBIT JMC-5.3

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & VL BETA
K = Rf + β (Rm − Rf)

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Risk Premium (Rm − Rf)	[4] ROE (K)
Atmos Energy Corporation	ATO	4.37%	0.85	7.17%	10.46%
New Jersey Resources Corporation	NJR	4.37%	0.95	7.17%	11.17%
Northwest Natural Holding Company	NWN	4.37%	0.85	7.17%	10.46%
ONE Gas, Inc.	OGS	4.37%	0.85	7.17%	10.46%
Southwest Gas Holdings, Inc.	SWX	4.37%	0.90	7.17%	10.82%
Spire, Inc.	SR	4.37%	0.85	7.17%	10.46%
Mean			0.88		10.64%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Value Line, as of February 29, 2024
[3] Source: Kroll Historical Market Risk Premium, 1926-2022
[4] Equals [1] + [2] x [3]

CAPITAL ASSET PRICING MODEL -- CURRENT RISK-FREE RATE & BLOOMBERG BETA
K = Rf + β (Rm − Rf)

Company	Ticker	[1] Current 30-day average of 30-year U.S. Treasury bond yield	[2] Beta (β)	[3] Market Risk Premium (Rm − Rf)	[4] ROE (K)
Atmos Energy Corporation	ATO	4.37%	0.831	7.17%	10.32%
New Jersey Resources Corporation	NJR	4.37%	0.859	7.17%	10.52%
Northwest Natural Holding Company	NWN	4.37%	0.743	7.17%	9.69%
ONE Gas, Inc.	OGS	4.37%	0.840	7.17%	10.38%
Southwest Gas Holdings, Inc.	SWX	4.37%	0.911	7.17%	10.89%
Spire, Inc.	SR	4.37%	0.868	7.17%	10.58%
Mean			0.842		10.40%

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, 5-Year Betas as of February 29, 2024
[3] Source: Kroll Historical Market Risk Premium, 1926-2022
[4] Equals [1] + [2] x [3]

Average 10.52%

PIEDMONT NATURAL GAS COMPANY, INC.
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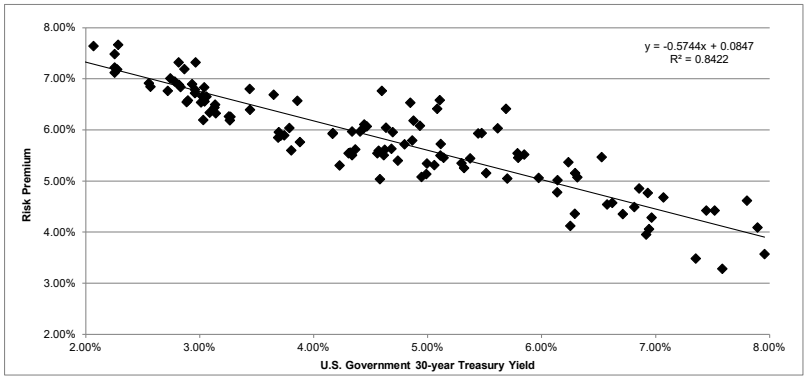
EXHIBIT JMC-6

Risk Premium -- Natural Gas Utilities

	[1] Average Authorized Gas ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
1992.1	12.42%	7.80%	4.62%
1992.2	11.98%	7.89%	4.09%
1992.3	11.87%	7.45%	4.42%
1992.4	11.94%	7.52%	4.42%
1993.1	11.75%	7.07%	4.68%
1993.2	11.71%	6.86%	4.85%
1993.3	11.39%	6.31%	5.07%
1993.4	11.16%	6.14%	5.02%
1994.1	11.12%	6.57%	4.55%
1994.2	10.84%	7.35%	3.48%
1994.3	10.87%	7.58%	3.28%
1994.4	11.53%	7.96%	3.57%
1995.2	11.00%	6.94%	4.06%
1995.3	11.07%	6.71%	4.35%
1995.4	11.61%	6.23%	5.37%
1996.1	11.45%	6.29%	5.16%
1996.2	10.88%	6.92%	3.96%
1996.3	11.25%	6.96%	4.29%
1996.4	11.19%	6.62%	4.58%
1997.1	11.31%	6.81%	4.49%
1997.2	11.70%	6.93%	4.77%
1997.3	12.00%	6.53%	5.47%
1997.4	10.92%	6.14%	4.78%
1998.2	11.37%	5.85%	5.52%
1998.3	11.41%	5.47%	5.94%
1998.4	11.69%	5.10%	6.59%
1999.1	10.82%	5.37%	5.44%
1999.2	11.25%	5.79%	5.46%
1999.4	10.38%	6.25%	4.12%
2000.1	10.66%	6.29%	4.36%
2000.2	11.03%	5.97%	5.06%
2000.3	11.33%	5.79%	5.55%
2000.4	12.10%	5.69%	6.41%
2001.1	11.38%	5.44%	5.93%
2001.2	10.75%	5.70%	5.05%
2001.4	10.65%	5.30%	5.35%
2002.1	10.67%	5.51%	5.15%
2002.2	11.64%	5.61%	6.03%
2002.3	11.50%	5.08%	6.42%
2002.4	11.01%	4.93%	6.08%
2003.1	11.38%	4.85%	6.53%
2003.2	11.36%	4.60%	6.76%
2003.3	10.61%	5.11%	5.50%
2003.4	10.84%	5.11%	5.73%
2004.1	11.06%	4.88%	6.18%
2004.2	10.57%	5.32%	5.25%
2004.3	10.37%	5.06%	5.31%
2004.4	10.66%	4.86%	5.79%
2005.1	10.65%	4.69%	5.96%
2005.2	10.54%	4.47%	6.07%
2005.3	10.47%	4.44%	6.03%
2005.4	10.32%	4.68%	5.63%
2006.1	10.68%	4.63%	6.05%
2006.2	10.60%	5.14%	5.46%
2006.3	10.34%	4.99%	5.34%
2006.4	10.14%	4.74%	5.40%
2007.1	10.52%	4.80%	5.72%
2007.2	10.13%	4.99%	5.14%
2007.3	10.03%	4.95%	5.08%
2007.4	10.12%	4.61%	5.50%
2008.1	10.38%	4.41%	5.97%
2008.2	10.17%	4.57%	5.60%

Risk Premium -- Natural Gas Utilities

	[1] Average Authorized Gas ROE	[2] U.S. Govt. 30-year Treasury	[3] Risk Premium
2008.3	10.55%	4.44%	6.11%
2008.4	10.34%	3.65%	6.69%
2009.1	10.24%	3.44%	6.81%
2009.2	10.11%	4.17%	5.94%
2009.3	9.88%	4.32%	5.56%
2009.4	10.31%	4.34%	5.97%
2010.1	10.24%	4.62%	5.61%
2010.2	9.99%	4.36%	5.62%
2010.3	10.43%	3.86%	6.57%
2010.4	10.09%	4.17%	5.93%
2011.1	10.10%	4.56%	5.54%
2011.2	9.85%	4.34%	5.51%
2011.3	9.65%	3.69%	5.96%
2011.4	9.88%	3.04%	6.84%
2012.1	9.63%	3.14%	6.50%
2012.2	9.83%	2.93%	6.90%
2012.3	9.75%	2.74%	7.01%
2012.4	10.06%	2.86%	7.19%
2013.1	9.57%	3.13%	6.44%
2013.2	9.47%	3.14%	6.33%
2013.3	9.60%	3.71%	5.89%
2013.4	9.83%	3.79%	6.04%
2014.1	9.54%	3.69%	5.85%
2014.2	9.84%	3.44%	6.39%
2014.3	9.45%	3.26%	6.19%
2014.4	10.28%	2.96%	7.32%
2015.1	9.47%	2.55%	6.91%
2015.2	9.43%	2.88%	6.55%
2015.3	9.75%	2.96%	6.79%
2015.4	9.68%	2.96%	6.72%
2016.1	9.48%	2.72%	6.76%
2016.2	9.42%	2.57%	6.85%
2016.3	9.47%	2.28%	7.19%
2016.4	9.67%	2.83%	6.84%
2017.1	9.60%	3.04%	6.56%
2017.2	9.47%	2.90%	6.58%
2017.3	10.14%	2.82%	7.32%
2017.4	9.70%	2.82%	6.88%
2018.1	9.68%	3.02%	6.66%
2018.2	9.43%	3.09%	6.34%
2018.3	9.71%	3.06%	6.65%
2018.4	9.53%	3.27%	6.26%
2019.1	9.55%	3.01%	6.54%
2019.2	9.73%	2.78%	6.94%
2019.3	9.95%	2.29%	7.66%
2019.4	9.74%	2.25%	7.48%
2020.1	9.35%	1.89%	7.46%
2020.2	9.55%	1.38%	8.17%
2020.3	9.52%	1.37%	8.15%
2020.4	9.50%	1.62%	7.88%
2021.1	9.71%	2.07%	7.64%
2021.2	9.48%	2.25%	7.22%
2021.3	9.43%	1.93%	7.50%
2021.4	9.59%	1.94%	7.65%
2022.1	9.38%	2.25%	7.12%
2022.2	9.23%	3.03%	6.19%
2022.3	9.52%	3.26%	6.26%
2022.4	9.65%	3.88%	5.77%
2023.1	9.64%	3.74%	5.89%
2023.2	9.40%	3.80%	5.60%
2023.3	9.53%	4.23%	5.30%
2023.4	9.62%	4.58%	5.04%
2024.1	9.85%	4.31%	5.54%
AVERAGE	10.38%	4.48%	5.90%
MEDIAN	10.24%	4.47%	5.94%



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.91773
R Square	0.84223
Adjusted R Square	0.84094
Standard Error	0.00404
Observations	125

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.010697012	0.010697012	656.6034721	3.72966E-51
Residual	123	0.002003846	1.62914E-05		
Total	124	0.012700858			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.08472769	0.001067254	79.38852094	1.5958E-107	0.082615126	0.08684025	0.082615126	0.086840253
X Variable 1	-0.574381107	0.022415507	-25.62427506	3.72966E-51	-0.618751227	-0.530011	-0.618751227	-0.530010986

	[7] U.S. Govt. 30-year Treasury	[8] Risk Premium	[9] ROE
Current 30-day average of 30-year U.S. Treasury bond yield [4]	4.37%	5.97%	10.33%
Blue Chip Near-Term Projected Forecast (Q2 2024 - Q2 2025) [5]	4.18%	6.07%	10.25%
Blue Chip Long-Term Projected Forecast (2025-2029) [6]	4.10%	6.12%	10.22%
AVERAGE			10.27%

Notes:
[1] Source: Regulatory Research Associates, rate cases through February 29, 2024
[2] Source: Bloomberg Professional, quarterly bond yields are the average of each trading day in the quarter
[3] Equals Column [1] − Column [2]
[4] Source: Bloomberg Professional, 30-day average as of February 29, 2024
[5] Source: Blue Chip Financial Forecasts, Vol. 43, No. 3, March 1, 2024 at 2
[6] Source: Blue Chip Financial Forecasts, Vol. 42, No. 12, December 1, 2023 at 14
[7] See notes [4], [5] & [6]
[8] Equals 0.084728 + (-0.574381 x Column [6])
[9] Equals Column [7] + Column [8]

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EXHIBIT JMC-7

EXPECTED EARNINGS ANALYSIS

Company	Ticker	[1] Value Line ROE 2026-2028	[2] Value Line Total Capital 2022	[3] Value Line Common Equity Ratio 2022	[4] Total Equity 2022	[5] Value Line Total Capital 2026-2028	[6] Value Line Common Equity Ratio 2026-2028	[7] Total Equity 2026-2028	[8] Compound Annual Growth Rate	[9] Adjustment Factor	[10] Adjusted Return on Common Equity
Atmos Energy Corporation	ATO	10.00%	17,509	62.10%	10,873	24,350	60.00%	14,610	6.09%	1.030	10.30%
New Jersey Resources Corporation	NJR	13.00%	4,759	41.80%	1,989	6,000	45.00%	2,700	6.30%	1.031	13.40%
Northwest Natural Holding Company	NWN	8.50%	2,550	46.00%	1,173	3,250	50.00%	1,625	6.74%	1.033	8.78%
ONE Gas, Inc.	OGS	8.50%	4,500	58.00%	2,610	7,000	49.00%	3,430	5.62%	1.027	8.73%
Southwest Gas Holdings, Inc.	SWX	7.50%	9,000	40.00%	3,600	10,000	43.00%	4,300	3.62%	1.018	7.63%
Spire, Inc.	SR	8.50%	6,471	41.30%	2,673	9,100	45.00%	4,095	8.91%	1.043	8.86%
Mean											9.62%

Notes:
[1] Source: Value Line
[2] Source: Value Line
[3] Source: Value Line
[4] Equals [2] x [3]
[5] Source: Value Line
[6] Source: Value Line
[7] Equals [5] x [6]
[8] Equals ([7] / [4]) ^ (1/5) - 1
[9] Equals 2 x (1 + [8]) / (2 + [8])
[10] Equals [1] x [9]

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EXHIBIT JMC-8

Regulatory Risk Assessment

Company	Ticker	Operating Subsidiary	Jurisdiction	[1] Test Year	[2] Rate Base	[3] Gas Commodity	[4] Full Decoupling	[4] Partial Decoupling	[5] Delivery infrastructure
U.S. Gas Proxy Group									
Atmos Energy Corp	ATO	Atmos Energy Corp	Kansas	Historical	Year-end	✓		✓	✓
		Atmos Energy Corp	Kentucky	Historical	Year-end	✓		✓	✓
		Atmos Energy Corp	Louisiana	Historical	Average	✓		✓	
		Atmos Energy Corp	Mississippi	Fully Forecasted	Year-end	✓		✓	✓
		Atmos Energy Corp	Tennessee	Fully Forecasted	Average	✓		✓	
		Atmos Energy Corp	Texas	Historical	Year-end	✓		✓	✓
New Jersey Resources Corporation	NJR	New Jersey Natural Gas Co.	New Jersey	Partially-Forecasted	Year-end	✓	✓		✓
Northwest Natural Holding Company	NWN	Northwest Natural Gas Co.	Oregon	Fully Forecasted	Average	✓		✓	
		Northwest Natural Gas Co.	Washington	Historical	Year-end	✓			
ONE Gas, Inc.	OGS	Kansas Gas Service Co.	Kansas	Historical	Year-end	✓		✓	✓
		Oklahoma Natural Gas Co	Oklahoma	Historical	Year-end	✓		✓	
		Texas Gas Service Co.	Texas	Historical	Year-end	✓		✓	✓
Southwest Gas Holdings, Inc.	SWX	Southwest Gas Corp.	Arizona	Historical	Year-end	✓	✓		✓
		Southwest Gas Corp.	California	Fully Forecasted	Average	✓	✓		
		Southwest Gas Corp.	Nevada	Historical	Year-end	✓	✓		✓
Spire, Inc.	SR	Spire Missouri Inc.	Missouri	Partially-Forecasted	Year-end	✓		✓	✓
		Spire Alabama Inc.	Alabama	Historical	Average	✓		✓	
Proxy Group Results			Total	Fully Forecasted = 24%	Year-end	Adjustment Clauses Count and Percentage of total proxy group			
			17	Partially-Forecasted = 12%	12	17	4	12	10
				Historical = 65%	71%	100%	24%	71%	59%

Notes

[1] - [2] Source: S&P Global Market Intelligence, Regulatory Research Associates, March 4, 2024.

[3] - [5] Source: "Adjustment Clauses: A State-by-state Overview," Regulatory Research Associates, July 18, 2022 and SNL Financial.

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
DOCKET NO. G-9, SUB 837

EXHIBIT JMC-9

FLOTATION COST ADJUSTMENT

Two most recent common stock issuances per company, if available

Company	Date	Shares Issued ($000)	Offering Price	Under-writing Discount	Offering Expense ($000)	Net Proceeds Per Share	Total Flotation Costs ($000)	Gross Equity Issue Before Costs ($000)	Net Proceeds ($000)	Flotation Cost Percentage
Atmos Energy Corporation	2/11/2014	9,200	$44.00	$1.54	$350.0	$42.42	$14,518	$404,800	$390,282	3.59%
Atmos Energy Corporation	12/7/2006	6,325	$31.50	$1.10	$400.0	$30.34	$7,358	$199,238	$191,880	3.69%
New Jersey Resources Corporation	12/4/2019	6,545	$41.25	$1.24	$500.0	$39.94	$8,600	$270,000	$261,400	3.19%
Northwest Natural Holding Company	3/30/2022	2,875	$50.00	$1.63	$450.0	$48.21	$5,136	$143,750	$138,614	3.57%
Northwest Natural Holding Company	6/4/2019	1,438	$67.00	$2.18	$400.0	$64.54	$3,534	$96,313	$92,779	3.67%
Southwest Gas Holdings, Inc.	3/28/2022	6,325	$74.00	$2.50	$730.0	$71.38	$16,543	$468,050	$451,508	3.53%
Southwest Gas Holdings, Inc.	11/27/2018	3,565	$75.50	$2.55	$600.00	$72.78	$9,684	$269,158	$259,474	3.60%
Spire Inc.	5/7/2018	2,300	$68.75	$2.11	$325.00	$66.50	$5,177	$158,125	$152,948	3.27%
Spire Inc.	5/12/2016	2,185	$63.05	$2.05	$300.00	$60.86	$4,775	$137,764	$132,989	3.47%
							$75,324	$2,147,197	$2,071,873	3.51%

The flotation adjustment is derived by dividing the dividend yield by 1 − F (where F = flotation costs expressed in percentage terms), or by 0.9649, and adding that result to the constant growth rate to determine the cost of equity. Using the formulas shown previously in my testimony, the Constant Growth DCF calculation is modified as follows to accommodate an adjustment for flotation costs:

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

FLOTATION COST ADJUSTMENT

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	
Company	Ticker	Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Expected Div. Yield Adj. for Flotation Costs	Value Line Earnings Growth	S&P Capital IQ EPS Growth	First Call EPS Growth	Zacks Earnings Growth	Average Earnings Growth	DCF	Flotation Adjusted DCF	
Atmos Energy Corporation	ATO	$3.22	$113.18	2.84%	2.95%	3.06%	7.00%	7.25%	7.50%	7.30%	7.26%	10.21%	10.32%	
New Jersey Resources Corporation	NJR	$1.68	$41.47	4.05%	4.18%	4.33%	5.00%	7.60%	6.00%	6.00%	6.15%	10.33%	10.48%	
Northwest Natural Holding Company	NWN	$1.95	$37.18	5.24%	5.36%	5.56%	6.50%	5.00%	2.80%	3.70%	4.50%	9.86%	10.06%	
ONE Gas, Inc.	OGS	$2.64	$60.30	4.38%	4.48%	4.64%	4.00%	5.00%	5.00%	5.00%	4.75%	9.23%	9.39%	
Southwest Gas Holdings, Inc.	SWX	$2.48	$60.54	4.10%	4.23%	4.38%	10.00%	n/a	4.00%	5.00%	6.33%	10.56%	10.71%	
Spire, Inc.	SR	$3.02	$58.88	5.13%	5.27%	5.47%	4.50%	6.24%	6.36%	5.60%	5.68%	10.95%	11.14%	
MEAN												10.19%	10.35%	
													0.16%	[13]

Notes:
[1] Source: Bloomberg Professional
[2] Source: Bloomberg Professional, equals 30-day average as of February 29, 2024
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.5 x [10])
[5] Equals [4] / (1 − Flotation Cost)
[6] Source: Value Line
[7] Source: S&P Capital IQ Pro
[8] Source: Yahoo! Finance
[9] Source: Zacks Earnings Growth
[10] Equals Average ([6], [7], [8], [9])
[11] Equals [4] + [10]
[12] Equals [5] + [10]
[13] Equals Average of [12] − Average of [11]

PIEDMONT NATURAL GAS COMPANY, INC.
GENERAL RATE CASE
DOCKET NO. G-9, SUB 837

EXHIBIT JMC-10

CAPITAL STRUCTURE ANALYSIS

COMMON EQUITY RATIO [1]

Proxy Group Company	Ticker	2022	2021	MRY
Atmos Energy Corporation	ATO	60.01%	59.88%	60.01%
New Jersey Resources Corporation	NJR	52.09%	51.75%	52.09%
Northwest Natural Holding Company	NWN	47.72%	44.08%	47.72%
One Gas Inc.	OGS	58.24%	61.09%	58.24%
Southwest Gas Holdings, Inc.	SWX	42.33%	45.87%	42.33%
Spire Inc.	SR	49.43%	49.08%	49.43%
Proxy Group				
MEAN		51.64%	51.96%	51.64%
LOW		42.33%	44.08%	42.33%
HIGH		60.01%	61.09%	60.01%

COMMON EQUITY RATIO - UTILITY OPERATING COMPANIES

Company Name	Ticker			MRY
Atmos Energy Corporation	ATO	60.01%	59.88%	60.01%
New Jersey Natural Gas Company	NJR	52.09%	51.75%	52.09%
Northwest Natural Gas Company	NWN	47.72%	44.08%	47.72%
Kansas Gas Service Company, Inc.	OGS	58.37%	61.37%	58.37%
Oklahoma Natural Gas Company	OGS	58.26%	60.99%	58.26%
Texas Gas Service Company, Inc.	OGS	58.13%	60.98%	58.13%
Southwest Gas Holdings, Inc.	SWX	42.33%	45.87%	42.33%
Spire Alabama Inc.	SR	52.01%	56.67%	52.01%
Spire Gulf Inc.	SR	41.35%	41.14%	41.35%
Spire Mississippi Inc.	SR		38.68%	38.68%
Spire Missouri Inc.	SR	48.66%	46.20%	48.66%

Notes:
[1] Ratios are weighted by actual common capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2022 and 2021 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

LONG-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2022	2021	MRY
Atmos Energy Corporation	ATO	39.99%	40.12%	39.99%
New Jersey Resources Corporation	NJR	44.41%	42.01%	44.41%
Northwest Natural Holding Company	NWN	45.46%	44.85%	45.46%
One Gas Inc.	OGS	41.76%	38.91%	41.76%
Southwest Gas Holdings, Inc.	SWX	53.97%	44.60%	53.97%
Spire Inc.	SR	50.57%	45.63%	50.57%
Proxy Group				
MEAN		46.02%	42.69%	46.02%
LOW		39.99%	38.91%	39.99%
HIGH		53.97%	45.63%	53.97%

LONG-TERM DEBT RATIO - UTILITY OPERATING COMPANIES

Company Name	Ticker	2022	2021	MRY
Atmos Energy Corporation	ATO	39.99%	40.12%	39.99%
New Jersey Natural Gas Company	NJR	44.41%	42.01%	44.41%
Northwest Natural Gas Company	NWN	45.46%	44.85%	45.46%
Kansas Gas Service Company, Inc.	OGS	41.63%	38.63%	41.63%
Oklahoma Natural Gas Company	OGS	41.74%	39.01%	41.74%
Texas Gas Service Company, Inc.	OGS	41.87%	39.02%	41.87%
Southwest Gas Holdings, Inc.	SWX	53.97%	44.60%	53.97%
Spire Alabama Inc.	SR	47.99%	43.33%	47.99%
Spire Gulf Inc.	SR	58.65%	58.86%	58.65%
Spire Mississippi Inc.	SR		1.27%	1.27%
Spire Missouri Inc.	SR	51.34%	46.48%	51.34%

Notes:
[1] Ratios are weighted by actual common capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2022 and 2021 were removed from the analysis.

CAPITAL STRUCTURE ANALYSIS

SHORT-TERM DEBT RATIO [1]

Proxy Group Company	Ticker	2022	2021	MRY
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
New Jersey Resources Corporation	NJR	3.50%	6.25%	3.50%
Northwest Natural Holding Company	NWN	6.82%	11.07%	6.82%
One Gas Inc.	OGS	0.00%	0.00%	0.00%
Southwest Gas Holdings, Inc.	SWX	3.71%	9.53%	3.71%
Spire Inc.	SR	0.00%	5.29%	0.00%
Proxy Group				
MEAN		2.34%	5.36%	2.34%
LOW		0.00%	0.00%	0.00%
HIGH		6.82%	11.07%	6.82%

SHORT-TERM DEBT RATIO - UTILITY OPERATING COMPANIES

Company Name	Ticker	2022	2021	MRY
Atmos Energy Corporation	ATO	0.00%	0.00%	0.00%
New Jersey Natural Gas Company	NJR	3.50%	6.25%	3.50%
Northwest Natural Gas Company	NWN	6.82%	11.07%	6.82%
Kansas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
Oklahoma Natural Gas Company	OGS	0.00%	0.00%	0.00%
Texas Gas Service Company, Inc.	OGS	0.00%	0.00%	0.00%
Southwest Gas Holdings, Inc.	SWX	3.71%	9.53%	3.71%
Spire Alabama Inc.	SR	0.00%	0.00%	0.00%
Spire Gulf Inc.	SR	0.00%	0.00%	0.00%
Spire Mississippi Inc.	SR		60.05%	60.05%
Spire Missouri Inc.	SR	0.00%	7.32%	0.00%

Notes:
[1] Ratios are weighted by actual common capital, long-term debt and short-term debt of Operating Subsidiaries.
[2] Natural Gas operating subsidiaries where data was unable to be obtained for 2022 and 2021 were removed from the analysis.