BEFORE THE NORTH DAKOTA
PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION	**)**	
OF MONTANA-DAKOTA UTILITIES CO.	**)**	
FOR AUTHORITY TO INCREASE RATES	**)**	**DOCKET NO. PU-23-341**
FOR NATURAL GAS SERVICE	**)**	
IN NORTH DAKOTA	**)**	

DIRECT TESTIMONY
OF
MARLON F. GRIFFING, PH.D.

ON BEHALF OF

THE ADVOCACY STAFF OF THE
NORTH DAKOTA PUBLIC SERVICE COMMISSION

July 31, 2024

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Dr. Marlon F. Griffing. I am a Senior Consultant with the economic consulting firm of PCMG & Associates Inc. ("PCMG"). My business address is 22 Brookes Drive, Gaithersburg, MD 20877.

Q. WHAT DOES PCMG DO?

A. PCMG was founded in 2015 to conduct research on a consulting basis into the rates, revenues, costs, and economic performance of regulated firms and industries. The firm has a professional staff of four with expertise in economics, accounting, and cost analysis. Most of its work involves the development, preparation, and presentation of expert witness testimony before federal and state regulatory agencies.

Q. HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS AND EXPERIENCE, INCLUDING COST-OF-CAPITAL TESTIMONY IN REGULATORY PROCEEDINGS?

A. Yes. Exhibit MFG-1 is a summary of my qualifications, experience, and testimony given before state regulatory agencies regarding cost of capital.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH DAKOTA PUBLIIC SERVICE COMMISSION ("NDPSC" OR "COMMISSION")?

A. Yes. I submitted written testimony in the prior NDPSC general rate cases of Northern States Power Minnesota ("NSPM") in Docket No. PU-21-381, Northern States Power Minnesota in Docket No. PU-20-441, and Montana-Dakota Utilities Co. in Docket No. PU-17-295. I am currently engaged in the general rate cases of Otter Tail Power Company

before the Commission in Docket No. PU-23-342 and Northern States Power Company in Docket No. PU-23-367.

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. I am appearing on behalf of the Advocacy Staff of the NDPSC.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. My responsibility is to determine a fair rate of return on common equity capital and a fair overall cost of capital for Montana-Dakota Utilities Co. ("MDU" or "Company"). MDU is a subsidiary of MDU Resources Group, Inc.[1] MDU provides natural gas distribution service in North Dakota. The Company is seeking an increase in its North Dakota natural gas rates in this docket. Ann E. Bulkley testifies regarding return on equity ("ROE") [2] and Tammy Nygard testifies regarding, cost of long-term debt, cost of short-term debt, capital structure, and rate of return ("ROR") for the Company.[3] I respond to the Direct Testimonies of these witnesses.

Q. HOW DO YOU PREPARE RECOMMENDED RATES FOR THE COMPANY?

A. To arrive at recommended rates for common equity capital and overall cost of capital, I analyze the Company's capital structure and the costs for each component of that structure, including the return on equity and cost of debt.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is organized in the following way:

[1] Direct Testimony of Nicole A. Kvisto on Behalf of Montana-Dakota Utilities Co. and Great Plains Natural Gas Co, November 1, 2023, page 1 [hereinafter "Kvisto Direct"].
[2] Direct Testimony of Ann E. Bulkley on Behalf of Montana-Dakota Utilities Co., November 1, 2023, page 2 [hereinafter "Bulkley Direct"].
[3] Direct Testimony of Tammy Nygard on Behalf of Montana-Dakota Utilities Co., November 1, 2023, pages 2-3 [hereinafter "Nygard Direct"].

- First, I discuss economic considerations and legal precedents underlying the cost of equity in regulatory proceedings.
- Second, I provide an overview of the return on equity analysis.
- Third, I explain how I selected the members of the Comparison Group of companies used in my analysis.
- Fourth, I perform discounted cash flow ("DCF") model analysis and Capital Asset Pricing Model ("CAPM") analysis for the Comparison Group, recommended an ROE for the Company, and checked the ROE for reasonableness.
- Fifth, I recommend a capital structure and overall cost of capital for the Company.
- Sixth, I critique the Company's cost of capital analysis.
- Seventh, I summarize my testimony and recommendations.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE COMPANY'S ROE AND OVERALL COST OF CAPITAL?

A. I recommend an ROE of 9.725 percent for the Company. For MDU's capital structure, I adopt the Company's requested ratios of 42.296 percent long-term debt, 4.954 percent short-term debt, and 50.185 percent common equity. When my recommended ROE is incorporated into the foregoing capital structure along with MDU's proposed cost of long-term debt of 4.569 percent and cost of short-term debt of 4.954 percent, the result is an overall rate of return of 7.174 percent for MDU.

II. THE COST OF EQUITY IN THE REGULATORY ENVIRONMENT

A. The Role of Economic Theory

Q. WHAT IS THE BASIS IN ECONOMIC THEORY FOR REGULATING CERTAIN INDUSTRIES?

A. According to economic theory, the forces of supply and demand interacting in a competitive environment produce an allocation of resources that yields an optimal mix of goods and services. Firms and individuals maximize profits and satisfaction given the prices and incomes that the interplay of market forces generates. This outcome is described as economically efficient. Put simply, there is no better output of goods and services that can be produced with the available resources.

Q. DOES THE ECONOMICALLY EFFICIENT OUTCOME OCCUR IN ALL INDUSTRIES?

A. No. Several conditions must be present for the economically efficient outcome to occur in an industry. These conditions include many buyers and sellers, identical products, perfect information about prices, and so forth. If these conditions exist, then price is the only way for providers of goods and services to compete in markets. If the conditions for competition do not exist, however, then letting supply and demand work unfettered will not produce the socially desired efficient outcome.

Q. ARE THERE LEGAL OBSTACLES TO COMPETITION IN PUBLIC UTILITY MARKETS?

A. Yes. Even if a firm is willing and able to raise the capital needed to be a viable natural gas distribution company, state and local governments typically have permitting processes that

govern where and when utilities can build facilities. Thus, high start-up costs are not the only barrier that must be overcome.

Q. ARE THERE OTHER ASPECTS OF A NATURAL GAS DISTRIBUTION UTILITY'S COSTS THAT RESULT IN FEW SELLERS?

A. Yes. The natural gas utility industry is what is typically known as a declining-cost industry.

Q. WHAT IS A DECLINING-COST INDUSTRY?

A. A declining-cost industry is one where the average cost of service declines over the range of effective demand.

Q. IS A DECLINING AVERAGE COST OF SERVICE SUFFICIENT FOR AN INDUSTRY TO BE TERMED "DECLINING COST?"

A. No. In fact, average costs decline in most industries as production and sales increase. However, in the typical industry, the average cost eventually rises and does so at a sales level that is smaller than the total demand for the product in a given industry. As a consequence, a few to several firms share the market because beyond the sales volume at which average costs rise, firms lose, rather than gain, cost advantage.

Q. ARE PUBLIC UTILITIES DECLINING-COST INDUSTRIES?

A. Yes. With their high fixed costs, public utilities have high initial average costs, but as their sales increase, the average cost drops. This fact alone does not make public utilities declining-cost industries. In most industries, average costs fall as sales increase. However, in most industries, average costs start to rise at sales levels that are much less than the total demand for the product produced in any given industry. Therefore, the number of firms sharing the market ranges from a few to many. What sets public utilities apart is that their average costs continue to decline over very high volumes of sales, up to and beyond total,

or effective, market demand. A declining-cost industry creates market failure—that is, when the market produces an outcome that is inefficient. In this case, the inefficiency is caused by the market leading to a monopoly provider.

Q. HOW DOES BEING A DECLINING-COST INDUSTRY CREATE A MARKET FAILURE?

A. As an utility increases its sales and market share, its average costs decline, and continue to do so. Thus, the firm with the largest market share has an increasing advantage over competitors. In effect, there is not enough room in the market for another distributor. The logical result is a market with one producer—often referred to as a natural monopoly—not the many firms envisioned in the theory of competition.

Q. HOW HAS SOCIETY RESPONDED TO THE ABSENCE OF COMPETITION IN PUBLIC UTILITY MARKETS?

A. Because sufficient competition does not exist in the markets for public utilities, including the gas utility industry, to ensure low prices and adequate service, society has typically turned to regulation to achieve these goals. The government regulators generally are charged with pursuing an outcome that approximates the efficient outcome of the competitive model. Regulation thus is viewed as a way to decrease prices and increase services provided by a natural monopoly. A challenge for regulators is to set policies which ensure that the regulated firm provides an appropriate supply of services at reasonable rates. A reasonable rate enables a public utility not only to recover its operating expenses, depreciation, and taxes, but also to earn a reasonable rate of return on its capital.

B. Standards for Finding a Fair Rate of Return

Q. DO ANY STANDARDS EXIST FOR DETERMINING A REASONABLE RATE OF RETURN?

A. Yes. Two United States Supreme Court cases are the basis for rate of return regulation in the United States. They are the *Bluefield Water Works*[4] and the *Hope Natural Gas*[5] cases. In *Hope*, the Court established the following standards for the return on equity that must be allowed a regulated public utility to provide for a reasonable return:

> …[T]he return to the equity owner should be commensurate with the returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[6]

It can be seen from this excerpt that there are essentially three standards for determining an appropriate return on equity from the standpoint of the equity owners of a regulated utility. The first is the "comparable earnings" standard; i.e., that the earnings must be "commensurate with the returns on investments in other enterprises having corresponding risks." The second is that earnings must be sufficient to assure "confidence in the financial integrity of the enterprise." The third is that earnings must allow the utility to attract capital.

Q. CAN THE COMPARABLE EARNINGS STANDARD BE APPLIED IN ESTIMATING THE RATE OF RETURN ON EQUITY CAPITAL?

A. No. There is circularity to the comparable earnings standard because the competitive nature of the capital markets virtually ensures that the returns to *all* enterprises are comparable with each other. Investors establish the price of each traded stock based on that stock's

[4] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.,* 262 U.S. 679 (1923).
[5] *Fed. Power Comm'n v. Hope Nat. Gas Co.,* 320 U.S. 591 (1944).
[6] *Hope,* 320 U.S. at 603.

present and prospective earnings and perceived risk. The prices for common equity for companies with high earnings are bid up, while the prices for companies with low earnings are bid down. If earnings were the only concern, the ratio of earnings to share prices, the return for investors, would become equal for all companies. However, investors recognize relative risk as they buy and sell common equity shares. For companies with high risk, share prices will be lower; for companies with low risk, share prices will be higher. Thus, the comparable earnings test becomes a nullity. All returns, because they are adjusted for risk, are comparable with all other returns.

Q. HOW IS THIS CIRCULARITY TYPICALLY RESOLVED IN PUBLIC UTILITY REGULATION?

A. In public utility regulation, the conventional procedure for resolving this circularity is to identify the required equity return for a utility's stock. That return is combined with the cost of debt, and the blended return to total capital is then applied to a rate base reflective of the book value of the utility's investment. The book value is the accountant's quantification of the depreciated original cost of the utility's assets adjusted for ratepayer contributions such as deposits and deferred taxes. Under this procedure, the market price of a stock is used only to determine the return that investors expect from that stock. That expectation is then applied to the book value of the utility's investment to identify the level of earnings that regulation will allow the utility's common shareholders to recover.

Q. HOW CAN THE FINANCIAL INTEGRITY AND CAPITAL ATTRACTION STANDARDS ENUNCIATED IN *HOPE* BE APPLIED IN ESTIMATING THE RATE OF RETURN ON EQUITY CAPITAL?

A. If a utility can earn a return on its investment comparable to that required by enterprises of comparable risk, then it should have no difficulty in attracting capital and maintaining credit. Investors would have no reason to pass on purchasing the common equity of such a utility in favor of other investment opportunities. Thus, if the comparable earnings test is met, then the financial integrity and capital attraction standards are met as well.

Q. WHAT IS RISK?

A. Risk is the chance of a loss or less-than-expected return on an investment. A business, for example, may introduce a new product with the expectation that it will sell well. There is, of course, no guarantee that consumers will purchase the product. The risk investors attach to the company varies inversely with their view as to the probability of the product doing well. In general, the greater the risk of an investment, the greater the return required to attract investors, and vice versa.

Q. WHAT SHOULD THE COMMISSION CONSIDER IN SETTING AN APPROPRIATE RATE OF RETURN?

A. The Commission should look to current market conditions as it balances investor and consumer interests. The rate of return should reflect the condition of the capital markets in which MDU will have to compete with other firms for funding. Historically allowed rates and historical performances are not the most reliable inputs in this forward-looking approach. This statement does not mean that historical rates and performance are irrelevant.

They are factors because they affect investors' views of a company's prospects and, therefore, the investors' willingness to purchase its common equity shares.

Q. HOW DO THE METHODS YOU USED TO DETERMINE THE COST OF COMMON EQUITY CAPITAL REFLECT CURRENT MARKET CONDITIONS?

A. I used a market-oriented approach to determine the common equity cost for the Company. I analyzed the equity return that investors currently expect to receive from investing in companies with risks similar to risk of the Company. Many factors influence these investor expectations, among them: past performance of the companies, estimates of how the companies will perform in the future, possible technological change, tax rates, and predicted general economic conditions. As investors decide where to place their funds among the investment options available to them, they weigh the information they have. Then they decide how to pay to acquire common equity shares, or to turn to the other side of the question, what price will lead them to sell the shares. Either way, the factors are reflected in current prices in capital markets. Thus, my analysis is forward-looking because it relies on investors' current assessment of what is likely to happen with their investments.

Q. WHAT IS THE ROLE OF OPPORTUNITY COSTS IN YOUR ANALYSIS?

A. An opportunity cost is the value of the next best choice forgone as the result of making a decision. Opportunity costs are central to my analysis. As investors decide where to place their assets, they have many opportunities from which to choose in the financial markets. Economic theory says they will choose the opportunity they think will provide them the best return, taking into account the level of risk with which they are comfortable. Thus, for a company to attract capital, its forward-looking fair rate of return must at least equal the expected rate of return for the best alternative opportunity with similar risk.

III. OVERVIEW OF THE RETURN ON EQUITY ANALYSIS

Q. HOW DO YOU KNOW WHAT EQUITY RATE OF RETURN THE COMPANY MUST OFFER TO INVESTORS TO BE AN ATTRACTIVE OPPORTUNITY?

A. No one knows with certainty what specific rate of return the Company must offer to investors that is just sufficient to make the Company an attractive opportunity. However, various methods based on finance theory have been derived for reliably estimating what investors currently think that rate is.

Q. WHAT METHODS HAVE YOU ADOPTED IN YOUR ROE ANALYSIS?

A. I use the Discounted Cash Flow (DCF) method, which is widely used in utility general rate cases in determining rate of return. I also include the results of the Capital Asset Pricing Model ("CAPM"), combining them with the DCF results for my recommended ROE. I use recently authorized returns for natural gas utility operating companies in U.S. jurisdictions as a check on the reasonableness of the ROE outcome.

Q. WHAT IS THE DCF METHOD?

A. The DCF method uses the current dividend yield and the expected growth rate of this yield to determine a required rate of return on an investment opportunity. The required rate of return from a DCF analysis is derived from a formula for determining the net present value, or price, of a share of stock. There are several variations of DCF, but the constant-growth form I have selected assumes that dividends (D) are received at the end of each year, the annual growth rate of dividends (g) is constant to forever, and the discount rate for dividends (k) is constant to infinity. The equation form of this constant-growth DCF model is the following:

$$k = \frac{D_1}{P_0} + g$$

Where:

k is the discount rate, which also is the fair rate of return for equity;

D_1 is the annual dividend one year from the present;

P_0 is the current price of a stock share; and

g is the expected growth rate of the dividend.

Q. HOW IS THE ANNUAL DIVIDEND ONE YEAR FROM THE PRESENT CALCULATED?

A. The annual dividend one year from now is derived by applying the growth-rate estimate (g) to the actual current annual dividend (D_0). The equation form is:

$$D_1 = D_0 * (1 + g)$$

Q. WHAT ARE THE ELEMENTS OF THE DCF MODEL?

A. The first element of the DCF model is the dividend-yield component, while the second element is the dividend growth-rate component. The sum of these two components produces the required ROE for a company.

Q. WHAT IS THE CAPM METHOD?

A. The premise of the CAPM method is that any risk which is company-specific can be diversified away by investors. Therefore, the only risk that matters is the systematic risk of the stock. This systematic risk is measured by beta (β). Expressed simply, the CAPM assumes the following form:

$$k = r + \beta (k_m - r)$$

Where:

k is the required rate of return for the subject stock;

β is beta, the measure of systematic risk;

r is the rate of return on a riskless asset; and

k_m is the required rate of return on the broad market.

[$(k_m - r)$ is known as the "market risk premium"]

Q. HOW WOULD YOU CHARACTERIZE THE CAPM METHOD?

A. In the CAPM, the required ROE for a company also is the sum of two components. The first of these is the return on a riskless asset. To this base value, a return is added that reflects the additional rate of return earned by other companies in the broad equity market adjusted for the risk of the subject company relative to the risk of an average company in the market. The subsequent amount thus reflects the risk of the subject company.

Q. DOES YOUR EQUITY RATE OF RETURN ANALYSIS USE DCF INFORMATION FOR MDU?

A. No. As noted, MDU is an operating subsidiary of MDU Resources. MDU is not publicly traded, so common equity share price information is unavailable. Therefore, a direct DCF analysis cannot be performed on the Company.

Q. DOES YOUR EQUITY RATE OF RETURN ANALYSIS USE OTHER COMPANY INFORMATION?

A. Yes. MDU has its own credit rating from Standard & Poor's ("S&P"). That rating is BBB+.[7] This credit rating reflects S&P's evaluation of the risk for the Company. I considered this credit rating as I set the a credit rating criterion for inclusion in my proxy group.

Q. HOW DO YOU USE THE ROE ANALYSIS TO ESTIMATE THE COMPANY'S REQUIRED RATE OF RETURN?

A. I performed an ROE analysis on a group of natural gas utilities comparable to MDU that are publicly traded and have similar investment risk, as discussed below. The estimated rates of return for members of this group form the basis for my estimate of a fair rate of return for the Company.

IV. SELECTING THE COMPARISON GROUP

Q. WHAT PROCEDURE DID YOU USE FOR SELECTING THE COMPARISON GROUP?

A. I set out to find a group of companies that are, from the perspective of investors, like MDU. Thus, I wanted firms that are natural gas utility companies that represent approximately the same investment risk as the Company.

[7] Exhibit MFG-2.

Q. HOW DID YOU FIND SUITABLE CANDIDATE COMPANIES FOR THE COMPARISON GROUP?

A. I looked at Value Line, a widely used investor service, for companies that Value Line classifies as part of the Natural Gas Utility Industry. The edition of the *Value Line Investment Survey* available at the Value Line website on July 18, 2024, included 12 companies in this category.[8]

Q. WAS MDU ONE OF THE 12 COMPANIES IN THE VALUE LINE NATURAL GAS INDUSTRY?

A. No.

Q. WHAT WAS THE NEXT STEP IN YOUR SELECTION PROCESS?

A. I applied screens to the initial set of Value Line natural gas utility companies to ensure that the companies included in my Comparison Group were similar in risk to the risk of the Company.[9]

Q. PLEASE LIST THE CRITERIA YOU APPLIED IN THE SELECTION OF THE COMPARISON GROUP.

A. I applied the following screens to the initial set of natural gas utility companies:

1. U.S.-based firm;
2. shares publicly traded on a stock exchange;
3. a stable record of paying dividends;
4. not be expected to sell, merge into or be acquired by another company, or be engaged in an unusual regulatory proceeding;

[8] Exhibit MFG-3.
[9] Exhibit MFG-4.

5. have a Standard & Poor's ("S&P") credit rating of BBB- (investment grade) or better;
6. have positive growth-rate projections from expert analysts; and
7. have 65 percent or more of the three-year average of net operating income, net income, or operating revenue be derived from regulated natural gas operations.

Q. WHAT IS THE PURPOSE OF APPLYING THE CRITERION THAT THE COMPANIES BE BASED IN THE CONTINENTAL UNITED STATES?

A. I sought companies that face a business environment like that in which MDU operates. The Company's operating utility in this case is in North Dakota and subject to state regulation, statutes, and rules that are similar to those found in the rest of the United States. All the companies are U.S.-based.

Q. WHAT PURPOSE IS SERVED BY REQUIRING THAT THE COMPANIES BE PUBLICLY TRADED?

A. One analytical tool that I used for finding a company's ROE, the DCF model,[10] requires information about common equity share prices, dividends, and growth-rate projections. The requirement that companies be publicly traded ensures that their common equity share prices are available. All the Value Line Natural Gas Utility companies were publicly traded.[11]

[10] As will be seen in a later section, the forward-looking Value-Line-based CAPM I have applied incorporates a DCF analysis and, thus, also relies on publicly traded companies.
[11] Exhibit MFG-4.

Q. WHAT PURPOSE IS SERVED BY REQUIRING THAT THE COMPANIES HAVE A STABLE RECORD OF PAYING DIVIDENDS?

A. The DCF model requires dividends as an input. If a company is not paying dividends or has a record of cutting dividends, then its DCF analysis is not reliable. All the companies still under consideration have been consistently paying dividends.[12]

Q. WHY IS IT IMPORTANT THAT COMPANIES INVOLVED IN SALES, MERGERS, OR ACQUISITIONS BE EXCLUDED FROM YOUR ANALYSIS?

A. The share prices of companies involved in sales, mergers, or acquisitions can be volatile. Extreme increases in the share prices of companies that are part of sales, mergers, or acquisitions drive down the ROE results in DCF analysis, while extreme decreases in the share prices drive up the ROE results. Neither outcome yields meaningful DCF results. Therefore, it is usually appropriate to exclude such companies from the analysis.

Q. WERE ANY COMPANIES IN THE INITIAL SET INVOLVED IN SALES, MERGERS, OR ACQUISITIONS?

A. Yes. Southwest Gas Holdings is in the process of spinning off its Centuri infrastructure construction unit. The transaction has reached the stage where shares in Centuri Group, the name of the new company, were sold in an April 18, 2024, public offering.[13] Southwest Gas Holdings common equity share prices surged upward after the offering but stabilized thereafter. The company's shares no longer are volatile because uncertainty about the spinoff has been removed and investors have internalized the spinoff in their decisions. Therefore, I continued to consider the company for the Comparison Group.[14]

[12] Exhibit MFG-4.
[13] Exhibit MFG-5, page 1
[14] Exhibit MFG-5, page 2.

Q. WHAT IS THE PURPOSE OF USING THE S&P CREDIT RATING AS A SCREEN?

A. S&P's experts incorporate financial risk and business risk into a firm's credit rating. Within these risk categories, S&P assesses such factors for public utilities as competitive advantage and operating efficiency. S&P also assesses scale, scope, and customer diversity, which include the effects of a utility's markets, service territories, and customer diversity on the company's cash-flow stability, and in turn on its risk level. After considering all the factors, S&P assigns a credit rating to a company. If companies have identical or similar credit ratings as determined by expert analysts, then their relative risks are similar. As S&P states:

> Creditworthiness is a multi-faceted phenomenon. Although there is no "formula" for combining the various facets, our credit ratings attempt to condense their combined effects into rating symbols along a simple, one-dimensional scale. Indeed, as discussed below, the relative importance of the various factors may change in different situations.[15]

Q. HOW DID YOU APPLY THE S&P CREDIT RATING SCREEN?

A. A credit rating of BBB- or better is termed "investment grade." This level rating is an important threshold and gets its name from the fact that some institutional investors will not purchase the stock of a company if it does not have an investment-grade credit rating. By applying this screen, I ensure that there is a robust market for the common equity of companies. Please note that the credit rating screen does not require that companies have a credit rating identical to that of the subject company. The credit rating need only be similar to that of the subject company.

[15] Exhibit MFG-6.

Q. WHAT WAS THE RESULT OF YOUR APPLICATION OF THE CREDIT RATING SCREEN IN THIS DOCKET?

A. Of the remaining utilities, Adams Resources & Energy, RGC Resources Inc., Star Group L.P, and UGI Corp. did not have an S&P credit rating, nor did any of their units or subsidiaries. Hence, the four companies were excluded.[16]

Q. ARE THERE NATURAL GAS UTILITIES WITHOUT S&P CREDIT RATINGS THAT YOU DID CONTINUE TO CONSIDER?

A. Yes. Neither Chesapeake Utilities nor New Jersey Resources has a credit rating from S&P. They qualify for retention through equivalent ratings. Chesapeake Utilities has ratings of "2B" and "2A" from the National Association of Insurance Commissioners.[17] These ratings are equivalent to a BBB credit rating (or higher) from S&P.[18] As for New Jersey Resources, Moody's has a credit rating for New Jersey Natural Gas, a subsidiary of New Jersey Resources, of A1.[19] This Moody's credit rating is equivalent to an S&P credit rating of A+.[20]

Q. WHAT IS THE RANGE OF THE CREDIT RATINGS FOR THE QUALIFYING COMPANIES?

A. The eight remaining companies have S&P credit ratings (or an equivalent rating) ranging from BBB- to A+. Thus, the credit ratings of these public utilities are investment grade.

[16] Exhibit MFG-4.
[17] See, Annual Statement of the Metropolitan Life Insurance Company (December 31, 2023), Schedule D, Part 1, (e.g.) at 1334. https://s201.q4cdn.com/280976757/files/doc_downloads/statutory-filings/metropolitan/2023/2023-mlic-annual-statement-includes-investment-schedules.pdf
[18] Exhibit MFG-7.
[19] Exhibit MFG-8.
[20] Exhibit MFG-7.

Q. YOU REQUIRED THAT THE NATURAL GAS UTILITIES HAVE POSITIVE EARNINGS PER SHARE ("EPS") GROWTH-RATE FORECASTS TO BE INCLUDED IN THE COMPARISON GROUP. WHAT PURPOSE DOES THIS SCREEN SERVE?

A. If the growth-rate projections are negative or missing, then any DCF analysis performed on them is not meaningful. All eight companies still under consideration for the Comparison Group had at least two positive EPS growth-rate forecasts.[21]

Q. WHAT IS THE PURPOSE OF THE SCREEN REQUIRING MORE THAN 65 PERCENT OF A COMPANY'S THREE-YEAR AVERAGE OF AN INCOME OR REVENUE INDICATOR BE DERIVED FROM REGULATED NATURAL GAS UTILITY OPERATIONS?

A. For the firms to have similar risks, they must operate in similar business environments. The Company is predominantly a regulated natural gas utility operation, so the firms considered for the Comparison Group also must have predominantly regulated operations. This criterion ensures that most of the Comparison Group firms' operations are in the same environment as that of the Company.

Q. WHAT WAS THE OUTCOME OF YOUR APPLICATION OF THIS SCREEN?

A. I included seven of the remaining companies in the Comparison Group after applying the operating income/net income/operating revenue screen.[22] New Jersey Resources is eliminated with a natural gas operating income ratio of 52.2 percent.[23]

[21] Exhibit MFG-4.
[22] Exhibit MFG-9.
[23] Exhibit MFG-10.

Q. WHAT WAS THE COMPOSITION OF THE COMPARISON GROUP AFTER YOUR SCREENING?

A. The Comparison Group is composed of Atmos Energy, Chesapeake Utilities, NiSource, Northwest Natural Holding Co., ONE Gas, Southwest Gas Holdings, and Spire, Inc.[24]

Q. HOW DOES THE MEMBERSHIP OF MS. BULKLEY'S PROXY GROUP COMPARE WITH THE MEMBERSHIP OF YOUR COMPARISON GROUP?

A. Ms. Bulkley's Proxy Group includes five of the seven natural gas utilities in my Comparison Group. She does not include Chesapeake Utilities or Southwest Gas Holdings.[25]

V. DCF MODEL OVERVIEW

Q. WHAT IS THE PURPOSE OF A DCF ANALYSIS?

A. The goal of this analysis was to estimate an appropriate, forward-looking rate of return on equity. A DCF analysis requires a determination of expected growth rates and dividend yields in order to estimate this return.

Q. HOW ARE EXPECTED GROWTH RATES USED?

A. Because a DCF analysis is forward-looking, I want to estimate the expected growth rate of dividends. Historical growth rates would be good indicators of the expected growth rate if both of the following are true:

- the dividend payout ratio and the realized rate of return on equity capital were constant in the past and could be assumed to remain constant in the future; and
- any growth in book equity was attributable solely to retained earnings.

[24] Exhibit MFG-11.
[25] Bulkley Direct, page 25.

If, in practice, these conditions held, then EPS, dividends per share ("DPS"), and book value per share ("BPS") would all grow at the same rate, and the past growth rates for these factors would be the rate at which they would grow in the future.

Q. DO YOU USE HISTORICAL GROWTH RATES IN YOUR ANALYSIS?

A. No. The conditions necessary for historical growth rates to be good indicators of future growth rates are rarely satisfied. Most utilities' returns on equity and payout ratios have not remained constant over time. Further, growth in book value has occurred not only due to retained earnings, but also due to the issuance of new shares of common stock. Consequently, past growth rates of earnings, dividends, and book equity are frequently unequal. Moreover, an industry may face a changed business environment, thereby making the past a poor basis for projecting the future. Historical growth rates can differ significantly from forward-looking projected growth rates due to such factors as inflation rates, tax rates, the role of an industry in the economy, and the regulatory environment.

Q. WHAT ESTIMATES OF GROWTH RATES DO YOU RELY ON RATHER THAN USING HISTORICAL GROWTH RATES?

A. In view of the limitations of using historical growth rates, I based my estimated growth rates on projected growth rates as publicly provided by (1) Zacks Investment Research ("Zacks"), a respected investor services company, (2) Thomson Financial Network estimates provided on Yahoo! Finance, and (3) The Value Line Investment Survey.

Q. WHAT DIVIDEND YIELDS WERE USED IN YOUR DCF ANALYSIS?

A. To estimate the required rate of return on equity capital today, I estimated the expected dividend yield, D_1/P_0 where P_0 is the price of a share of common equity today and D_1 is the dividend in the next period. To find the dividends expected a year from now, I

multiplied the current annual dividends paid by one plus the EPS growth rates for each company. The use of this dividend yield assumes that dividends are distributed at the end of each period (year). Since the current equity share price incorporates all market information considered relevant by investors, generally speaking, non-recent historical prices should be avoided in calculating the dividend yield. However, since share prices are volatile in the short run, it is desirable to use a period long enough to avoid short-term aberrations in the capital market.

Q. WHAT COMMON EQUITY SHARE PRICES DID YOU USE IN YOUR DCF ANALYSIS?

A. I used the average of four weeks of share prices for each natural gas utility. This period achieves the goals of using current information and avoiding cases where short-run volatility causes common-equity share prices to be unrepresentative of the value investors place on a company.

VI. DCF ANALYSIS FOR THE COMPARISON GROUP

A. Constant-Growth DCF Analysis

Q. HOW WAS THE REQUIRED RATE OF RETURN FOR THE COMPARISON GROUP DETERMINED?

A. To estimate the required rate of return for the group, I found the expected growth rate, *g*, and the expected dividend yield, D_1/P_0 for each Comparison Group company. I applied the DCF model to the inputs to find an ROE for each natural gas utility. Finally, I averaged the ROEs to find my DCF ROE for MDU.

Q. WHAT PERIOD DID YOU USE TO ESTABLISH AVERAGE COMMON EQUITY SHARE PRICES FOR THE COMPANIES IN THE COMPARISON GROUP?

A. I used the average common equity share prices from June 17, 2024, through June 12, 2024.[26] This four-week period is long enough to dampen any short-term aberrations in the capital market. It was also close to the July 31, 2024, date of this Testimony, thus making the results timely. I used closing prices for the Comparison Group member companies obtained at Yahoo! Finance.[27]

Q. HOW DID YOU DETERMINE THE DIVIDENDS FOR THE COMPARISON GROUP COMPANIES?

A. I used the dividends that each Comparison Group member company is currently paying as reported by Value Line on May 24, 2024, and by Zacks on July 18, 2024. I used the greater of these two options in my DCF analysis. The dividends were equal from the two sources.[28]

Q. WHAT ASSUMPTION IS MADE ABOUT THE EXPECTED GROWTH RATE IN THE CONSTANT-GROWTH DCF MODEL?

A. In the constant-growth DCF model, it is assumed that current EPS growth rates continue to infinity. I used, as is commonly done, forecasts of EPS growth rates for five years, and assumed those growth rates will continue.

[26] There are 18 days of price observations in the four weeks. Financial markets were closed June 19, 2024, and July 4, 2024.
[27] Exhibit MFG-12, pages 1-2.
[28] Exhibit MFG-13.

Q. WHAT DID YOU USE TO DETERMINE THE EXPECTED GROWTH RATE FOR THE COMPARISON GROUP?

A. As noted above, it is appropriate in this proceeding to use only the forecasted growth rates to estimate the expected growth rate to be used in the DCF analysis. Zacks and Yahoo! Finance provide five-year growth-rate projections for EPS, and Value Line provides five-year growth rate projections for EPS, DPS, and BPS. To maintain consistency across the sources, I used only the EPS estimates from Value Line.

Q. WHAT INFORMATION DID YOU USE FROM VALUE LINE?

A. I used the Value Line EPS five-year growth projections for the individual firms in the Comparison Group as reported by Value Line in its Investment Surveys of May 24, 2024.[29]

Q. WHAT INFORMATION DID YOU USE FROM ZACKS?

A. I used the Zacks EPS five-year growth projections available July 18, 2024, for the individual firms in the Comparison Group.[30]

Q. WHAT INFORMATION DID YOU USE FROM YAHOO! FINANCE?

A. I used the Yahoo! Finance EPS five-year growth projections available July 18, 2024, for the individual firms in the Comparison Group.[31]

Q. HOW DID YOU COMBINE THE ZACKS, YAHOO! FINANCE, AND VALUE LINE ESTIMATES?

A. I weighted the Zacks, Yahoo! Finance, and Value Line EPS values equally to find my best estimate of the expected growth rate for each company in the Comparison Group.

[29] Exhibit MFG-14, Schedule 1.
[30] *Id.*
[31] *Id.*

Q. HOW DID YOU CALCULATE THE EXPECTED DIVIDEND YIELD FOR THE COMPARISON GROUP?

A. The appropriate dividend to use in the constant-growth DCF model is the annual dividend rate at the beginning of the next period (year). I began my estimation of the expected dividend yield by finding the dividends that each Comparison Group member company was currently paying, as noted above.

Next, I adjusted the annualized dividends for expected growth. The dividends of all the companies in the Comparison Group are expected to increase over the next year. I applied a full year's growth rate for a firm to the annualized dividend and added the product to the annualized dividend yield to transform it into the expected dividend yield.[32] The equation for this operation is:

$$\frac{D_1}{P_0} = \frac{D_0}{P_0}(1+g)$$

Applying this equation to the dividend yield for each company yielded the D_1 values that I used in my estimates.[33]

Q. IS IT APPROPRIATE TO APPLY A MINIMUM STANDARD TO ROE RESULTS PRODUCED BY THE ROE MODELS?

A. Yes. Investors demand a higher return from common equity than from debt to compensate for the greater risk of common equity. The Federal Energy Regulatory Commission ("FERC") uses a minimum standard of the yield for Moody's 10-Year Baa Corporate Bonds plus 20 percent of the CAPM risk premium as a minimum ROE threshold. Investors

[32] I also followed this rule of applying a full year's growth to the current dividend in my CAPM analysis.
[33] Exhibit MFG-14, Schedule 1.

faced with an ROE for a company below that threshold would choose the less-risky debt over common equity investment in the company. Thus, MDU would not be competing with these companies for capital.

Q. DID YOU REMOVE ANY COMPANIES FROM THE DCF ANALYSIS BECAUSE THEY HAD ROE RESULTS THAT WERE UNREASONABLY LOW?

A. No. The average yield for the Moody's 10-year Baa Corporate Bond Yield Index was 5.84 percent over June 17, 2024-July 12, 2024,[34] while the mean of 20 percent of the CAPM risk premium for the two CAPM approaches was 1.19 percent.[35] The sum of the two components of the minimum threshold was 7.03 percent. All the ROEs in the analysis exceeded that value.

Q. WHAT ROE DID YOU FIND FOR YOUR CONSTANT-GROWTH DCF ANALYSIS?

A. For the seven companies, the mean ROE was 10.23 percent. The median ROE also was 10.33 percent.[36]

B. Multistage DCF Analysis

Q. WHAT ASSUMPTION IS MADE ABOUT THE EXPECTED GROWTH RATE IN THE MULTISTAGE DCF MODEL?

A. In the multistage DCF model it is assumed that the current growth rates are replaced by other growth rates covering intervals subsequent to the present period. There are several

[34] Exhibit MFG-15 Schedule 5.
[35] Exhibit MFG-15, Schedule 8.
[36] Exhibit MFG-14, Schedule 1.

possible approaches to a multistage analysis, but in many of the variations a long-run gross domestic product ("GDP") growth rate is adopted after the first stage.

Q. WHAT LOGIC SUPPORTS ADOPTING GDP GROWTH RATES AFTER THE FIRST STAGE OF A MULTISTAGE DCF ANALYSIS?

A. The logic for adopting a long-run GDP growth rate after the first stage of a multistage analysis is that a company cannot sustain growth faster than the growth rate of the economy as a whole over the long run.

Q. WHAT LONG-RUN GDP GROWTH RATES DID YOU USE?

A. It was my opinion that the second-stage EPS growth rates will be similar to the long-run GDP growth rate forecasts of the Social Security Administration ("SSA") and the Energy Information Administration ("EIA"). I calculated long-run GDP growth rates from 2030-2050 from information published by these two agencies.[37] The SSA rate was 4.04 percent,[38] while the EIA rate was 4.33 percent.[39]

Q. WHAT TYPE OF MULTISTAGE DCF ANALYSIS DID YOU USE?

A. I applied what is sometimes called a blended approach as my multistage DCF analysis. In this approach, all inputs other than the EPS growth rates are the same as in the constant-growth DCF analysis. I continued to use the five-year EPS forecasts in the first stage but used the weighted long-run GDP growth rate as my second-stage EPS input. At that point I blended the two growth rates by weighting the average of the five-year EPS forecasts

[37] The SSA and EIA GDP growth rates include inflation.
[38] Exhibit MFG-14, Schedule 2.
[39] Exhibit MFG-14, Schedule 3.

two-thirds and the long-run weighted GDP growth rate one-third. This approach is set forth in a widely used regulatory handbook.[40]

Q. WHAT IS THE RESULT OF YOUR MULTISTAGE DCF ANALYSIS?

A. For the seven companies, the mean ROE was 9.57 percent. The median ROE was 9.51 percent.[41]

Q. PLEASE DISCUSS FLOTATION ADJUSTMENTS.

A. When companies issue equity, the price paid by investors for the new shares is higher than the revenues per share received by the company. The difference is issuance, or flotation, costs. These costs are the fees and expenses the company must pay as part of the issuance. The return on equity must be adjusted to recognize this difference, or a company will be denied the reasonable opportunity to earn its required rate of return.

Q. HAVE YOU MADE A FLOTATION ADJUSTMENT FOR THE COMPANY?

A. No. I have not included a flotation adjustment in my ROE values. The Commission can decide to add an adjustment relying on the following analysis.

Q. FINDING AN APPROPRIATE FLOTATION ADJUSTMENT FOR MDU.

A. Ms. Bulkley determines that the flotation cost for MDU is 3.681 percent, the average of issuance expenses for MDU Resources in 2002 and 2004, the most recent issuances undertaken by MDU's parent company. When applied, the flotation adjustment is 15.6 basis points.[42] This adjustment can be added to any of the ROE recommendations in this testimony if the Commission chooses.

[40] Exhibit MFG-14, Schedule 4; Morin, Roger, *New Regulatory Finance (2006)*, Public Utilities Reports, Inc., Vienna, Virginia, page 309.
[41] Exhibit MFG-14, Schedule 5.
[42] Exhibit MFG-14, Schedule 1.

VII. CAPM ANALYSIS FOR THE COMPARISON GROUP

Q. WHAT ARE THE STRENGTHS AND WEAKNESSES OF THE CAPM?

A. The CAPM is theoretically sound, but its application raises some issues. The analysis using CAPM selects a riskless asset, beta, and market risk premium. The ROE analysis can vary considerably depending on the analyst's choices for these variables. Thus, what at first may seem like a model that is straightforward depends heavily on the particular input values used by an analyst.

Q. WHAT INSTRUMENT DID YOU USE AS YOUR RISKLESS ASSET?

A. The analyst must select the riskless asset. Short-term assets such as 90-day Treasury Bills are considered to be virtually riskless; the default risk is next to nothing, and the inflation risk is negligible. Equity investors, however, typically have a longer planning horizon than the 90-day maturity of these instruments, so the return on these bills is not suitable for this CAPM process. Long-Term Treasury bonds, on the other hand, match the planning horizon and have yields that are closer to common equity returns. But these instruments are subject to substantial inflation risk and, therefore, are not riskless. Nevertheless, I adopted the 30-year U.S. Treasury yield as my risk-free rate. Its favorable characteristics outweigh its unfavorable characteristics.

Q. WHAT PERIOD DID YOU USE FOR THE 30-YEAR TREASURY YIELD IN YOUR CAPM ANALYSIS?

A. I used the average yield on a 30-year Treasury bond for June 17, 2024, to July 12, 2024, as my riskless asset rate. This average yield was 4.45 percent.[43] This approach to calculating

[43] Exhibit MFG-15, Schedule 1.

the risk-free rate is consistent with how I found common-equity share prices within the DCF model.

Q. WHY DID YOU USE THE RECENT 30-YEAR TREASURY YIELD IN YOUR CAPM ANALYSIS?

A. Current yields on the 30-year Treasury bond are the best risk-free rate for the CAPM analysis. Much like current common equity share prices reflect all information about factors affecting the value of the shares, so too do current bond yields capture the beliefs of investors as to where yields on the instruments are headed.

Q. WHAT VALUES DID YOU USE FOR BETA (β)?

A. I used the betas for each company in the Comparison Group taken from *The Value Line Investment Survey* reports of May 24, 2024.[44] These beta values are Value Line's latest assessment for each company.

Q. HOW IS BETA (β) INTERPRETED?

A. A beta of 1 indicates that a company's share price will move with the market, while a beta higher than 1 indicates that a stock will be more volatile than the market, and a beta lower than 1 indicates that a stock will be less volatile than the market.

Q. WHAT DID YOU USE AS THE MARKET RISK PREMIUM?

A. I used two approaches to determine the market risk premium. In one case, I adopted Kroll's estimate of the risk premium that companies currently require as they consider future returns on investment. In the other case I used S&P 500 inputs to find the market return for that broad market return.

[44] Exhibit MFG-15, Schedule 2.

Q. WHAT SOURCE DID YOU USE FOR AN EXPERT ESTIMATE OF THE CURRENT MARKET RISK PREMIUM?

A. I used Kroll's 2024 equity risk premium (equivalent to the MRP) estimate of 5.0 percent.[45] Kroll is currently publisher of a financial statistical volume[46] previously published by Duff & Phelps and before that by Ibbotson and Associates. The company also provides financial advice. This value reflects the opinion of the company's corporate risk experts.

Q. WHAT WAS THE NEXT STEP IN CALCULATING THE KROLL CAPM ROE?

A. I multiplied the MRP by the beta for each Comparison Group company to find that company's risk premium (RP). [47]

Q. WHAT WAS THE FINAL STEP IN CALCULATING THE KROLL CAPM ROE?

A. I added the RP for each Comparison Group company to the risk-free rate to find a specific company's CAPM ROE. [48]

Q. WHAT WAS THE RESULT OF THE KROLL CAPM ANALYSIS?

A. The mean ROE for my Kroll CAPM analysis was 8.77 percent and the median ROE was 8.70 percent.[49]

Q. PLEASE DESCRIBE THE CONSTRAINTS THAT APPLY TO YOUR CALCULATION OF THE S&P 500 MARKET RISK RETURN?

A. Under FERC Opinion 569, FERC starts with the S&P 500 as its base for determining the broad market return. FERC requires that companies included in the market return analysis

[45] Exhibit MFG-15, Schedule 4, Kroll, *Cost of Capital in the Current Environment*, June 6, 2024.
[46] *Stocks, Bonds, Bills, and Inflation*.
[47] Exhibit MFG-15, Schedule 5.
[48] *Id.*
[49] *Id.*

be paying dividends, an essential part of any DCF analysis. Companies with EPS estimates less than zero percent and greater than 20 percent are excluded, thereby handling the problem of outliers at either end of the spectrum.

Q. WHAT DID YOU USE AS THE SOURCE OF DIVIDENDS AND SHORT-TERM EPS FORECASTS?

A. FERC has accepted Value Line short-term EPS forecasts in the CAPM.[50] Therefore, I used Value Line's EPS forecasts for the companies in Value Line's S&P 500. Value Line also provides dividend yields for S&P 500 companies.

Q. WHAT ELSE WAS INVOLVED IN YOUR CALCULATION?

A. The term within parentheses in the CAPM equation is called the "market risk premium." It is the difference between the return on a broad market measure and the risk-free rate of return. In other words, the premium that investors require in order to take on risk. As noted above, I already had the risk-free rate. Therefore, I needed to calculate a market rate of return.

Q. WHAT PROCEDURE DID YOU USE TO FIND THE MARKET RETURN?

A. As stated, I use the S&P 500 inputs in finding my market risk premium. I downloaded these values on July 19, 2024.[51] I applied Value Line growth rates[52] to the dividend yields to find the expected dividend yield, adding a full year's growth.

[50] *See Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154, ¶¶ 58 (2020).
[51] Exhibit MFG-15, Schedule 6.
[52] Exhibit MFG-15, Schedule 7.

Q. WHAT WERE THE NEXT STEPS IN FINDING THE S&P CAPM RETURN ON EQUITY?

A. I applied the dividend-paying rule, and the minimum and maximum threshold rules of less than or equal to zero percent and greater than 20 percent to the set of S&P 500 companies.[53] I then weighted the remaining ROEs by the market capitalization for each company. The sum of those individual ROEs is the market return. The value for the Value Line set was 11.33 percent.[54] The market risk premium was calculated by subtracting the 4.45 percent return on the 30-year Treasury from the market return. The result was 6.88 percent. This amount is multiplied by the beta for each Comparison Group company to find that company's CAPM ROE.[55]

Q. DOES FERC HAVE SCREENS FOR OUTLIER CAPM ROES?

A. Yes. FERC applies Low-End and High-End Test to the CAPM adjusted ROEs. My Low-End Test is the same as the minimum threshold for the DCF ROEs, the four-week average of the Moody's 10-year Baa Corporate Bond Yield Index value of 5.84 percent plus 20 percent of the CAPM risk premium. The High-End Test is 200 percent of the median value of all companies included in the analysis. The values of the outlier tests are different in the Kroll and Value Line analyses because of the different market risk premiums produced. However, no CAPM ROEs were removed due to the Low-End or High-End Tests in either of my analyses. I combined the two analyses to find a mean Low-End Test of 7.03 percent.[56]

[53] Exhibit MFG-15, Schedule 6.
[54] *Id.*
[55] Exhibit MFG-15, Schedule 7.
[56] Exhibit MFG-15, Schedule 8.

Q. DID YOU INCLUDE A SIZE ADJUSTMENT IN YOUR CAPM ANALYSES?

A. No. I did not include a size adjustment. There are studies that indicate the size adjustment is not appropriate for the CAPM. Damordaran emphasizes that the historical data supporting the effect are ambiguous. The support was strongest up to 1980, but has waned since then. The size premium has disappeared for decades, then reappeared, and disappeared again and again.[57] Ang states that investors do not appear to demand compensation for small size. He cites studies of the practices of mutual fund investors, equity analysts, and financial officers of companies. In all three studies, the favored method for estimating required rate of return is the unadjusted CAPM. Versions of the CAPM with size adjustments do not improve on the basic model results enough to be adopted by the users. If multifactor models did perform better, Ang asserts, it would be observed that investors prefer to use them in place of the unadjusted CAPM. Further, the studies that have shown a size effect may be examples of data mining: e.g., start and stop periods for the data to be studied that show a size effect, but the finding cannot be replicated when the span of the study has different beginnings and ends.[58]

Both Damodaran and Ang declare that the small capitalization premium may be a proxy for liquidity. They maintain that it is not a good substitute for illiquidity, which requires looking closely at individual firms rather than making a size adjustment to all firms. They also both note that almost all of the size premium that shows in the data is earned in January. No explanation for why small companies are riskier in January has been put forth,

[57] Damodaran, Aswath, "The Small Cap Premium: Where is the Beef?" Business Valuation Review, Volume 34, Number 4 (2015).
[58] Ang, Clifford S., "The Absence of a Size Effect Relevant to the Cost of Equity." Business Valuation Review, Volume 37, Number 3 (2018).

a requirement for the size premium to be a valid factor. The studies recommend not making adjustments for an effect that may be transitory, at best, and not one that investors demand in the prices they pay for common equity. For the foregoing reasons I do not include an adjustment for size in my CAPM ROE analysis.

Q. DID YOU INCLUDE A CREDIT-RISK ADJUSTMENT IN YOUR CAPM ANALYSIS?

A. No. By using credit rating as one of the proxy group selection criteria, I accounted for different credit risks. The companies selected for the proxy group range from A+ to BBB, a relatively tight grouping. As noted previously, companies that are close in credit rating have similar risk, so no credit-rating adjustment is necessary.

VIII. RECOMMENDED ROE

Q. PLEASE SUMMARIZE YOUR ROE RESULTS.

A. I performed four ROE analyses: (1) constant-growth DCF, (2) multistage DCF, (3) Kroll MRP estimate CAPM, and (4) S&P 500 CAPM for Value Line. The resulting ROE values are:

DCF ROE Mean and Median Results

	Constant growth	Multistage
Mean	**10.23%**	**9.57%**
Median	**10.33%**	**9.51%**

CAPM ROE Mean and Median Results

	Kroll	Value Line
Mean	**8.77%**	**10.40%**
Median	**8.70%**	**10.30%**

Q. PLEASE COMMENT ON THE DCF ROE RESULTS.

A. The DCF constant-growth ROE result was higher than the multistage counterpart ROE. The multistage approach incorporates the long-run growth rates. Both results are within the 8.80-10.50 percent range of authorized ROEs from January 1, 2021, to December 31, 2023, for U.S. natural gas utilities as reported by Regulatory Research Associates ("RRA"), a unit of S&P Global IQ Pro.[59]

Q. PLEASE COMMENT ON THE CAPM ROE RESULTS.

A. The Value Line CAPM ROE was the highest of the results. On the other hand, the Kroll CAPM ROE was the lowest of the four results. Both analyses are consistent with the range of recent authorized ROEs.

[59] Exhibit MFG-16.

Summary of ROE Awards for 2021-2023

Year	No. of Cases	Mean ROE	Median ROE	ROE Range
2021	43	9.56	9.60	8.80-10.24
2022	33	9.53	9.60	9.20-10.20
2023	37	9.60	9.55	9.25-10.50

Q. HOW DID YOU ARRIVE AT A RECOMMENDED ROE FOR MDU?

A. The four ROE results, as noted, are consistent with the U.S. authorized ROEs range of 8.80 percent to 10.50 percent. Therefore, I weighted these four results equally, producing a mean ROE of 9.742 percent and a median ROE of 9.710 percent. My recommended ROE for MDU is 9.725 percent, roughly the midpoint of the mean and median ROEs.[60]

IX. REASONABLENESS CHECK OF THE RECOMMENDED ROE

Q. HOW DID YOU CHECK THE REASONABLENESS OF YOUR ROE RESULTS?

A. I checked the reasonableness of my analyses' outcomes by comparing the ROEs with recent ROEs authorized in natural gas rate cases across the United States.

Q. HOW DO YOU USE THIS SET OF AUTHORIZED ROES?

A. I use the recently authorized ROEs as a basis for evaluating the reasonableness of my ROE results. I did not use it as a substitute for those analyses.

Q. WHY ARE PAST AUTHORIZED ROES NOT A GOOD SUBSTITUTE FOR CURRENT, FORWARD-LOOKING ROE ANALYSES?

A. Recently authorized ROEs reflect the results of rate cases conducted in a variety of environments and at different times. Test years, conditions in capital markets, general

[60] Exhibit MFG-17, Schedule 1.

economic indicators such as inflation rates, and so forth for previous rate cases can be different and become outdated when compared with these factors for a current rate case. Therefore, recently authorized ROEs should serve only to establish whether a current ROE result is reasonably close to what has happened, not be a substitute for forward-looking analysis based on current conditions.

Q. WHAT DID YOU CONCLUDE REGARDING YOUR ROE ANALYSIS AND THE RESULTS FOR THE 2021-2023 AUTHORIZED NATURAL GAS ROES?

A. My recommended ROE of 9.725 percent marginally exceeds the annual mean ROEs (9.53 percent to 9.60 percent) and median ROEs (9.55 percent to 9.60 percent) for the 2021-2023 authorized natural gas ROEs.[61] My analysis captures the most recent trends in common equity prices, dividends, EPS growth rate estimates, beta values, and U.S. Treasury bond yields. The 9.725 percent ROE reflects these trends.

X. RECOMMENDED CAPITAL STRUCTURE AND OVERALL RATE OF RETURN

Q. WHAT DEBT COSTS DID MDU PROPOSE IN THIS DOCKET?

A. MDU proposed a cost of long-term debt of 4.569 percent. This cost of long-term debt is based on the MDU's Test Year period ending December 31, 2024.[62] MDU proposed a cost of short-term debt of 4.954 percent. The MDU short-term debt cost also is based on the 2024 Test Year.[63]

[61] Exhibit MFG-17, Schedule 1.
[62] MDU, Statement E, Schedule E-1, Page 1 of 4.
[63] MDU, Statement E, Schedule E-2, Page 1 of 1.

Q. WHAT IS YOUR POSITION REGARDING MDU'S PROPOSED LONG-TERM DEBT COST?

A. I accepted the proposed 4.569 percent long-term debt cost for this docket. This debt cost is reasonable.

Q. WHAT IS YOUR POSITION REGARDING MDU'S PROPOSED SHORT-TERM DEBT COST?

A. I accepted the proposed 4.954 percent long-term debt cost for this docket. This debt cost is reasonable.

Q. WHAT CAPITAL STRUCTURE DID YOU RECOMMEND FOR MDU?

A. I accepted the requested MDU capital structure of 45.296 percent long-term debt, 4.519 percent short-term debt, and 50.185 percent common equity.[64]

Q. HOW DID YOU DETERMINE YOUR RECOMMENDED MDU CAPITAL STRUCTURE?

A. To find a recommended capital structure for MDU, I turned to the Comparison Group companies. Recall that they have risk profiles similar to that of the Company. Therefore, MDU's capital structure ratios should be, not identical, but close to the average ratio values for the group. To that end, I calculated the average long-term debt, short-term debt, and common equity proportions for the seven natural gas utilities in the Comparison Group. These average ratios reflected the dollar amount by company for each of the eight quarters from the second quarter of 2022 to the first quarter of 2024. The source of the amounts upon which the company ratios were based is S&P Global Market Intelligence.

[64] Exhibit MFG-17, Schedule 2.

Q. WHY DID YOU SELECT THESE EIGHT QUARTERS FOR YOUR CAPITAL STRUCTURE ANALYSIS?

A. I used two years of data to smooth the effects of any quarter that was an outlier. Using two years of data also mitigated any seasonal effects on the capital structures. The first quarter of 2024 is the most recent quarter for which data were available. Therefore, I began my analysis with data from the second quarter of 2022.

Q. DID YOU MAKE ADJUSTMENTS FOR THE CAPITAL STRUCTURE AMOUNTS INCLUDED ON YOUR ANALYSIS?

A. Yes. Atmos Energy and One Gas, Inc. were affected by Winter Storm Uri in 2021. Uri caused these companies to purchase gas in market conditions where their demand for the fuel was inelastic and the price was high. Regulatory commissions in the states where the companies operate enabled the utilities in securitizing their uncharacteristically high short-term debt amounts. The securitized amounts are not intended to be included in ratemaking for the utilities. Therefore, I excluded the second through fourth quarters of 2022 for these companies.[65] Further, NiSource incurred extraordinary debt in the third and fourth quarters of 2023 to facilitate the sale of 19.9 percent of its Northern Indiana Public Service Co. subsidiary. [66] I also excluded those two quarters from my analysis.

[65] See for example, the Arkansas Electric Utility Storm Recovery Securitization Act of 2020, Ark. Code Ann. § 23-18-901, *et seq.*

[66] See NiSource, https://www.nisource.com/news/aarticle/nisource-inc.-completes-nipsco-minority-equity-interest-transaction.

Q. WHAT WAS THE OUTCOME OF YOUR CAPITAL STRUCTURE ANALYSIS?

A. With the noted omissions, for the Comparison Group set of seven natural gas utilities over the eight quarters, the long-term debt proportion was 45.07 percent, the short-term debt proportion was 9.86 percent, and the common-equity proportion was 44.07 percent.

Q. DID YOU PERFORM AN ADDITIONAL CAPITAL STRUCTURE ANALYSIS?

A. Yes. I removed ONE Gas and Spire Inc. entirely from the analysis. These public utilities have, respectively, short-term debt averages of 17.21 percent and 15.41 percent. The values are outliers. The capital structure that resulted from these deletions is 47.97 percent long-term debt, 7.28 percent short-term debt, and 44.75 percent common equity.

Q. PLEASE COMPARE YOUR CAPITAL STRUCTURE ANALYSES OUTCOMES TO MDU'S REQUESTED CAPITAL STRUCTURE.

A. MDU requested a capital structure of 45.296 percent long-term debt, 4.519 percent short-term debt, and common equity of 50.185 percent.[67] While, the requested capital structure includes about the same ratio of long-term debt as found in my analyses, it has less short-term debt and more common equity. This combination of ratios increases the bills of MDU customers.

Q. PLEASE DISCUSS THE CAPITAL STRUCTURE RATIOS OF THE COMPARISON GROUP MEMBERS.

A. The capital-structure ratios of the Comparison Group members are notable for their dispersion. The long-term debt ratios range from 35.75 percent for ONE Gas to 57.80 percent for NiSource. The short-term debt and common-equity ratios have similar broad

[67] MDU, Statement E, Schedule E, Page 1 of 1.

differences between the lowest and highest ratios. I conclude that the range and average of the group provide little guidance at this time as to a reasonable capital structure for the Company.

Q. WHAT IS YOUR RESPONSE TO THE COMPANY'S CAPITAL STRUCTURE REQUEST?

A. The Company's capital structure request is reasonable. The common-equity ratio, for example, is less than the mean and median ratios authorized for natural gas companies from 2021-2023.[68] MDU has provided evidence to support its assertion that the request reflects its pro forma capital structure as December 31, 2024. Considering these factors, I accept the Company's requested capital structure.

Q. WHAT IS THE OVERALL ROR THAT YOU RECOMMENDED FOR THE COMPANY?

A. When my recommended ROE of 9.725 percent is included with the Company's recommended capital structure and debt costs, the ROR is 7.174 percent.[69]

Q. DO YOU HAVE AN ADDITIONAL REMARK?

A. Yes. I note that the filing date of the MDU testimony was November 2023. I request that the Company update in Rebuttal Testimony its 2023 and 2024 data in its Statement E to reflect actual capital structure ratios and costs through at least July 31, 2024.

[68] Exhibit MFG-16.
[69] Exhibit MFG-17, Schedule 3.

XI. REVIEW OF THE COMPANY'S ROE ANALYSIS

A. Summary of MDU ROE Analysis

Q. WHAT METHODS DID MS. BULKLEY USE TO ARRIVE AT HER RECOMMENDED ROE?

A. Ms. Bulkley used a constant-growth DCF model, the CAPM, the Empirical CAPM ("ECAPM") and a risk premium approach.[70]

Q. WHAT WAS THE ROE RECOMMENDED BY MS. BULKLEY FOR MDU?

A. Ms. Bulkley recommended an ROE of 10.50 percent. She identified a range of 10.00 percent to 11.00 percent for MDU by her application of the various ROE methods. From this range she stated that 10.50 percent is appropriate for MDU.[71]

B. DCF Analysis

Q. DID MS. BULKLEY APPLY THE DCF MODEL IN HER ROE ANALYSIS?

A. Yes. Ms. Bulkley followed the same approach I did for the constant-growth DCF model. However, she used 90-day average prices and 180-day average prices in addition to a 30-day average price for each company. Further, she presented DCF ROE results for low and high EPS values for the five proxy group members in addition to mean values, giving her a set of nine DCF results for the proxy group.[72]

Q. PLEASE COMMENT ON MS. BULKLEY'S USE OF THREE PERIODS TO DEVELOP AVERAGE PRICE INPUT VALUES FOR THE DCF MODEL.

A. The 90-day and 180-day average price periods at first glance might seem to increase the variety of inputs for the DCF model. Additional examination shows that they give older

[70] Bulkley Direct, pages 4-5.
[71] *Id*., page 6.
[72] *Id*., page 32.

price information equal weight to the more recent information provided by the 30-day average prices, a weighting that is not desirable and is unnecessary. The 30-day average price values reflect all the information available to investors in the 90-day and 180-day values. However, it allows the investors to give that older information the weight the investors believe it deserves rather than treating it equally. The equal weighting approach means that stale price values are incorporated into the analysis.

Q. DID MS. BULKLEY ADJUST HER DCF ROES FOR GROWTH?

A. Yes. Ms. Bulkley adjusted the dividends in her DCF model analysis for growth. She applied a half year's growth,[73] whereas I applied a full year's growth. Thus, my adjustment was larger than her adjustment.

Q. WHAT WAS THE RESULT OF MS. BULKLEY'S DCF ANALYSIS?

A. Ms. Bulkley's constant-growth DCF ROE results ranged in value from 9.05 percent to 11.56 percent.[74]

C. CAPM Analysis

Q. DID MS. BULKLEY APPLY THE CAPM IN HER ROE ANALYSIS?

A. Yes. Ms. Bulkley applied the CAPM in her ROE analysis.[75]

Q. DID MS. BULKLEY USE DIFFERENT INPUT VALUES FOR THE VARIABLES IN HER CAPM ANALYSES?

A. Yes. Ms. Bulkley used three risk-free rate values and three beta values, along with the S&P 500 market return in her CAPM analyses. Again, she obtains a set of nine results. [76]

[73] Exhibit No. _____ (AEB-2), Schedule 4, Page 1 of 3.
[74] *Id.*, page 35.
[75] *Id.*, page 35.
[76] Bulkley Direct, page 40.

Q. WHAT WERE THE RESULTS OF MS. BULKLEY'S CAPM ANALYSES?

A. The results for Ms. Bulkley's CAPM ROE analyses ranged from 10.37 percent to 11.45 percent.[77]

Q. PLEASE COMMENT ON MS. BULKLEY'S USE OF THREE RISK-FREE RATES IN HER APPLICATION OF THE CAPM MODEL.

A. Ms. Bulkley uses the 30-day average yield on the 30-Year Treasury Bond, the forecasted rate over the next year, and a five-year forecasted rate. Current yields on the 30-year Treasury bond are the appropriate risk-free rate for this situation. Much like current common equity share prices reflect all information about factors affecting the value of the shares, so too do current bond yields capture the beliefs of investors as to where yields on the instruments are headed. Recent yields are a better indicator of what investors believe long-term interest rates are going to be than forecasts because investors are speaking through their participation in the bond market as to what future yields will be.

D. ECAPM

Q. PLEASE BRIEFLY DISCUSS THE ECAPM METHOD.

A. The ECAPM makes adjustments to the CAPM approach to compensate for the failure of the CAPM to produce results consistent with the betas of companies. The analysis has not been the subject of research in peer-reviewed journals.[78] It should not be relied upon in ROE analysis.

[77] *Id.*, page 38

[78] Morin, Roger A, *New Regulatory Finance*, Public Utilities Reports, June 1, 2006, page 190, page 213. A reference to Morin 1989 is included in a list of empirical studies of the CAPM in which the outcome for low-beta stocks (such as public utilities) is higher than that predicted by the model. However, the Reference section of the chapter cites a 1989 US West Communications docket before the Arizona Corporation Commission in which Professor Morin filed Rebuttal Testimony.

Despite not having been peer reviewed, the ECAPM has been proposed for use in numerous rate cases. However, few Commissions have accepted the ECAPM as electric and gas utilities in general have low betas. Adjusting betas upward, as is done in the ECAPM, guarantees a higher ROE. If betas make sense, then to claim that low-beta stocks tend to have higher risk premia contradicts the efficient market theory.

E. Risk-Premium Approach

Q. PLEASE BRIEFLY DISCUSS THE RISK-PREMIUM METHOD.

A. The risk-premium method is a historical approach to ROE analysis. The inputs to the method are authorized ROEs and U.S. Treasury yields from the past. Thus, the regression model developed by Ms. Bulkley for her Bond Yield Rick Premium ("BYRP") approach finds only what has happened in certain circumstances, not what investors, signaling through their willingness to pay certain prices for common-equity shares, tell the market they expect will happen. The DCF model and the CAPM, as applied by both Ms. Bulkley and me, are forward-looking models and are preferred to the risk-premium method for that reason.

Q. PLEASE DISCUSS THE RISK-PREMIUM METHOD'S CALCULATIONS.

A. Prior authorized utility ROEs and the bond yields in effect at the time the authorized ROEs are ordered are inputs into the risk-premium method. The values for the variables are used in statistical analysis that develops a relationship between the risk-free bonds and the authorized ROEs. The differences between the two variables' values when aggregated in the statistical analysis produce a risk premium. The outcome of the analysis is an equation in which the current bond yield serves as an input to produce a current ROE for a public

utility in a base rate case. Although the bond yield is current, the equation into which it is input is a product of an historical relationship, so the resulting ROE is not forward-looking.

Q. PLEASE DISCUSS HOW THE RISK-PREMIUM METHOD INTRODUCES CIRCULARITY INTO ROE ANALYSIS.

A. The ROE for a current case becomes an input in any following risk-premium approach ROE analyses, setting up a circularity loop of references from one rate case to the next. Eventually, the current authorized ROE becomes part of the set of historical authorized ROEs that serve as inputs into the risk-premium analysis that can be part of the ROE analysis for the subject utility. The current views of investors regarding the subject company are not part of the risk-premium approach.

Q. DO INVESTORS TAKE PREVIOUS AUTHORIZED ROES INTO ACCOUNT AS THEY MAKE DECISIONS ABOUT BUYING AND SELLING NATURAL GAS UTILITY COMMON-EQUITY SHARES?

A. Yes. Previous authorized ROEs for a subject utility and other companies are an element that investors consider in making decisions.

Q. HOW IS THIS CONSIDERATION OF PREVIOUS AUTHORIZED ROES BY INVESTORS DIFFERENT THAN USING PREVIOUS AUTHORIZED ROES IN THE RISK-PREMIUM METHOD?

A. When investors include previous authorized ROEs, and other inputs into their decisions, they make judgments as to how much weight to give to each variable. Further, they also include their assessments of the future prospects of a subject utility and other companies in the same industry in their process. These expectations of the future are not part of the

risk-premium method. As for the previous authorized ROEs, the relationship between them and bond yield values is rigid in risk-premium analysis.

Q. WHAT WAS THE RESULT OF MS. BULKLEY'S RISK-PREMIUM ANALYSIS?

A. The range for Ms. Bulkley's risk-premium ROE analysis was 10.10 percent to 10.27 percent. [79]

F. Summary of Ms. Bulkley's ROE Analyses

Q. PLEASE CHARACTERIZE MS. BULKLEY'S ROE RESULTS.

A. Ms. Bulkley takes DCF approaches, then multiplies the ROE results from each model by using different input values for the variables. From the nine DCF model ROEs, the nine CAPM ROE values, nine ECAPM ROE values, and the three risk-premium approach ROEs, Ms. Bulkley concludes that 10.00 percent to 11.00 percent is a reasonable range for MDU's ROE. There is no explanation as to why these values are reasonable. The same holds true for Ms. Bulkley's choice of 10.50 percent as the correct ROE for the Company other than it is the midpoint of her range.[80]

Q. WHY IS IT IMPORTANT THAT THE ROE RANGE BE TIED TO VERIFIABLE RELATIONSHIPS?

A. As noted, Ms. Bulkley identifies a range of 10.00 percent to 11.00 percent. However, a visual inspection of her range chart indicates the range could as easily have been 9.75 percent to 10.50 percent if the various analyses outcomes are weighted by the length of the lines in the chart. Would Ms. Bulkley's recommended ROE then be 10.125 percent? Further, if the unsupported ECAPM is deleted from the visual analysis, the ROE range

[79] Bulkley Direct, page 43.
[80] Bulkley Direct, page 5-6.

shifts farther to the left and lower values for ROEs. Such a shift is as valid as Ms. Bulkley's original choice of range. My choice of an ROE is the product of weighting four outcomes equally, then selecting an ROE consistent with the mean and median that are the results of the weighting. My process is transparent, while Ms. Bulkley's is not.

XII. CONCLUSION

Q. WHAT ARE THE CRITERIA THE COMMISSION SHOULD CONSIDER IN SETTING THE COMPANY'S ROE AND COST OF CAPITAL?

A. The Commission should only consider whether the ROE and overall cost of capital meet the *Bluefield* and *Hope* criteria for a fair return. Recounting, these criteria include returns commensurate with returns being earned on other investments with equivalent risks, rate of return sufficient to enable the utility to attract capital and returns sufficient to enable the regulated company to maintain its credit rating and financial integrity. The interpretation of the *Hope* and *Bluefield* criteria is that a company should be given the opportunity to earn an ROE and overall cost of capital sufficient to meet these standards.

Q. WHAT IS YOUR RECOMMENDED RETURN ON EQUITY AND OVERALL COST OF CAPITAL FOR MDU?

A. I recommend an ROE of 9.725 percent and an overall cost of capital of 7.174 percent for MDU.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes. However, I reserve the right to update this testimony as may be necessary.

PCMG and Associates LLC

MARLON GRIFFING, Ph.D.

Education

Ph.D., M.A., B.A., Economics, University of Nebraska-Lincoln

Position

Senior Consultant – PCMG and Associates	2015 – present
Senior Consultant – Snavely King Majoros and Associates	2013 – 2014
Utilities Financial Analyst – Minnesota Department of Commerce	2003 – 2013
Senior Consultant – QSI Consulting	2000 – 2002
Economic Analyst – Nebraska Public Service Commission	1998 – 2000

Professional Experience

Dr. Griffing holds bachelors, masters, and doctoral degrees in economics. Dr. Griffing is well versed in microeconomics, cost/benefit analysis and econometric analysis. He has 23 years' experience as an expert witness and consultant, primarily addressing the cost of capital and capital structure for electric, natural gas, and water utilities. He has also made appearances regarding rate design, the competitive effect of mergers, reliability and supply adequacy, and oil-pipeline companies in certificate of need cases. In addition, he managed testimony in two oil-pipeline certificate-of-need cases and arbitrated a telecommunications dispute for the Nebraska Public Service Commission. Dr. Griffing has appeared more than 60 times in cost of capital dockets and other matters before the regulatory agencies of Arkansas, California, Hawaii, Maine, Maryland, Minnesota, Nebraska, New Jersey, New Mexico, North Dakota, Oklahoma, Pennsylvania, South Dakota, Wyoming, and the Federal Energy Regulatory Commission.

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Regulatory Projects and Appearances

1. In the Matter of the FirstEnergy Pennsylvania Base Rate Case (2024) (Appearance: cost of capital on behalf of the Pennsylvania Office of Consumer Advocate)
   Pennsylvania Public Utility Commission – Docket No. R-2024-3047068

2. Application of Northern States Power Company for Authority to Increase Rates for Natural Gas Service in North Dakota (2024) – (Appearance: cost of capital on behalf of the North Dakota Public Service Commission Advocacy Staff)
   North Dakota Public Service Commission Docket No. PU-23-367

3. Application of Otter Tail Power Company for Authority to Increase Electric Rates in North Dakota (2024) – (Appearance: cost of capital on behalf of the North Dakota Public Service Commission Advocacy Staff)
   North Dakota Public Service Commission Docket No. PU-23-342

4. Application of Montana-Dakota Utilities Company for Authority to Increase Rates for Natural Gas Service in North Dakota (2024) – (Appearance: cost of capital on behalf of the North Dakota Public Service Commission Advocacy Staff)
   North Dakota Public Service Commission Docket No. PU-23-341

5. In the Matter of the Verified Petition of Jersey Central Power & Light Company for Approval of an Infrastructure Investment Program II ("EnergizeNJ") (2023) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
   New Jersey Board of Public Utilities Docket No. EO23110793

6. In the Matter of the Petition of Veolia Water New Jersey Inc. for Approval of an Increase in Rates for Water/Sewer Service and Other Tariff Changes (2023) – (Appearance: rate of return and cost of capital on behalf of the New Jersey Division of Rate Counsel)
   New Jersey Board of Public Utilities Docket No. WR23110790

7. In the Matter of the Petition of the Application of Black Hills Wyoming Gas, LLC d/b/a Black Hills Energy for Approval of a General Rate Increase of $19,262,41 to the Retail Gas Rates Effective for Usage on and After February 1, 2023 and Extension of the Wyoming Integrity Rider (2023) – (Appearance: cost of capital on behalf of the Wyoming Office of Consumer Advocate)
   Wyoming Public Service Commission Docket No. 30026-78-GR-23

8. In the Matter of the Petition of Middlesex Water Company for Approval of an Increase in Rates for Water Service and Other Tariff Services (2023) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
   New Jersey Board of Public Utilities Docket No. WR23050292

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9. In the Matter of the Petition of Jersey Central Power and Light Company for Authority to Issue and Sell Up to $700,000,000 Aggregate Principal Amount of Senior Notes in One or More Series and to Make, Execute and Deliver One or More Supplemental Indentures in Connection Therewith (2023) – (Appearance: debt issuance petition on behalf of the New Jersey Division of Rate Counsel)
   New Jersey Board of Public Utilities Docket No. EF23060339
   c
10. In the Matter of the Pittsburgh Water and Sewer Authority Base Rate Case (2023) (Appearance: Cash Flow and Bond Ratings on behalf of the Pennsylvania Office of Consumer Advocate)
   Pennsylvania Public Utility Commission – Docket Nos. R-2023-3039920, R-2023-3039921, R-2023-303991

11. In the Matter of the Application of Hawaii Water Service Co. for Approval of a General Rate Increase for Its Pukalani Wastewater Division and Certain Tariff Changes (2022) (Appearance: Cost of Capital on behalf of the Hawaii Division of Consumer Advocacy)
   Hawaii Public Service Commission – Case No. 2022-0186

12. In the Matter of the Philadelphia Gas Works Base Rate Case (2023) (Appearance: Cash Flow and Bond Ratings on behalf of the Pennsylvania Office of Consumer Advocate)
   Pennsylvania Public Utility Commission – Docket No. R-2023-3037933

13. In the Matter of the Application of Lanai Water Company, Inc. for Review and Approval of Rate Increases; Revised Rate Schedules; and Changes to its Tariff (2022) (Appearance: Cost of Capital on behalf of the Hawaii Division of Consumer Advocacy)
   Hawaii Public Service Commission – Case No. 2022-0233

14. Application of Southern Maryland Electric Cooperative, Inc., for Authority to Revise Its Rates and Charges for Electric Service and Certain Rate Design Changes (2023) – (Appearance: cost of capital on behalf of the Maryland Office of the People's Counsel)
   Maryland Public Service Commission Case No. 9688

15. In the Matter of Petition of Atlantic City Electric Company for Approval of Powering the Future, an Infrastructure Investment Program and Related Cost Recovery Mechanism, Pursuant to *N.J.A.C.* 14:3-2A.1 et. seq. (2022) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
   New Jersey Board of Public Utilities Docket No. ER22100666

16. Application of San Diego Gas & Electric Company (U902M) for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2023 and to Reset the Annual Cost of Capital Mechanism (2022) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the United Consumer Action Network)

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California Public Utilities Commission Proceeding A.22-04-008

17. In the Matter of the Petition of Rockland Electric Company for Approval of an Infrastructure Investment Program, and Related Cost Recovery Mechanism (2022) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. ER22030198

18. Application of the Empire District Electric Company, a Kansas Corporation, for an Adjustment in Its Rates and Charges for Electric Service in the State of Oklahoma (2021) – (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 202100163

19. In the Matter of the Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in Oklahoma (2022) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 202100164

20. In the Matter of the Application of Northern States Power Co. for Authority to Increase Rates for Natural Gas Service in North Dakota (2022) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the North Dakota Public Service Commission Advocacy Staff)
    ND Public Service Commission Case No. PU-21-381

21. In the Matter of the Petition of Public Service Electric and Gas Company for Approval of an Infrastructure Advancement Program Pursuant to N.J.A.C. 14:3-2A.1 *et. seq.* (2021) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket Nos. EO21111211 and GO21111212

22. In Re: Hawaii-American Water Company – Approval of Rate Increases and Revised Rate Schedules for Wastewater Services (2021) (Appearances: Cost of Capital on behalf of the Hawaii Division of Consumer Advocacy)
    Hawaii Public Service Commission – Case No. 2021-0063

23. In Re: Kalaeloa Water Company – Approval of a General Rate Increase / Adjustments for Water and Wastewater Services (2021) (Appearance: Cost of Capital on behalf of the Hawaii Division of Consumer Advocacy)
    Hawaii Public Service Commission – Case No. 2021-0005

24. In the Matter of Application of San Diego Gas & Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2022 and to Reset the

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Annual Cost of Capital Mechanism (2021) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Utility Consumers' Action Network)
CA Public Utilities Commission Application 21-08-014

25. In the Matter of the Petition of Gordon's Corner Water Company for an Increase in Rates and Charges for Water Service (2021) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR21070979

26. Maine Water Company, Application for Approval of Rate Increase and Rate Smoothing Mechanism for the Biddeford and Saco Division (2021) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2021-00289

27. In the Matter of the Petition of New Jersey Natural Gas Company for Approval of an Increase in Gas Base Rates and for Changes in its Tariff for Gas Service Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1, and for Changes to Depreciation Rates for Gas Property Pursuant to N.J.S.A. 48:2-18 (2021) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. ER21030679

28. In the Matter of the Application of Oklahoma Natural Gas Company, a Division of ONE Gas, Inc., for a Review and Change or Modification in Its Rates, Charges, Tariffs and Terms and Conditions of Service (2021) – (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 202100063

29. Application of Public Service Company of Oklahoma, An Oklahoma Corporation, for An Adjustment in Its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service in the State of Oklahoma and to Approve a Performance-Based Rate Proposal (2021) – (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 202100055

30. Versant Power f/k/a Emera Maine, Proposed Increase in Distribution Rates (2021) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 2020-00316

31. In the Matter of the Verified Petition of Atlantic City Electric Company for Approval of Amendments to its Tariff to Provide for an Increase in Rates and Charges for Electric

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Service Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1, and for Other Appropriate Relief (2021) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)

New Jersey Board of Public Utilities Docket No. ER201020746

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32. In the Matter of the Petition of Elizabethtown Gas Company to Issue Long-Term Debt and Security Therefor and for Authority to Issue and Sell Short-Term Indebtedness, all through December 31, 2023 (2021) – (Appearance: debt issuance petition on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. GF20120749

33. Northern States Power Minnesota 2021 Electric Rate Increase Application (2021) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the North Dakota Public Service Commission Staff)
    ND Public Service Commission Case No. PU-20-441

34. Pike County Light & Power Company 2020 General Base Rate Increase (2020) – (Appearance: Cost of Capital on behalf of the Pennsylvania Office of Consumer Advocate)
    Pennsylvania Public Utility Commission – Docket Nos. R-2020-3022134 (Gas) and R-2020-3022135 (Electric)

35. Water Rate Case Consultant for the Maine Public Advocate (2020) – (Appearance: cost of capital on behalf of the Maine Office of Public Advocate in selected cases)
    Maine Public Utilities Commission Docket No. 2021-00053

36. In the Matter of the Petition of South Jersey Gas Company for Approval of Increased Base Tariff Rates and Charges for Gas Service, Changes to Depreciation Rates and Other Tariff Revisions (2020) – (Appearance: cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. GR20030243

37. In the Matter of the Verified Petition of Jersey Central Power & Light Company for Review and Approval of Increases in, and Other Adjustments to, its Rates and Charges for Electric Service, and for Approval of Other Proposed Tariff Revisions in Connection Therewith (2020) – (Appearance: cost of equity on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. ER20020146

38. In the Matter of the Federal Power Act Rule 206 Complaint Against Public Service Electric and Gas Company (2020) – (Appearance: cost of equity on behalf of the New Jersey Division of Rate Counsel)
    Federal Energy Regulatory Commission Docket No. ER09-1257-000

39. In the Matter of the Petition of New Jersey-American Water Company for Approval of Increase Base Tariff Rates and Charges for Water and Wastewater Service and Other Tariff Changes (2019) – (Appearance: cost of equity on behalf of the New Jersey Division of Rate Counsel)

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New Jersey Board of Public Utilities Docket No. WR19121516

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40. In the Matter of the Petition of Jersey Central Power & Light Company for Approval of Its Transmission Rates and Transmission Enhancement Charge for Interconnection with PJM Interconnection, L.L.C. (2019) – (Appearance: cost of equity on behalf of the New Jersey Division of Rate Counsel)
    Federal Energy Regulatory Commission Docket No. ER20-227-000

41. Request for Approval of Rate Change, Northern Utilities, Inc. (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
    Maine Public Utilities Commission Docket No. 2019-00092

42. Application of San Diego Gas & Electric Company (U902M) for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Adjust its Authorized Capital Structure; (iv) Modify its Adopted Cost of Capital Mechanism Structure, and (v) Revise its Electric Distribution and Gas Rates Accordingly, and for Related Substantive and Procedural Relief (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Utility Consumers' Action Network)
    California Public Utilities Commission Proceeding A.19-04-017

43. In the Matter of the Application of the Empire District Electric Company, a Kansas Corporation, for an Adjustment in its Rates and Charges for Electric Service in the State of Oklahoma (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 201800133

44. In the Matter of the Petition of New Jersey Natural Gas Company for Approval of an Increase in Gas Base Rates and for Changes in its Tariff for Gas Service, Pursuant to **N.J.S.A. 48:2-21** and **48:2-21.1** and for Changes to Depreciation Rates for Gas Property Pursuant to **N.J.S.A. 48:2-18** (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. GR19030420

45. In the Matter of the Petition of Pivotal Utility Holdings d/b/a Elizabethtown Gas Company to Implement an Infrastructure Investment Program (IIP) and Associated Recovery Mechanism (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. GR18011197

46. Commission-Initiated Investigation into Rates and Revenue Requirements Pertaining to Emera Maine, Inc. (2019) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)

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Maine Public Utilities Commission Docket No. 2019-00019

47. In the Matter of Petition of Aqua New Jersey, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. WR18121351

48. Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in the State of Oklahoma (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 201800140

49. Commission-Initiated Investigation into Rates and Revenue Requirements Pertaining to Central Maine Power Company (2018) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
    Maine Public Utilities Commission Docket No. 2018-00194

50. Application of Public Service Company of Oklahoma, An Oklahoma Corporation, for An Adjustment in Its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service in the State of Oklahoma and to Approve a Performance-Based Rate Proposal (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 201800097

51. In Re: The Matter of the Application of Maryland American Water Co. for Authority to Increase Rates and Charges (2018) – (Appearance: Cost of capital on behalf of the Maryland Office of the People's Counsel)
    Maryland Public Service Commission – Case No. 9487

52. In the Matter of Petition of Atlantic City Electric Co. for Approval of Amendments to Its Tariff to Provide for an Increase in Rates and Charges for Electric Service and for Other Appropriate Relief (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. ER18060638

53. In the Matter of Petition of SUEZ Water New Jersey, Inc. for Approval of an Increase in Rates for Water/Sewer Service and Other Tariff Changes (2018) - (Appearance: return on equity, cost of capital on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. WR18050593

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54. In Re: The Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2018) – (Appearance: Cost of capital on behalf of the Maryland Office of the People's Counsel)
    Maryland Public Service Commission – Case No. 9480

55. In Re: The Matter of the Columbia Gas of Pennsylvania for a General Rate Increase in Distribution Gas Service (2018) – (Appearance: Cost of Capital on behalf of the Pennsylvania Office of Consumer Advocate)
    Pennsylvania Public Utility Commission – Docket No. R-2018-2647577

56. In the Matter of the Application of Black Hills Energy Arkansas, Inc. for Approval of a General Tariff Change in Rates and Tariffs (2018) – (Appearance: return on equity, cost of capital on behalf of the Office of the Arkansas Attorney General)
    Arkansas Public Service Commission Docket 17-071-U

57. In the Matter of the Petition of Atlantic City Electric Company for Approval of an Infrastructure Investment Program and Related Cost Recovery Mechanism (2018) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. EO18020196

58. In the Matter of the Application of Oklahoma Gas and Electric Company for an Order of the Commission Authorizing Applicant to Modify Its Rates, Charges, and Tariffs for Retail Electric Service in Oklahoma (2018) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
    Oklahoma Commerce Commission Cause No. PUD 201700496

59. Application of Fayson Lake Water Company for the Approval of an Increase in Rates and Other Appropriate Relief (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. WR17101041

60. Petition of Middlesex Water Company for Approval of an Increase in its Rates for Water Service and Other Tariff Changes, and an Order Authorizing Special Accounting Treatment of Income Tax Refund Proceeds and Future Income Tax Deductions (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
    New Jersey Board of Public Utilities Docket No. WR17101049

61. In the Matter of the Petition of New Jersey-American Water Company, Inc. for Approval of an Increased Tariff Rates and Charges for Water and Sewer Service, Change in Depreciation Rates, and Other Tariff Modifications (2017) – (Appearance: cost of equity,

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cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17090985

62. Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-17-295

63. In the Matter of the Petition of Andover Utility Company, Inc. for Approval of an Increase in Rates for Wastewater Service (2017) – (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR17070726

64. Application of Public Service Company of Oklahoma, An Oklahoma Corporation, for An Adjustment in Its Rates and Charges and the Electric Service Rules, Regulations and Conditions for Service in the State of Oklahoma (2017) - (Appearance: return on equity, cost of capital on behalf of the Office of the Oklahoma Attorney General)
Oklahoma Commerce Commission Cause No. PUD 201700151

65. In the Matter of the Petition of SUEZ Water Arlington Hills, Inc. for Approval of an Increase in Rates for Wastewater Service and Other Tariffs (2016) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16060510

66. In the Matter of Request by Emera Maine for Approval of a Rate Change (2016) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Maine Office of the Public Advocate)
Maine Public Utilities Commission Docket No. 15-00360

67. ENMAX Energy Corporation (EEC) Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Analysis: cost of capital, risk element identification on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480

68. Pennsylvania Public Utilities Commission vs. West Penn Power Co., Pennsylvania Electric Co., Pennsylvania Power Co., and Metropolitan Edison Co. (2014-2015) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return behalf of the Office of the Pennsylvania Consumer Advocate)
PA Docket Nos. R-2014-2428742-R-2014-2428745

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69. In the Matter of the Application of Minnesota Energy Resources Corporation for Authority to Increase Rates for Natural Gas Service in Minnesota (2010-2012) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G007,011/GR-10-977

70. In the Matter of the Application of Otter Tail Power Company for Authority to Increase Rates for Electric Utility Service in Minnesota (2010-2011) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. E017/GR-10-239

71. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation, for Authority to Increase Rates for Natural Gas Service in Minnesota (2009-2010) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G002/GR-09-1153

72. In the Matter of an Application by CenterPoint Energy Resources Corp., D/B/A CenterPoint Minnesota Gas to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G008/GR-08-1075

73. In the Matter of Minnesota Energy Resources Corporation's Application for Authority to Increase Natural Gas Rates in Minnesota (2008-2009) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G007,011/GR-08-835

74. In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation and Wholly Owned Subsidiary of Xcel Energy Inc., for Authority to Increase Rates for Natural Gas Service in Minnesota (2006-2007) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G002/GR-06-1429

75. In the Matter of the Application of CenterPoint Energy Resources Corp., D/B/A CenterPoint Energy Minnesota Gas, for Authority to Increase Natural Gas Rates in Minnesota (2005-2006) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G008/GR-05-1380

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76. In the Matter of a Petition by Interstate Power and Light Company for Authority to Increase Electric Rates in Minnesota (2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. E001/GR-05-748

77. In the Matter of the Petition of Northern States Power Company dba Xcel Energy Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G002/GR-04-1511

78. In the Matter of the Petition of Great Plains Natural Gas Company's Request for General Rate Increase (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    MN Docket No. G004/GR-04-1487

79. In the Matter of the Petition of CenterPoint Energy Minnegasco, A Division of CenterPoint Resources Corp. for Authority to Increase Natural Gas Rates in Minnesota (2004-2005) - (Appearance: cost of equity, cost of debt, capital structure, overall rate of return on behalf of the Minnesota Department of Commerce)
    Docket No. G008/GR-04-901

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Advance Prudence/Certificates of Need

80. In the Matter of the Application Northern States Power Company for an Advance Determination of Prudence for the Big Stone South – Alexandria – Big Oaks 345 kV Transmission Line Project (2023) – (Appearance: Need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
    North Dakota Public Service Commission Docket No. PU-23-329

81. In the Matter of the Application Northern States Power Company for an Advance Determination of Prudence for the Proposed 345 kV Brookings County – Lyon County and Helena – Hampton Second-Circuit Project (2023) – (Appearance: Need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
    North Dakota Public Service Commission Docket No. PU-23-295

82. In the Matter of the Application Northern States Power Company for an Advance Determination of Prudence for the Lyon County to Sherburne County 345 kV Transmission Line (2023) – (Appearance: Need, necessity and conformance with North Dakota Statutes and Regulation on behalf of the North Dakota Public Service Commission Advocacy Staff)
    North Dakota Public Service Commission Docket No. PU-23-142

83. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
    MA Department of Public Utilities Docket No. D.P.U. 17-GREC-06

84. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
    MA Department of Public Utilities Docket No. D.P.U. 17-GREC-05

85. In re: Northern Illinois Gas Company d/b/a Nicor Gas Company Proposed General Increase in Gas Rates (2017) – (Appearance: prudence/used and useful and plant accounting on behalf of the Citizens Utility Board of Illinois)
    IL Commerce Commission Docket No. 17-0124

86. In re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and

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Assistance to Counsel: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-01

87. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Assistance to Counsel: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-05

88. In re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Analysis and Advice to Counsel: forecasting and cost/benefit on behalf of the New Hampshire Office of Consumer Advocate)
NH Public Utilities Commission Docket No. DE 16-241

89. In the Matter of the Application of Enbridge Energy, Limited Partnership and Enbridge Pipelines (Southern Lights) LLC for a Certificate of Need for the Alberta Clipper and Southern Lights Diluent Pipeline Projects (2007-2008) - (Case Manager: economic impact, public interest and impact on society, advice to counsel, assist on brief on behalf of the Minnesota Department of Commerce)
MN Docket No. PL-9/CN-07-465

90. In the Matter of the Application of Enbridge Energy (Southern Lights) LLC for a Certificate of Need for a Crude Oil Pipeline for the Southern Lights Project (2007-2008) - (Case Manager: economic impact, public interest and impact on society, advice to counsel, assist on brief on behalf of the Minnesota Department of Commerce)
MN Docket No. PL-9/CN-07-464

91. In the Matter of the Application of Minnesota Pipeline Company for a Certificate of Need for a Crude Oil Pipeline (2006-2007) - (Appearance: economic impact on behalf of the Minnesota Department of Commerce)
MN Docket No. PL-5/CN-06-02

92. In the Matter of the Petition of Northern States Power Company dba Xcel Energy dba Xcel Energy Certificate Need to Establish an Independent Spent Fuel Storage Installation at the Monticello Generating Plant (2005-2006) - (Appearance: license renewal, economic impact on behalf of the Minnesota Department of Commerce)
MN Docket No. E002/CN-05-123

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93. In the Matter of a Certificate of Need Application for Great River Energy's Cambridge Station (2005) - (Appearance: economic impact on behalf of the Minnesota Department of Commerce)
    MN Docket No. ET2/CN-05-347

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Mergers

94. In. re: The Merger of the Southern Company and AGL Resources Inc. - Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Utility Holdings, Inc., d/b/a Elkton Gas (2015-2016) - (Analysis: cost of capital, credit ratings, affiliate relationships on behalf of the Maryland Office of People's Counsel)
    MD Public Service Commission Case No. 9404

95. In the Matter of a Request of Great Plains Natural Gas Co. for the Approval of the Acquisition by MDU Resources Group, Inc., of Intermountain Gas Company (2008) (Appearance: rule variance, sharing savings, regulatory authority, cost of capital on behalf of the Minnesota Department of Commerce)
    MN Docket No. G004/PA-08-813

96. In the Matter of a Request for the Approval of the Acquisition by MDU Resources Group, Inc., and Its Division, Great Plains Natural Gas Co., of Cascade Natural Gas Corporation (2006-2007) (Appearance: sharing savings, regulatory authority, cost of capital on behalf of the Minnesota Department of Commerce)
    MN Docket No. G004/PA-06-1585

Regulatory Projects and Appearances

97. Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid: Storm Cost Recovery for Fourteen 2020 Qualifying Events (2022) (Appearance: prudence/used and useful on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
    Massachusetts Department of Public Utilities – Docket No. D.P.U. 22-43

98. In Re: Township of East Brunswick – Sewer Rate Study – (2017) - (Evaluation of the existing sewer rate structure and examining and quantify costs for future expansion).

99. In re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (Appearance: productivity adjustments/performance based ratemaking on behalf of the Alberta Utilities Consumer Advocate)
    Alberta Utilities Commission Proceeding 20414

100. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015-2016) - (Analysis: gas-supply model review, forecasting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
    MA D.P.U. 15-130

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101. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Gaz Metro LNG, L.P.; and National Grid LNG (2015-2016) - (Analysis: gas-supply model review, forecasting, large customer loss and retention on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA D.P.U. 15-129

Rate Design

102. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9443

103. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Analysis and Assistance to Counsel: cost of service and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9424

104. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Analysis and Assistance to Counsel: cost of service and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9418

105. In the Matter of Otter Tail Corporation dba Otter Tail Power Company's Application for Authority to Increase Rates for Electric Service in Minnesota (2007-2008) - (Appearance: rate design, revenue requirement on behalf of the Minnesota Department of Commerce)
MN Docket No. E017/GR-07-1178

Capital Structure

106. In the Matter of the Petition of Greater Minnesota Gas Inc. for Approval of 2011 Capital Structure Petition and Permission to Issue Securities (2011) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. G022/S-11-535

107. In the Matter of the Petition of Otter Tail Power Company for Approval of 2011 Capital Structure and Permission to Issue Securities (2011) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/S-11-392

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108. The Petition of Otter Tail Power Company for Approval of 2010 Capital Structure and Permission to Issue Securities (2010) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. E017/S-10-292

109. In the Matter of the Greater Minnesota Gas Inc.'s Capital Structure Petition and Compliance with Financial Integrity Order (2010) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. G022/S-10-281

110. Interstate Power and Light Company's petition for approval of its proposed capital structure (2009) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G001/S-09-607

111. A petition of Interstate Power and Light Company for approval of its proposed capital structure (2008) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G001/S-08-540

112. In the Matter of the Annual Capital Structure Filing of Minnesota Energy Resources Corporation (2008) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/SA-08-329

113. In the Matter of the Annual Capital Structure Filing of Minnesota Energy Resources Corporation (2007) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
Docket No. G007,011/S-07-352

114. In the Matter of the Annual Capital Structure Filing of Minnesota Energy Resources Corporation (2006-2007) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/S-06-1013

115. Northern States Power Company's request for approval of its 2006 Capital Structure Prior to Issuing Securities (2005) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G002/S-05-1583

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116. A petition of Interstate Power and Light Company for approval of its proposed capital structure for calendar year 2005, ending March 31, 2006 (2005) - (Appearance: capital structure on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G001/S-05-151

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Affiliated Interest

117. Petition of Greater Minnesota Gas, Inc. for Approval of an Affiliated Interest Agreement (2010-2011) - (Appearance: analysis of affiliated interests of closely held company, some owners also suppliers on behalf of the Minnesota Department of Commerce)
MN Docket No. G022/AI-10-1160

118. In the Matter of the Petition of Minnesota Energy Resources Corporation for Approval of Affiliated Interest Agreement (2010-2013) - (Appearance: analysis of affiliated interests agreement post-merger on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/AI-10-783

119. In the Matter of the Annual Capital Structure Filing of Minnesota Energy Resources Corporation and Request for Approval of Affiliated Interest Agreement (2009-2010) - (Appearance: capital structure, affiliated interest lending on behalf of the Minnesota Department of Commerce)
MN Docket No. G007,011/SAI-09-1108

120. Petition for Approval of a Lending Agreement Between Interstate Power and Light Company and Alliant Energy Corporation Pursuant to Section 216B.48 of the Minnesota Statutes and Minnesota Rule 7825.2200 (2008-2009) - (Appearance: intercompany lending on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G001/AI-08-1323

121. A Petition for Approval of Affiliated Services Agreement Between Interstate Power and Light Company and RMT, Inc. Pursuant to Section 216.48 of the Minnesota Statutes and Minnesota Rule 7825.2200 (2007-2008) - (Appearance: affiliated interests, engineering services on behalf of the Minnesota Department of Commerce)
MN Docket No. E,G001/AI-07-941

Depreciation

122. Otter Tail Power Company's Request for Approval of its Five-Year Depreciation Study (2008-2009) - (Appearance: depreciation analysis on behalf of the Minnesota Department of Commerce)
MN Docket No. E017/D-08-1042

123. In the Matter of the Petition of Great Plains Natural Gas Company's Request for Approval of its Five-Year Depreciation Study for 2007 (2007-2008) - (Appearance: depreciation analysis on behalf of the Minnesota Department of Commerce)
MN Docket No. G004/D-07-740

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124. In the Matter of the Petition of Great Plains Natural Gas Company's Request for Approval of its Proposed Remaining Lives, Salvage Rates, and Resulting Depreciation Rates (2006-2007) - (Appearance: depreciation analysis on behalf of the Minnesota Department of Commerce)
    MN Docket No. G004/D-06-700

Telecommunications

125. In the Matter of the Petition of Great Plains Communications, Inc. for Arbitration to Resolve Issues Relating to an Interconnection Agreement with WWC License L.L.C. (2003) – (Arbitrator: arbitrated interconnection agreement disputes on behalf of the Nebraska Public Service Commission)
    NE Application No. C-2872

126. In the Matter of the Analysis of Qwest Corporation's Compliance with Section 271(c) of the Telecommunications Act of 1999 (1999-2002) – (Appearances: evaluation of Qwest Corporation's opening its operational support systems (OSS) to competitive local exchange carriers on behalf of the Nebraska Public Service Commission, New Mexico Public Regulation Commission Advocacy Staff, and South Dakota Public Utilities Commission Staff)
    NE Application No. C-1830, NM Case No. 3269, SD Docket No. TC01-165

S&P Capital IQ PRO

Montana-Dakota Utilities Co. | Credit Ratings

(MI KEY: 4293161; SPCIQ KEY: 7888637)

Agency S&P Global Ratings

BBB+

S&P Global Ratings

Issuer Credit Rating (Foreign Currency LT)
6/10/2021

CreditWatch/Outlook: Negative
11/8/2023

Current Ratings

S&P GLOBAL RATINGS (S&P Entity Name:Montana-Dakota Utilities Co.)

RATING TYPE	RATING	RATING DATE	LAST REVIEW DATE	PREVIOUS RATING	ACTION	CREDITWATCH/ OUTLOOK	CREDITWATCH/ OUTLOOK DATE
Issuer Credit Rating							
Foreign Currency LT	BBB+	6/10/2021	11/8/2023	BBB+	CreditWatch/Outlook	Negative	11/8/2023
Local Currency LT	BBB+	6/10/2021	11/8/2023	BBB+	CreditWatch/Outlook	Negative	11/8/2023
Foreign Currency ST	A-2	1/8/2019	11/8/2023	New	New Rating		
Local Currency ST	A-2	1/8/2019	11/8/2023	New	New Rating		

Ratings History

S&P GLOBAL RATINGS (S&P Entity Name:Montana-Dakota Utilities Co.)

RATING TYPE	RATING	RATING DATE	ACTION	CREDITWATCH/ OUTLOOK	CREDITWATCH/ OUTLOOK DATE
Foreign Currency LT					
Issuer Credit Rating	BBB+	6/10/2021	CreditWatch/Outlook	Negative	11/8/2023
Issuer Credit Rating	BBB+	6/10/2021	CreditWatch/Outlook	Developing	11/10/2022
Issuer Credit Rating	BBB+	6/10/2021	Downgrade | CreditWatch/Outlook	Stable	6/10/2021
Issuer Credit Rating	A-	1/8/2019	CreditWatch/Outlook	Negative	3/30/2020
Issuer Credit Rating	A-	1/8/2019	New Rating | CreditWatch/Outlook	Stable	1/8/2019
Issuer Credit Rating	NR	10/30/2013	Not Rated | CreditWatch/Outlook	NR	10/30/2013
Issuer Credit Rating	BBB+	2/28/2006	Downgrade | CreditWatch/Outlook	Stable	2/28/2006
Issuer Credit Rating	A-	1/8/2003	Downgrade | CreditWatch/Outlook	Negative	1/8/2003

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-3**
Value Line Investment Survey Natural Gas Utility Industry
Value Line Website July 18, 2024

Company	Ticker	Exchange where Publicly Traded
Adams Resources & Energy	AE	AMS
Atmos Energy	ATO	NYS
Chesapeake Utilities	CPK	NYS
New Jersey Resources	NJR	NYS
NiSource Inc.	NI	NYS
Northwest Natural	NWN	NYS
ONE Gas, Inc.	OGS	NYS
RGC Resources Inc	RGCO	NDQ
Southwest Gas Holdings	SWX	NYS
Spire Inc.	SR	NYS
Star Group L.P.	SGU	NYS
UGI Corp.	UGI	NYS

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-4**
Value Line Natural Gas Utilities
***S&P Capital IQ Pro* Database, July 18, 2024**

Company	Exchange	U.S.-Based	Merger or Acquisition/Sale	S&P Credit Rating BBB- or better	Paying Dividends	Postive EPS Growth Rates
Adams Resources & Energy	AMS	Yes	No	**None**	Yes	Yes
Atmos Energy	NYS	Yes	No	A-	Yes	Yes
Chesapeake Utilities*	NYS	Yes	No	2A, 2B	Yes	Yes
New Jersey Resources**	NYS	Yes	No	A1	Yes	Yes
NiSource Inc.	NYS	Yes	No	BBB+	Yes	Yes
Northwest Natural Holding Co.	NYS	Yes	No	A	Yes	Yes
ONE Gas, Inc.	NYS	Yes	No	A-	Yes	Yes
RGC Resources Inc.	NDQ	Yes	No	**None**	Yes	**No**
Southwest Gas Holdings***	NYS	Yes	No	BBB-	Yes	Yes
Spire Inc.	NYS	Yes	No	BBB+	Yes	Yes
Star Group L.P.	NYS	Yes	No	**None**	Yes	NA
UGI Corp.	NYS	Yes	No	**None**	Yes	Yes
Montana-Dakota Utilities		Yes	No	BBB+		

*-National Association of Insurance Commissioners rating. "2A" is equivalent to a BBB+ rating and "2B" is equivalent to a BBB rating from Standard & Poor's.

**-The rating for New Jersey Resources is the Moody's rating for New New Jersey Natural Gas (NJNG), a New Jersey Resources (NJR) subsidiary. NJNG issues its own bonds. NJR does not issue bonds. Standard & Poor's (S&P) currently has No Rating for NJNG, but Moody's A1 is equivalent to an S&P rating of A+.

***-Southwest Gas Holdings recently completed its first public offering of common equity shares in the Centuri Group, the infrastructure services company it is spinning off. This step signifies that the transaction is on track and investors can build it into their assessments of Southwest Gas Holdings with confidence. Therefore, Southwest Gas Holdings stock price will not be volatile due to the spin-off allowing it to be considered for the Comparison Group.

Indicates not passing a screen

NEWS DETAILS

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Centuri Announces Closing of Initial Public Offering

April 22, 2024

PHOENIX--(BUSINESS WIRE)-- Centuri Holdings, Inc. (NYSE: CTRI) ("Centuri"), a leading, pure-play North American utility infrastructure services company, today announced the closing of its initial public offering ("IPO") of 14,260,000 shares of its common stock at a price to the public of $21.00 per share, including the underwriters' full exercise of their option to purchase 1,860,000 shares to cover over-allotments. Shares of Centuri's common stock began trading on the New York Stock Exchange under the symbol "CTRI" on April 18, 2024.

As previously announced, in addition to the shares of Centuri's common stock sold in the IPO, Icahn Partners LP and Icahn Partners Master Fund LP, investment entities affiliated with Carl C. Icahn, purchased 2,591,929 shares of Centuri's common stock in a concurrent private placement at a price per share equal to the IPO price. The sale of these shares was not registered under the Securities Act of 1933, as amended (the "Securities Act").

UBS Investment Bank, BofA Securities and J.P. Morgan acted as joint lead book-running managers for the IPO. Wells Fargo Securities acted as a book-running manager for the IPO. Baird, KeyBanc Capital Markets and Siebert Williams Shank acted as co-managers for the IPO.

The offering was made only by means of a prospectus. A registration statement on Form S-1 relating to the offering was filed with, and declared effective, by the U.S. Securities and Exchange Commission (the "SEC"). Copies of the prospectus related to the offering may be obtained from the SEC at www.sec.gov, and from: UBS Securities LLC, Attn: Prospectus Department, 1285 Avenue of the Americas, New York, NY 10019 or email: ol-prospectusrequest@ubs.com; BofA Securities, Attention: Prospectus Department, NC1-022-02-25, 201 North Tryon Street, Charlotte, North Carolina 28255-0001 or by email at dg.prospectus_requests@bofa.com; or J.P. Morgan Securities LLC, Attention: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, by telephone at 866-803-9204 or by email at prospectus-eq_fi@jpmorganchase.com.

This press release does not constitute an offer to sell or the solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction. Any offers, solicitations or offers to buy, or any sales of securities will be made in accordance with the registration requirements of the Securities Act of 1933, as amended.

SOUTHWEST GAS NYSE-SWX

RECENT PRICE **75.84** | P/E RATIO **23.0** (Trailing: 19.9 Median: 20.0) | RELATIVE P/E RATIO **1.26** | DIV'D YLD **3.3%** | **VALUE LINE**

TIMELINESS — Suspended 11/17/23
SAFETY **2** Raised 2/23/24
TECHNICAL — Suspended 11/17/23
BETA .90 (1.00 = Market)

18-Month Target Price Range

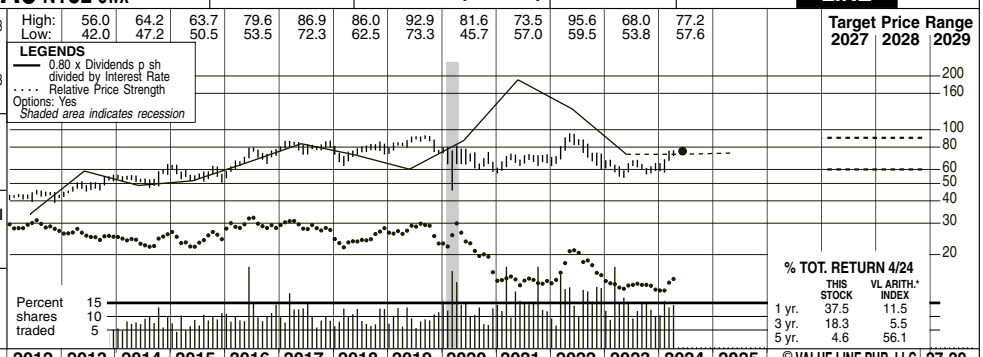
Low-High	Midpoint (% to Mid)
$62-$99	$81 (5%)

2027-29 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(+20%)	*7%*
Low	60	(-20%)	*-2%*

Institutional Decisions

	2Q2023	3Q2023	4Q2023
to Buy	138	103	130
to Sell	136	140	144
Hld's(000)	65230	64845	66489



% TOT. RETURN 4/24

	THIS STOCK	VL ARITH.* INDEX
1 yr.	37.5	11.5
3 yr.	18.3	5.5
5 yr.	4.6	56.1

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	© VALUE LINE PUB. LLC	27-29
48.53	42.00	40.18	41.07	41.77	42.08	45.61	52.00	51.82	53.00	54.31	56.72	57.68	60.91	73.90	76.22	*69.45*	*71.90*	Revenues per sh	*73.35*
5.76	6.16	6.46	6.81	7.73	8.24	8.47	8.62	9.29	8.83	8.14	9.40	9.87	9.46	3.91	8.29	*9.55*	*10.15*	"Cash Flow" per sh	*11.00*
1.39	1.94	2.27	2.43	2.86	3.11	3.01	2.92	3.18	3.62	3.68	3.94	4.14	3.39	d3.10	2.13	*3.30*	*3.90*	Earnings per sh A	*4.20*
.90	.95	1.00	1.06	1.18	1.32	1.46	1.62	1.80	1.98	2.08	2.18	2.28	2.38	2.48	2.48	*2.48*	*2.52*	Div'ds Decl'd per sh B■†	*2.60*
6.79	4.81	4.73	8.29	8.57	7.86	8.53	10.30	11.15	12.97	14.44	17.06	14.43	11.84	12.80	12.19	*12.50*	*12.50*	Cap'l Spending per sh	*14.50*
23.49	24.44	25.62	26.66	28.35	30.47	31.95	33.61	35.03	37.74	42.47	45.56	46.77	48.89	47.95	47.72	*53.95*	*54.35*	Book Value per sh	*57.35*
44.19	45.09	45.56	45.96	46.15	46.36	46.52	47.38	47.48	48.09	53.03	55.01	57.19	60.42	67.12	71.56	*72.00*	*73.00*	Common Shs Outst'g C	*75.00*
20.3	12.2	14.0	15.7	15.0	15.8	17.9	19.4	21.6	22.2	20.6	21.3	16.8	19.9	- -	29.1	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*18.0*
1.22	.81	.89	.98	.95	.89	.94	.98	1.13	1.12	1.11	1.13	.86	1.08	- -	1.68			Relative P/E Ratio	*.90*
3.2%	4.0%	3.2%	2.8%	2.8%	2.7%	2.7%	2.9%	2.6%	2.5%	2.7%	2.6%	3.3%	3.5%	3.2%	4.0%			Avg Ann'l Div'd Yield	*3.4%*
2121.7	2463.6	2460.5	2548.8	2880.0	3119.9	3298.9	3680.5	4960.0	5454.0	*5000*	*5250*	Revenues ($mill)	*5500*
141.1	138.3	152.0	173.8	182.3	213.9	232.3	200.8	d203.3	150.9	*240*	*285*	Net Profit ($mill)	*315*
35.7%	36.4%	33.9%	32.8%	25.3%	20.5%	21.6%	16.1%	NMF	21.2%	*21.0%*	*21.0%*	Income Tax Rate	*21.0%*
6.7%	5.6%	6.2%	6.8%	6.3%	6.9%	7.0%	5.5%	NMF	2.8%	*4.8%*	*5.4%*	Net Profit Margin	*5.7%*
52.4%	49.3%	48.2%	49.8%	48.3%	47.9%	50.5%	58.2%	57.8%	57.4%	*58.0%*	*58.0%*	Long-Term Debt Ratio	*57.0%*
47.6%	50.7%	51.8%	50.2%	51.7%	52.1%	49.5%	41.8%	42.2%	42.6%	*42.0%*	*42.0%*	Common Equity Ratio	*43.0%*
3123.9	3143.5	3213.5	3613.3	4359.3	4806.4	5407.2	7069.5	7621.4	8024.5	*9250*	*9450*	Total Capital ($mill)	*10000*
3658.4	3891.1	4132.0	4523.7	5093.2	5685.2	6176.1	7594.0	7024.5	7518.2	*7550*	*7750*	Net Plant ($mill)	*8000*
5.7%	5.5%	5.8%	5.8%	5.2%	5.4%	5.3%	3.5%	NMF	1.9%	*2.5%*	*3.0%*	Return on Total Cap'l	*3.0%*
9.5%	8.7%	9.1%	9.6%	8.1%	8.5%	8.7%	6.8%	NMF	4.4%	*6.0%*	*7.0%*	Return on Shr. Equity	*7.5%*
9.5%	8.7%	9.1%	9.6%	8.1%	8.5%	8.7%	6.8%	NMF	4.4%	*6.0%*	*7.0%*	Return on Com Equity	*7.5%*
5.0%	4.0%	4.1%	4.5%	3.6%	3.9%	4.0%	2.1%	NMF	NMF	*1.5%*	*2.5%*	Retained to Com Eq	*3.0%*
47%	54%	55%	53%	55%	54%	54%	69%	NMF	116%	*75%*	*65%*	All Div'ds to Net Prof	*62%*

CAPITAL STRUCTURE as of 3/31/24
Total Debt $4748.8 mill. **Due in 5 Yrs** $1008 mill.
LT Debt $4649.0 mill. **LT Interest** $275 mill.
(Total interest coverage: 1.45x) (54% of Cap'l)

Leases, Uncapitalized Annual rentals $24.9 mill.
Pension Assets-12/23 $1202.0 mill.
Oblig. $1352.2 mill.

Pfd Stock None

Common Stock 71,669,140 shs.
as of 4/26/24

MARKET CAP: $5.4 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2022	2023	3/31/24
Cash Assets	123.1	106.5	104.9
Other	3584.6	1774.6	1893.6
Current Assets	3707.7	1881.1	1998.5
Accts Payable	662.1	346.9	255.3
Debt Due	1587.4	671.1	99.8
Other	1173.5	666.8	697.4
Current Liab.	1173.5	1684.8	1052.5
Fix. Chg. Cov.	265%	145%	220%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '21-'23 to '27-'29
Revenues	3.5%	3.0%	*6.0%*
"Cash Flow"	4.0%	1.5%	*8.5%*
Earnings	5.5%	4.5%	*10.0%*
Dividends	8.5%	7.0%	*5.5%*
Book Value	6.5%	7.0%	*7.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2021	885.9	821.4	888.7	1084.5	3680.5
2022	1267.4	1146.1	1125.6	1420.9	4960.0
2023	1603.3	1293.6	1169.5	1387.6	5454.0
2024	1581.0	*1000*	*1220*	*1199*	*5000*
2025	*1225*	*1275*	*1350*	*1400*	*5250*

Calendar	EARNINGS PER SHARE A D Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2021	2.03	.43	d.19	1.15	3.39
2022	1.58	d.10	d.18	d4.18	d3.10
2023	.67	.40	.04	1.02	2.13
2024	1.22	*.55*	*.20*	*1.33*	*3.30*
2025	*1.75*	*.65*	*.15*	*1.35*	*3.90*

Calendar	QUARTERLY DIVIDENDS PAID B■† Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2020	.545	.570	.570	.570	2.26
2021	.570	.595	.595	.595	2.36
2022	.595	.62	.62	.62	2.46
2023	.62	.62	.62	.62	2.48
2024	.62				

BUSINESS: Southwest Gas Holdings, Inc. is the parent holding company of Southwest Gas. Centuri Group spun-off 4/22/24. Southwest Gas is a regulated gas distributor serving 2.2 million customers in Arizona, Nevada, and California. 2023 margin mix: residential 68%; small commercial, 20%; large commercial and industrial, 8%; transportation, 4%. Total throughput: 2.2 billion therms. Southwest has 2,371 employees; Centuri 12,572. Off. & dir. own .4% of common stock; Carl C. Icahn, 15.4%; BlackRock, 13.0%; The Vanguard Group, 10.1%; (3/24 Proxy). Chairman: Michael J. Melarkey. Pres. & CEO: Karen S. Haller. Inc.: DE. Addr.: 8360 S. Durango Drive, P.O. Box 98510 Las Vegas, Nevada 89193. Telephone: 702-876-7237. Internet: www.swgas.com.

Despite missing our earnings targets, Southwest stock is up nearly 25% in price since our last review. The stock jumped significantly after the 2023 year-end earnings call when management provided insight as to the planned spin-off of the Centuri Group. Otherwise the company continued to struggle throughout the year due to higher costs and customer pushback on energy bills, though these operating results via comparisons is obscured by the significant charges from recent corporate restructuring.

The company successfully completed its initial public offering of the Centuri Group. The move, championed by activist investor Carl Icahn, aims to restore Southwest as a pure-play regulated natural gas utility. Centuri Group, the infrastructure services company, is now listed under the ticker CTRI. The stock debuted at $21 per share, a roughly $1.8 billion valuation, but quickly rose to around $25 each, where it has traded since. The company reported a $186 million loss on $2.9 billion in revenue in fiscal 2023. Southwest plans to use proceeds to reduce debt and improve cash flows.

Despite the ongoing devistiture, some catalysts should provide a near-term lift. Though Southwest is still offloading shares of the newly issued CTRI stock, operating margins reached a record in the first-quarter under the new corporate structure. Strong customer growth trends and regulatory approvals suggest a bright outlook compared with recent profit performances. Management expects a 20% to 25% increase in the authorized rate base by 2026, providing ample potential to our earnings targets late decade.

Sustainable profit growth may prove difficult in the long run. The company has been facing substantial backlash from customers for sharp increases in energy costs. While this in large part reflects commodity markets conditions, many customers are highly vocal about the company's perceived grifting which could lead to increased regulatory pressure down the line.

The stock has risen on recent developments and currently trades well within our three- to five-year target price range. The timeliness rank remains suspended pending business realignment.

Earl B. Humes *May 24, 2024*

(A) Diluted earnings. Excl. nonrec. gains (losses): '22, 10¢. Next egs. report due early August. **(B)** Dividends historically paid early March, June, September, and December.

■† Div'd reinvestment and stock purchase plan avail. **(C)** In millions.
(D) Totals may not sum due to rounding.

Company's Financial Strength	A
Stock's Price Stability	80
Price Growth Persistence	35
Earnings Predictability	10

S&P Global
Ratings

(/en_US/web/guest/home)

General Criteria: Understanding S&P Global Ratings' Rating Definitions

03-Jun-2009 14:39 EDT

View Analyst Contact Information

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(**Editor's Note:** We're republishing this article following our periodic review completed on Feb. 23, 2018. See the "Revisions And Updates" section for details.)

Executive Summary

S&P Global Ratings' credit ratings are designed primarily to provide relative rankings among issuers and obligations of overall creditworthiness; the ratings are not measures of absolute default probability. Creditworthiness encompasses likelihood of default, and also includes (i) payment priority, (ii) recovery, and (iii) credit stability.

In addition, our rating symbols are intended to connote the same general level of creditworthiness for issuers and bonds in different sectors and at different times. In order to promote the comparability of ratings across sectors, geographies, and over time, we are introducing stress scenarios associated with each rating category. These stress scenarios will be an important tool for calibrating our criteria to help maintain comparability. The scenarios will not become part of the rating definitions. Nor will they be the sole or primary drivers of our criteria.

S&P Global Ratings is committed to taking action to help restore confidence in ratings. As one example, over the past year, we have launched a number of initiatives designed to foster greater transparency in our analytics and processes. These initiatives have included publishing "what-if" scenario analyses discussing factors that could cause ratings to change, more

explicit discussions of the assumptions we used in forming our opinions, and changes we have made to our rating criteria for several asset classes resulting from macroeconomic developments and ongoing performance data.

By providing more information and data about ratings, we can help market participants better understand how we develop our ratings and -- whether they agree or disagree with our assessment -- act accordingly.

This article is designed to help market participants better understand what our credit ratings mean. Although the official definitions appear outwardly to be very simple, they embody multiple factors that compose the overall assessment of creditworthiness.

S&P Global Ratings has striven to maintain comparability of ratings across sectors. This has been done by relating all ratings to common default behavior and measurement and by common approaches to risk analysis. In the spirit of promoting greater transparency, S&P Global Ratings is now articulating a set of economic stress scenarios enumerated in Appendix IV, which we intend to use as benchmarks for enhancing the consistency and comparability of ratings across sectors and over time. Each scenario describes particular conditions of economic stress, which we associate with a particular rating level, as described in the appendix. Credits rated in each category are intended to be able to withstand particular conditions of economic stress without defaulting (though they might be downgraded significantly as economic stresses increase).

This publication intends to promote greater understanding of ratings and help investors attribute clearer meanings to different rating categories.

Key Attributes Of S&P Global Ratings' Credit Ratings

Rank ordering of creditworthiness

Our credit ratings express forward-looking opinions about the creditworthiness of issuers and obligations (see Appendix I for a description of "issuer" and "issue" ratings). More specifically, our credit ratings express a relative ranking of creditworthiness. Issuers and obligations with higher ratings are judged by us to be more creditworthy than issuers and obligations with lower credit ratings. (See Appendix III for a relevant excerpt from the rating definitions.)

Creditworthiness is a multi-faceted phenomenon. Although there is no "formula" for combining the various facets, our credit ratings attempt to condense their combined effects into rating symbols along a simple, one-dimensional scale. Indeed, as discussed below, the relative importance of the various factors may change in different situations.

The term creditworthiness refers to the question of whether a bond or other financial instrument will be paid according to its contractual terms. At first blush, the idea of creditworthiness seems entirely straightforward. However, delving beneath the outward simplicity reveals the true multi-dimensional nature.

Primary factor -- likelihood of default

In our view, likelihood of default is the centerpiece of creditworthiness. That means likelihood of default--encompassing both capacity and willingness to pay--is the single most important factor in our assessment of the creditworthiness of an issuer or an obligation. Therefore, consistent with our goal of achieving a rank ordering of creditworthiness, higher ratings on issuers and obligations reflect our expectation that the rated issuer or obligation should default less frequently than issuers and obligations with lower ratings, all other things being equal.

Although we emphasize the rank ordering of default likelihood, we do not view the rating categories solely in relative terms. We associate each successively higher rating category with the ability to withstand successively more stressful economic environments, which we view as less likely to occur. We associate issuers and obligations rated in the highest categories with the ability to withstand extreme or severe stress in absolute terms without defaulting. Conversely, we associate issuers and obligations rated in lower categories with vulnerability to mild or modest stress. (See Appendix IV for stress scenarios by rating level that we intend to use in promoting ratings comparability. Appendix V contains a listing of historical examples of stress conditions, including the magnitude of stress that we associate with each.)

Looking to absolute stress levels is part of how we try to achieve comparability of ratings across different types of securities, different times, different currencies, and different regions. That is, we strive to make our rating symbols correspond to the same approximate level of creditworthiness wherever they appear. Thus, when we use a given rating

			Credit Rating Providers - Generic Rating Symbol Mapping (*) (Pursuant to the guidance in this Manual; particularly, Part One, "The Use of Credit Ratings of NRSROs in NAIC Processes," "Filing Exemptions," "Policies Applicable to Specific Asset Classes," and Part Three, "Procedure Applicable to Filing Exempt (FE) Securities and Private Letter (PL) Rating Securities")								
NAIC Designation	NAIC Designation Modifier	NAIC Designation Category	Moody's Investor's Service	Standard and Poor's	Fitch Ratings	Dominion Bond Rating Service	A.M. Best Company	Morningstar Credit Ratings, LLC	Kroll Bond Rating Agency	Egan Jones Rating Company	HR Ratings de Mexico, S.A. de C.V.
1	A	1.A	Aaa	AAA	AAApre, AAA	AAA, Pfd-1 (high)	aaa	AAA	AAA	AAA	HR AAA (G)
1	B	1.B	Aa1	AA+	AA+	AA (high), Pfd-1	aa+	AA+	AA+	AA+	HR AA+ (G)
1	C	1.C	Aa2	AA	AA	AA, Pfd-1 (low)	aa	AA	AA	AA	HR AA (G)
1	D	1.D	Aa3	AA-	AA-	AA (low), Pfd-1	aa-	AA-	AA-	AA-	HR AA- (G)
1	E	1.E	A1	A+	A+	A (high)	a+	A+	A+	A+	HR A+ (G)
1	F	1.F	A2	A	A	A	a	A	A	A	HR A (G)
1	G	1.G	A3	A-	A-	A (low)	a-	A-	A-	A-	HR A- (G)
2	A	2.A	Baa1	BBB+	BBB+	BBB (high), Pfd-2 (high)	bbb+	BBB+	BBB+	BBB+	HR BBB+ (G)
2	B	2.B	Baa2	BBB	BBB	BBB, Pfd-2	bbb+	BBB	BBB	BBB	HR BBB (G)
2	C	2.C	Baa3	BBB-	BBB-	BBB (low), Pfd-2 (low)	bbb-	BBB-	BBB-	BBB-	HR BBB- (G)
3	A	3.A	Ba1	BB+	BB+	BB (high), Pfd-3 (high)	bb+	BB+	BB+	BB+	HR BB+ (G)
3	B	3.B	Ba2	BB	BB	BB, Pfd-3	bb	BB	BB	BB	HR BB (G)
3	C	3.C	Ba3	BB-	BB-	BB (low), Pfd-3 (low)	bb-	BB-	BB-	BB-	HR BB- (G)
4	A	4.A	B1	B+	B+	B (high), Pfd-4 (high)	b+	B+	B+	B+	HR B+ (G)
4	B	4.B	B2	B	B	B, Pfd-4	b	B	B	B	HR B (G)
4	C	4.C	B3	B-	B-	B (low), Pfd-4 (low)	b-	B-	B-	B-	HR B- (G)
5	A	5.A	Caa1	CCC+	CCC+	CCC (high), Pfd-5 (high)	ccc+	CCC+	CCC+	CCC+	HR C+ (G)
5	B	5.B	Caa2	CCC	CCC	CCC, Pfd-5	ccc	CCC	CCC	CCC	HR C (G)
5	C	5.C	Caa3	CCC-	CCC-	CCC (low), Pfd-5 (low)	ccc-	CCC-	CCC-	CCC-	HR C- (G)
6		6	Ca	CC	CC	CC (high)	cc	CC	CC	CC	HR D (G)
6		6	C	C	C	CC	c	C	C	C	
6		6		D	DDD	CC (low)	d	D	D	D	
6		6			DD	C (high)					
6		6			D	C					
6		6				C (low)					
6		6				D					

S&P Capital IQ PRO

New Jersey Natural Gas Company | Credit Ratings

(MI KEY: 4061755; SPCIQ KEY: 4233224)

Agency All

NR

S&P Global Ratings

Issuer Credit Rating (Foreign Currency LT)
5/27/2019

Not Rated | CreditWatch/Outlook: NR
5/27/2019

A1

Moody's

Long Term Rating (Senior Secured Domestic)
3/18/2020

Current Ratings

S&P GLOBAL RATINGS (S&P Entity Name:New Jersey Natural Gas Co.)

RATING TYPE	RATING	RATING DATE	LAST REVIEW DATE	PREVIOUS RATING	ACTION	CREDITWATCH/ OUTLOOK	CREDITWATCH/ OUTLOOK DATE
Issuer Credit Rating							
Foreign Currency LT	NR	5/27/2019	5/27/2019	BBB+	Not Rated | CreditWatch/Outlook	NR	5/27/2019
Local Currency LT	NR	5/27/2019	5/27/2019	BBB+	Not Rated | CreditWatch/Outlook	NR	5/27/2019
Foreign Currency ST	NR	5/27/2019	5/27/2019	A-2	Not Rated		
Local Currency ST	NR	5/27/2019	5/27/2019	A-2	Not Rated		

MOODY'S

RATING TYPE	RATING	DATE	ACTION	OUTLOOK
Ratings Summary				
Long Term Rating (Senior Secured Domestic)	A1	3/18/2020	Downgrade	
Short Term Rating (Commercial Paper Domestic)	P-2	3/18/2020	Downgrade	
Outlook		3/18/2020		Stable
Ratings Detail				

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-9**
Natural Gas Distribution Company 10Ks
Operating Income unless noted otherwise

	Operating Income for Natural Gas Utilities (In thousands of dollars)										
	Regulated Natural Gas Unit			Company			Regulated Natural Gas as % of Company				
Name	**2023***	**2022**	**2021**	**2023***	**2022**	**2021**	**2023***	**2022**	**2021**	**3-Year Average**	**10K Sources**
Atmos Energy Corp.--Distribution Regulated	692,626	604,545	618,514	1,067,147	920,982	904,998	64.9%	65.6%	68.3%	66.3%	Pages 4, 26, 38
Chesapeake Utilities**	126,199	115,317	106,174	150,803	142,933	131,112	83.7%	80.7%	81.0%	81.8%	Page 34
Chesapeake Utilities--Net Income Electric**	3,727			87,212	89,796	83,466	4.3%				Pages 4, 57
Chesapeake Utilities--Operating Income Adjusted**	119,754	109,209	100,571	150,803	142,933	131,112	79.4%	76.4%	76.7%	77.5%	
New Jersey Resources Corporation	207,528	218,873	148,993	407,000	406,475	288,350	51.0%	53.8%	51.7%	52.2%	Pages 43, 69
NiSource	901,900	915,800	617,500	1,295,500	1,265,800	1,006,900	69.6%	72.3%	61.3%	67.8%	Pages 38, 40
Northwest Natural Gas Company	170,591	152,839	147,902	184,941	167,477	163,117	92.2%	91.3%	90.7%	91.4%	Pages 9, 79, 100
ONE Gas, Inc.	377,590	349,957	310,258	377,590	349,957	310,258	100.0%	100.0%	100.0%	100.0%	Pages 7, 42
Southwest Gas Holdings, Inc.***	358,294	307,685	318,492	418,330	-24,398	369,547	85.6%	-1261.1%	86.2%	85.9%	
Southwest Gas Holdings, Inc.***	187,135	154,380	187,135	431,027	-230,290	200,779	43.4%	-67.0%	93.2%	68.3%	Pages 4, 52, 57, 97, 98
Spire Inc.	350,800	339,900	374,000	418,600	408,200	450,200	83.8%	83.3%	83.1%	83.5%	Pages 4, 31

* - Atmos Enegy, New Jersey Resouces, and Spire, Inc. have fiscal years running from October 1 to September 30. The data for these companies is taken from their 10Ks from fiscal years ending in 2020, 2021, 2022. The remaining four companies have fiscal years running from January 1 to December 31. Data from these companies is also taken from their 10Ks for fiscal years ending in 2020, 2021, 2022.

** - Operating income. Chesapeake includes electricity distribution operating income.

** - Net income. Chesapeake electric as a percentage of company total.

** - Operating income adjusted. Electric distribution is 4.3 percent of Chesapeake net income. That percentage of company operating income is subtracted from regulated operating income for 2021-2023.

*** - Operating income. Southwest Gas Holdings, Inc. average is for 2021, 2023. Sale of pipeline in 2022 affected earnings negatively.

*** - Net income. Southwest Gas Holdings, Inc. average is for 2021, 2023. Sale of pipeline in 2022 affected earnings negatively.

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-10**
From Operating Income Analysis in Exhibit MFG-9

Company	Ticker	≥ 65 percent of operating income from regulated gas distribution operations (Companies' 2023 10Ks)
Atmos Energy Corporation	ATO	Yes
Chesapeake Utilities Corporation	CPK	Yes
New Jersey Resources	NJR	No
NiSource	NI	Yes
Northwest Natural Holding Company	NWN	Yes
ONE Gas, Inc.	OGS	Yes
Southwest Gas Holdings, Inc.	SWX	Yes
Spire Inc.	SR	Yes

Indicates not passing a screen

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-11**

Company	Ticker
Atmos Energy Corporation	ATO
Chesapeake Utilities	CPK
NiSource	NI
Northwest Natural Holding Company	NWN
ONE Gas, Inc.	OGS
Southwest Gas Holdings	SWX
Spire, Inc.	SR

Atmos Energy (ATO)		Chesapeake Utilities (CPK)		NiSource (NI)	
Date	**Close**	**Date**	**Close**	**Date**	**Close**
6/17/2024	$ 116.29	6/17/2024	$ 104.72	6/17/2024	$ 28.00
6/18/2024	$ 117.00	6/18/2024	$ 103.54	6/18/2024	$ 28.07
6/20/2024	$ 117.18	6/20/2024	$ 103.64	6/20/2024	$ 28.34
6/21/2024	$ 116.29	6/21/2024	$ 105.04	6/21/2024	$ 28.32
6/24/2024	$ 118.02	6/24/2024	$ 106.93	6/24/2024	$ 28.88
6/25/2024	$ 116.53	6/25/2024	$ 105.21	6/25/2024	$ 28.83
6/26/2024	$ 116.11	6/26/2024	$ 105.24	6/26/2024	$ 29.02
6/27/2024	$ 116.55	6/27/2024	$ 107.28	6/27/2024	$ 29.00
6/28/2024	$ 116.65	6/28/2024	$ 106.20	6/28/2024	$ 28.81
7/1/2024	$ 115.98	7/1/2024	$ 106.02	7/1/2024	$ 28.70
7/2/2024	$ 116.52	7/2/2024	$ 107.88	7/2/2024	$ 28.57
7/3/2024	$ 115.16	7/3/2024	$ 107.01	7/3/2024	$ 28.64
7/5/2024	$ 114.62	7/5/2024	$ 106.40	7/5/2024	$ 28.54
7/8/2024	$ 114.08	7/8/2024	$ 106.79	7/8/2024	$ 28.57
7/9/2024	$ 114.77	7/9/2024	$ 107.10	7/9/2024	$ 28.91
7/10/2024	$ 117.01	7/10/2024	$ 107.60	7/10/2024	$ 29.21
7/11/2024	$ 119.87	7/11/2024	$ 108.82	7/11/2024	$ 29.70
7/12/2024	$ 120.94	7/12/2024	$ 111.62	7/12/2024	$ 30.07
Mean	$ 116.64	Mean	$ 106.50	Mean	$ 28.79

Northwest Natural Gas (NWN)			ONE Gas, Inc. (OGS)			Southwest Gas Holdings (SWX)			Spire Inc. (SR)		
Date		**Close**	**Date**		**Close**	**Date**		**Close**	**Date**		**Close**
6/17/2024	$	35.45	6/17/2024	$	60.71	6/17/2024	$	73.54	6/17/2024	$	58.59
6/18/2024	$	35.02	6/18/2024	$	60.23	6/18/2024	$	74.24	6/18/2024	$	58.41
6/20/2024	$	35.21	6/20/2024	$	60.68	6/20/2024	$	74.23	6/20/2024	$	58.59
6/21/2024	$	34.95	6/21/2024	$	60.14	6/21/2024	$	73.54	6/21/2024	$	58.60
6/24/2024	$	35.39	6/24/2024	$	61.33	6/24/2024	$	74.77	6/24/2024	$	59.28
6/25/2024	$	35.23	6/25/2024	$	60.50	6/25/2024	$	73.73	6/25/2024	$	58.91
6/26/2024	$	35.34	6/26/2024	$	61.22	6/26/2024	$	73.83	6/26/2024	$	59.21
6/27/2024	$	35.68	6/27/2024	$	62.88	6/27/2024	$	72.40	6/27/2024	$	60.10
6/28/2024	$	36.11	6/28/2024	$	63.85	6/28/2024	$	70.38	6/28/2024	$	60.73
7/1/2024	$	35.73	7/1/2024	$	62.78	7/1/2024	$	69.25	7/1/2024	$	60.32
7/2/2024	$	35.91	7/2/2024	$	64.00	7/2/2024	$	70.81	7/2/2024	$	60.59
7/3/2024	$	35.53	7/3/2024	$	63.76	7/3/2024	$	71.39	7/3/2024	$	60.04
7/5/2024	$	35.31	7/5/2024	$	62.60	7/5/2024	$	70.41	7/5/2024	$	59.76
7/8/2024	$	35.25	7/8/2024	$	62.22	7/8/2024	$	70.00	7/8/2024	$	59.15
7/9/2024	$	35.48	7/9/2024	$	62.86	7/9/2024	$	70.16	7/9/2024	$	59.21
7/10/2024	$	36.04	7/10/2024	$	63.48	7/10/2024	$	71.22	7/10/2024	$	59.72
7/11/2024	$	37.33	7/11/2024	$	64.72	7/11/2024	$	72.17	7/11/2024	$	61.61
7/12/2024	$	37.88	7/12/2024	$	65.65	7/12/2024	$	72.24	7/12/2024	$	62.16
Mean	$	35.71	Mean	$	62.42	Mean	$	72.13	Mean	$	59.72

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-13**
Dividends

Name	Value Line	Zacks	Highest
Atmos Energy Corporation	$ 3.22	$ 3.22	$ 3.22
Chesapeake Utilities	$ 2.56	$ 2.56	$ 2.56
NiSource	$ 1.06	$ 1.06	$ 1.06
Northwest Natural Holding Company	$ 1.95	$ 1.95	$ 1.95
ONE Gas, Inc.	$ 2.64	$ 2.64	$ 2.64
Southwest Gas Holdings	$ 2.48	$ 2.48	$ 2.48
Spire, Inc.	$ 3.02	$ 3.02	$ 3.02

Value Line Gas dividends taken from May 24, 2024 Reports

Zacks Gas dividends taken from website on July 18, 2024

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Comparison Group **Exhibit MFG-14**
Discounted Cash Flow Model Analysis **Schedule 1**
Common Equity Share Prices--June 17, 2024, July 12, 2024
Zacks, Yahoo! Finance, and Value Line Dividend Growth-Rate Estimates--May, July 2024

	A	B	C	D	E	F
Company Name	**Zacks EPS Growth Rate (%)**	**Yahoo! Finance EPS Growth Rates (%)**	**Value Line EPS Growth Rates (%)**	**Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)**	**Average of Closing Prices**	**Annualized Dividend**
Atmos Energy Corporation	7.00%	7.40%	7.00%	7.13%	$ 116.64	$ 3.22
Chesapeake Utilities	NA	7.60%	6.50%	7.05%	$ 106.50	$ 2.56
NiSource	6.00%	7.50%	9.50%	7.67%	$ 28.79	$ 1.06
Northwest Natural Holding Company	NA	2.80%	6.50%	4.65%	$ 35.71	$ 1.95
ONE Gas, Inc.	5.00%	5.00%	3.50%	4.50%	$ 62.42	$ 2.64
Southwest Gas Holdings	6.00%	4.00%	10.00%	6.67%	$ 72.13	$ 2.48
Spire, Inc.	5.00%	6.36%	4.50%	5.29%	$ 59.72	$ 3.02
Mean	5.80%	5.81%	6.79%	6.14%		

	G	H	I	J	K
Company Name	**Dividend Yield (Rate/Price)**	**Expected Dividend Yield**	**Required Rate of Return on Equity**	**Exceeds 7.03% Mean of Value Line and Kroll Low-End Tests**	**Dividend Yield Adjusted for Flotation Percentage of 3.681**
Atmos Energy Corporation	2.76%	2.96%	10.09%	Yes	3.07%
Chesapeake Utilities	2.40%	2.57%	9.62%	Yes	2.67%
NiSource	3.68%	3.96%	11.63%	Yes	4.12%
Northwest Natural Holding Company	5.47%	5.72%	10.37%	Yes	5.94%
ONE Gas, Inc.	4.23%	4.42%	8.92%	Yes	4.59%
Southwest Gas Holdings	3.44%	3.67%	10.33%	Yes	3.81%
Spire, Inc.	5.06%	5.32%	10.61%	Yes	5.53%
Mean	3.86%	4.089%	10.23%		4.246%
Median			10.33%	**Flotation Adjustment (K - H) means**	0.156%

A: Zacks website, July 18, 2024

B: Yahoo! Finance website: July 18, 2024

C: Value Line Investment Survey reports: May 24, 2024

E: Yahoo! Finance website: June 17-July 12, 2024. See Exhibit MFG-12.

F: Higher of Value Line Investment report, May 24, 2024; or Zacks website, July 18, 2024. See Exhibit MFG-13.

K: See Exhibit MFG-15, Schedule 8.

D: (A + B + C)/3 G: F/E H: G*(1+D) I: D + H K: H/(1 - 0.03681)

Table VI.G6.—Selected Economic Variables, Calendar Years 2022-2095
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI [a]	Average wage index	Taxable payroll [b]	Gross domestic product	Compound new-issue interest factor [c]	Compound effective trust-fund interest factor [d]
Intermediate:						
2022	96.15	$63,467.98	$9,069	$25,422	0.9711	0.9884
2023	100.00	66,147.17	9,552	26,592	1.0000	1.0117
2024	102.53	68,627.58	9,986	27,655	1.0357	1.0356
2025	104.99	71,411.99	10,465	28,902	1.0727	1.0602
2026	107.51	74,348.48	10,944	30,177	1.1112	1.0862
2027	110.09	77,393.67	11,443	31,478	1.1530	1.1140
2028	112.73	80,510.73	11,934	32,778	1.1985	1.1442
2029	115.44	83,757.03	12,438	34,125	1.2492	1.1768
2030	118.21	87,106.49	12,954	35,521	1.3051	1.2123
2031	121.04	90,574.48	13,492	36,976	1.3656	1.2512
2032	123.95	93,995.33	14,023	38,487	1.4295	1.2946
2035	133.09	104,726.27	15,730	43,392	1.6429	1.4693
2040	149.85	125,312.66	18,992	52,850	2.0725	1.8502
2045	168.71	149,423.47	22,925	64,333	2.6144	2.3337
2050	189.95	177,750.26	27,736	78,438	3.2980	2.9438
2055	213.87	211,432.09	33,623	95,785	4.1603	3.7136
2060	240.79	251,610.19	40,795	116,988	5.2481	4.6846
2065	271.11	299,758.28	49,472	142,731	6.6204	5.9095
2070	305.24	357,187.25	59,924	173,850	8.3514	7.4546
2075	343.67	425,523.96	72,602	211,710	10.5351	9.4038
2080	386.94	506,962.67	88,194	258,358	13.2897	11.8627
2085	435.65	603,863.51	107,502	316,227	16.7646	14.9644
2090	490.50	719,124.11	131,330	387,813	21.1481	18.8772
2095	552.26	856,091.73	160,374	475,384	26.6778	23.8131
2100	621.79	1,019,162.94	195,457	581,611	33.6533	30.0396

Growth Rate 2029-2050* 4.04%

Source: Social Security 2023 Trustees' Report

* = (2050/2030)^(1/20) - 1

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
U.S Energy Information Administration Long-Term Growth Rate **Exhibit MFG-14**
Schedule 3

Source: U.S. Energy Information Administration, Annual Energy Outlook 2023

Table 20. Macroeconomic Indicators

(Billions 2012 chain-weighted dollars unless otherwise noted)

	2024	2025	2026	2027	2028	2029	2030
Real Gross Domestic Product							
Reference case	20,095	20,409	20,841	21,273	21,681	22,052	22,392
Price Indices							
GDP Chain-type Price Index (2012=1.000)							
Reference case	1.35	1.38	1.41	1.44	1.47	1.51	1.54

	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Real Gross Domestic Product										
Reference case	22,742	23,153	23,604	24,055	24,511	24,996	25,507	26,032	26,566	27,149
Price Indices										
GDP Chain-type Price Index (2012=1.000)										
Reference case	1.58	1.61	1.65	1.69	1.73	1.77	1.81	1.85	1.89	1.93

	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2030-2050 Growth Rate*
Real Gross Domestic Product											
Reference case	27,734	28,324	28,927	29,527	30,130	30,748	31,389	32,040	32,699	33,405	2.02%
Price Indices											
GDP Chain-type Price Index (2012=1.000)											
Reference case	1.97	2.02	2.07	2.11	2.16	2.21	2.27	2.32	2.38	2.43	2.31%

Total 2030-2050 Growth Rate 4.33%

* = (2050/2030)^(1/20) - 1

growth than to insert a constant growth rate into the plain vanilla DCF equation. The practical challenge is to establish a reasonable growth path for future dividends. As previously discussed, an excellent starting point is security analysts' earnings growth forecasts (available from IBES, Zacks, Reuters, First Call) as a proxy for dividend forecasts. These forecasts are typically for the next five years. From the standpoint of the DCF model that extends into perpetuity, this forecasting horizon may be too short. For example, it is quite possible that a company's dividends can grow faster than the general economy for five years, but it is quite implausible for such growth to continue into perpetuity. The two-stage DCF model is based on the premise that investors expect the growth rate for the utilities to be equal to the company-specific growth rates for the next 5 years, let us say, (Stage 1 Growth), and to converge to an expected steady-state long-run rate of growth from year 6 onward (Stage 2 Growth). For example, it is quite plausible that near-term DCF growth estimates for a given company are unduly high and unsustainable over long periods, and that such growth rates are expected to decline toward a lower long-run level over time. Another example of this situation is that of companies that operate in a relatively undeveloped industry (e.g. wholesale power generation) or companies that are experiencing very high growth rates. Here again, the assumption of a constant perpetual growth rate may not be reasonable.

Blended Growth Approach

One way to account for the two stages of growth is to modify the single-stage DCF model by specifying the growth rate as a weighted average of short-term and long-term growth rates. The blended growth rate is calculated as a weighted average giving two-thirds weight to the analysts' five-year growth projections (Zacks, IBES, etc.) and one-third to historical long-term growth of the economy as a whole and/or the long-range projections of growth in Gross Domestic Product (GDP) projected for the very long term. FERC has adopted such a method in the past for determining the return on equity for gas and oil utilities.

To illustrate, two-stage DCF estimates for a group of widely traded dividend-paying diversified natural gas producers are shown on Table 9-5. Column 1 shows the spot dividend yield for each company, Column 2 shows the analyst consensus growth forecast for the next five years for each company, and column 3 shows the long-range GDP forecast of 6.5% for the U.S. economy at that time. Column 4 computes the weighed average growth, giving 2/3 weight to column 1 and 1/3 weight to column 2. Averages are shown at the bottom of the table. Adding the average blended growth rate of 9.02% to the average expected dividend yield of 2.83% shown at the bottom of Column 6 produces an estimate of equity costs of 11.85% for the group, unadjusted for flotation costs. Allowance for flotation costs to the results of Column 7 brings the return on equity estimate to 12.00%, shown in Column 7. Note

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
DCF Analysis **Exhibit MFG-14**
Common Equity Share Prices: June 17, 2024-July 12, 2024 **Schedule 5**
Multistage DCF with Zacks, Yahoo! Finance, and Value Line EPS Growth-Rate Estimates; 2023 SSA and 2023 EIA long-term growth rates

	A	B	C	D	E	F	G	H
Company Name	**Zacks EPS Growth Rate (%)**	**Yahoo! Finance EPS Growth Rates (%)**	**Value Line EPS Growth Rates (%)**	**Zacks-Yahoo! Finance-Value Line Mean Growth Rate (%)**	**Average of Closing Prices**	**Annualized Dividend**	**Dividend Yield (Rate/Price)**	**Expected Dividend Yield**
Atmos Energy Corporation	7.00%	7.40%	7.00%	7.13%	$ 116.64	$ 3.22	2.76%	2.96%
Chesapeake Utilities	NA	7.60%	6.50%	7.05%	$ 106.91	$ 2.56	2.39%	2.56%
NiSource	6.00%	7.50%	9.50%	7.67%	$ 28.79	$ 1.06	3.68%	3.96%
Northwest Natural Holding Company	NA	2.80%	6.50%	4.65%	$ 35.71	$ 1.95	5.47%	5.72%
Southwest Gas Holdings	6.00%	4.00%	3.50%	4.50%	$ 62.42	$ 2.64	4.23%	4.42%
ONE Gas, Inc.	5.00%	5.00%	10.00%	6.67%	$ 72.13	$ 2.48	3.44%	3.67%
Spire, Inc.	5.00%	6.36%	4.50%	5.29%	$ 59.72	$ 3.02	5.06%	5.32%
Mean	5.80%	5.81%	6.79%	6.14%			3.86%	4.09%

	I	J	K	L	M	N	O	P
Company Name	**SSA Long-Run Projected EPS Growth Rate 4.04%**	**SSA Long-Run Weighted EPS Growth Rate 4.04%**	**SSA Weighted Cost of Equity, Long-Run Rate**	**EIA Long-Run Projected Growth Rate, 4.33%**	**EIA Long-Run Weighted Projected Growth Rate 4.33%**	**EIA Weighted Cost of Equity, Long-Run Rate**	**Multistage Mean Cost of Equity**	**Exceeds 7.03% Mean of Value Line and Kroll Low-End Tests**
Atmos Energy Corporation	4.04%	6.10%	9.06%	4.33%	6.20%	9.16%	9.11%	Yes
Chesapeake Utilities	4.04%	6.05%	8.61%	4.33%	6.14%	8.71%	8.66%	Yes
NiSource	4.04%	6.46%	10.42%	4.33%	6.55%	10.52%	10.47%	Yes
Northwest Natural Holding Company	4.04%	4.45%	10.17%	4.33%	4.54%	10.26%	10.21%	Yes
Southwest Gas Holdings	4.04%	4.35%	8.77%	4.33%	4.44%	8.86%	8.81%	Yes
ONE Gas, Inc.	4.04%	5.79%	9.46%	4.33%	5.89%	9.56%	9.51%	Yes
Spire, Inc.	4.04%	4.87%	10.20%	4.33%	4.97%	10.29%	10.24%	Yes
Mean		5.44%	9.53%		5.53%	9.62%	9.57%	**Mean**
Median			9.46%			9.56%	9.51%	**Median**

A: Zacks website, July 18, 2024
B: Yahoo! Finance website: July 18, 2024
C: Value Line Investment Survey reports: May 24, 2024
E: Yahoo! Finance website: June 17-July 12, 2024. See Exhibit MFG-12.
F: Higher of Value Line Investment report, May 24, 2024; or Zacks website, July 18, 2024. See Exhibit MFG-13.
I: U.S. Social Security Administration, The 2023 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, March 31, 2023 (OASDI Trustees Report), Table VIG6. See Exhibit MFG-14, Schedule 2.
L: U.S. Energy Information Administration, *Annual Energy Outlook 2023, Macroeconomic Indicators* (Real GDP Growth + GDP Chain-Type Index Increase 2020-2050), https://www.eia.gov/analysis/projection-data.php#annualproj. See Exhibit MFG-14, Schedule 3.
P: See Exhibit (MFG-15), Schedule 8.

D: = (A + B + C)/3 G: = F/E H: = G*(1+D) J: = 2/3*D + 1/3*J K: = H + J M: = 2/3*D + 1/3*L N: = H + M O: = (K + N)/2

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM Analysis **Exhibit MFG-15, Schedule 1**
Risk-Free Rate Analysis

Daily Treasury Yield Curve Rates

June 17, 2024-July 12, 2024

Date	1 mo	2 mo	3 mo	4 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
6/17/2024	5.47	5.52	5.43	5.41	5.23	4.87	4.45	4.22	4.10	4.13	4.18	4.50	4.39
6/18/2024	5.48	5.53	5.44	5.41	5.25	4.91	4.50	4.26	4.13	4.15	4.20	4.51	4.41
6/20/2024	5.46	5.50	5.46	5.46	5.33	5.01	4.62	4.38	4.24	4.24	4.28	4.58	4.47
6/21/2024	5.45	5.51	5.46	5.46	5.34	5.02	4.62	4.37	4.24	4.25	4.30	4.59	4.49
6/24/2024	5.48	5.53	5.46	5.46	5.33	4.99	4.62	4.40	4.23	4.23	4.28	4.57	4.46
6/25/2024	5.48	5.53	5.46	5.46	5.34	4.98	4.60	4.39	4.22	4.23	4.28	4.57	4.47
6/26/2024	5.49	5.54	5.47	5.47	5.36	5.04	4.71	4.48	4.33	4.33	4.36	4.64	4.53
6/27/2024	5.48	5.47	5.47	5.44	5.36	5.07	4.74	4.54	4.39	4.40	4.43	4.71	4.60
6/28/2024	5.48	5.48	5.47	5.45	5.37	5.10	4.77	4.58	4.44	4.45	4.48	4.76	4.64
7/1/2024	5.47	5.47	5.48	5.45	5.33	5.09	4.71	4.52	4.33	4.33	4.36	4.61	4.51
7/2/2024	5.48	5.46	5.49	5.45	5.35	5.10	4.70	4.49	4.29	4.27	4.29	4.53	4.43
7/3/2024	5.44	5.46	5.50	5.46	5.36	5.13	4.71	4.53	4.32	4.32	4.32	4.55	4.45
7/5/2024	5.43	5.46	5.49	5.44	5.37	5.10	4.65	4.45	4.25	4.23	4.23	4.46	4.36
7/8/2024	5.42	5.46	5.50	5.45	5.37	5.10	4.71	4.46	4.27	4.25	4.25	4.48	4.38
7/9/2024	5.42	5.46	5.49	5.45	5.36	5.10	4.70	4.45	4.26	4.25	4.25	4.49	4.39
7/10/2024	5.42	5.46	5.50	5.46	5.37	5.10	4.70	4.45	4.26	4.25	4.25	4.49	4.39
7/11/2024	5.40	5.46	5.50	5.45	5.37	5.09	4.69	4.43	4.24	4.22	4.22	4.47	4.36
7/12/2024	5.45	5.47	5.52	5.46	5.39	5.11	4.75	4.50	4.30	4.28	4.28	4.52	4.40
											Mean		**4.45**

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM Analysis **Exhibit MFG-15, Schedule 2**
Beta calculation for Comparison Group
Value Line Investment Survey Betas taken from reports of May 24, 2024

Company Name	Value Line Betas--Comparison Group
Atmos Energy Corporation	0.85
Chesapeake Utilities	0.80
NiSource, Inc.	0.95
Northwest Natural Holding Co.	0.85
ONE Gas, Inc.	0.85
Southwest Gas Holdings	0.90
Spire Inc.	0.85

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM Analysis **Exhibit MFG-15**
Moody's 10-Year Baa Corporate Bonds Index June 17, 2024-July 12, 2024 **Schedule 3**
Downloaded July 18, 2024

S&P Global
Market Intelligence

Chart Builder

Entities: Moodys Bond Yield Avg - BAA Rated Corporates
Metrics: Index Value

SERIES NAME	CATEGORY	AVERAGE
Moodys Bond Yield Avg - BAA Rated Corporates-Index Value (Daily)	**Market Data**	**5.84**

Pricing Date	Moodys Bond Yield Avg BAA Rated Corporates-Index Value (Daily)
7/12/2024	5.76
7/11/2024	5.78
7/10/2024	5.84
7/9/2024	5.86
7/8/2024	5.82
7/5/2024	5.84
7/3/2024	5.89
7/2/2024	5.99
7/1/2024	6.03
6/28/2024	5.91
6/27/2024	5.84
6/26/2024	5.87
6/25/2024	5.78
6/24/2024	5.78
6/21/2024	5.80
6/20/2024	5.79
6/18/2024	5.74
6/17/2024	5.80
Mean	5.84

June 6, 2024

Kroll Lowers its Recommended U.S. Equity Risk Premium to 5.0%, Effective June 5, 2024

Executive Summary

Kroll regularly reviews fluctuations in global economic and financial market conditions that may warrant changes to our equity risk premium (ERP) and accompanying risk-free rate recommendations. The risk-free rate and ERP are key inputs used to calculate the cost of equity capital in the context of the Capital Asset Pricing Model (CAPM) and other models used to develop discount rates. We also update country risk data on a quarterly basis for 175+ countries using various models.

The Kroll Recommended U.S. ERP is decreasing from 5.5% to 5.0% when developing USD-denominated discount rates as of June 5, 2024, and thereafter, until further notice.

Notwithstanding the current recommendation, we are monitoring economic and geopolitical events that may change our views and impact our guidance toward the end of 2024 and into 2025. In particular, the U.S. Presidential Election in November 2024 has the potential to cause turmoil in U.S. and global financial markets. Of particular concern is any potential promise of a significant increase in government spending and a corresponding rise in the U.S. budget deficit, which could place upward pressure on long-term interest rates and disrupt financial markets. Other global geopolitical events that warrant close watch include, but are not limited to, the impact of general elections in other major economies (e.g., Mexico, India, UK), trade conflicts between the U.S. and China, rising tensions in the Middle East and the protracted Russia's war on Ukraine.

Background

The Kroll U.S. Recommended ERP was last changed on June 8, 2023, when it was lowered from 6.0% to 5.5%. This ERP guidance was applicable when developing USD-denominated discount rates and was to be used in conjunction with our U.S. risk-free guidance—the higher of the spot 20-year U.S. Treasury yield (prevailing as of the valuation date) and the Kroll normalized U.S. risk-free rate of 3.5%.

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM ROE Analysis--Kroll Risk Premium **Exhibit MFG-15**
Calculation for Proxy Group **Schedule 5**

	A	B	C	D	E	F
	Rf	**MRP**	**Beta**	**RP**	**CAPM ROE**	**Filtered Results**
Atmos Energy Corporation	4.45%	5.00%	0.85	4.25%	8.70%	8.70%
Chesapeake Utilities	4.45%	5.00%	0.80	4.00%	8.45%	8.45%
NiSource	4.45%	5.00%	0.95	4.75%	9.20%	9.20%
Northwest Natural Holding Co.	4.45%	5.00%	0.90	4.50%	8.95%	8.95%
Southwest Gas Holdings	4.45%	5.00%	0.85	4.25%	8.70%	8.70%
ONE Gas, Inc.	4.45%	5.00%	0.85	4.25%	8.70%	8.70%
Spire, Inc.	4.45%	5.00%	0.85	4.25%	8.70%	8.70%
				Mean	8.77%	8.77%
				Median	8.70%	8.70%

A: MFG-15, Sch 1
B: MFG-15, Sch 4
C: MFG-15 Sch 2

D: B * C
E: B + E
F: Low-end test < Column E < High-end test

Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, MFG-15, Schedule 3	5.84%
	CAPM Risk Premium, Column B	5.00%
	20 percent of CAPM risk premium	1.00%
	Moody's 10-Year Baa Corporate Bond Index + 20 percent of CAPM risk	6.84%
High-End Test:	Proxy Group median, Column E	8.70%
	200 percent of Proxy Group median	17.40%

Constant-Growth DCF Analysis for S&P 500--Value Line
All companies shown
A, B, and E: Value Line Analyzer, July 19, 2024

C = B * (1 + A/100)
D = A + C
F = E/(Sum of E)
G = D * F

Companies Excluded
Companies not paying dividends
Companies with EPS ≤ (
Companies with EPS > 20%

EPS Market Return %	11.33

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Companies not paying dividends							
Adobe Inc.	24.00	0.00	0.00	24.00	253,483		
Advanced Micro Dev.	78.50	0.00	0.00	78.50	297,647		
Airbnb Inc.	0.00	0.00	0.00	0.00	96,570		
Akamai Technologies	17.50	0.00	0.00	17.50	14,293		
Align Techn.	12.50	0.00	0.00	12.50	18,755		
Alphabet Inc. 'A'	39.00	0.00	0.00	39.00	2,367,000		
Amazon.com	32.50	0.00	0.00	32.50	2,078,416		
Amer. Airlines	0.00	0.00	0.00	0.00	7,315		
ANSYS Inc.	12.00	0.00	0.00	12.00	28,895		
Aptiv PLC	-10.50	0.00	0.00	-10.50	18,934		
Arch Capital Group	28.50	0.00	0.00	28.50	36,592		
Arista Networks	28.00	0.00	0.00	28.00	114,072		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Autodesk Inc.	0.00	0.00	0.00	0.00	53,116		
AutoZone Inc.	20.50	0.00	0.00	20.50	48,969		
Axon Enterprise	48.50	0.00	0.00	48.50	22,133		
Bio-Rad Labs. 'A'	30.00	0.00	0.00	30.00	7,997		
Biogen	-7.00	0.00	0.00	-7.00	33,888		
Boeing	0.00	0.00	0.00	0.00	112,697		
Boston Scientific	11.50	0.00	0.00	11.50	113,352		
Builders FirstSource	87.50	0.00	0.00	87.50	16,687		
Cadence Design Sys.	23.00	0.00	0.00	23.00	87,029		
Caesars Entertainment	0.00	0.00	0.00	0.00	7,908		
CarMax Inc.	2.00	0.00	0.00	2.00	12,028		
Carnival Corp.	0.00	0.00	0.00	0.00	22,477		
Catalent Inc.	9.50	0.00	0.00	9.50	10,337		
CBRE Group	13.00	0.00	0.00	13.00	27,610		
Centene Corp.	16.50	0.00	0.00	16.50	35,755		
Charles River	17.00	0.00	0.00	17.00	10,442		
Charter Communic.	29.50	0.00	0.00	29.50	42,338		
Chipotle Mex. Grill	43.50	0.00	0.00	43.50	80,066		
Cooper Cos.	14.00	0.00	0.00	14.00	17,033		
Copart Inc.	26.50	0.00	0.00	26.50	52,088		
Corpay	14.00	0.00	0.00	14.00	19,525		
CoStar Group	16.00	0.00	0.00	16.00	29,397		
CrowdStrike Hldgs.	0.00	0.00	0.00	0.00	91,060		
DaVita Inc.	17.50	0.00	0.00	17.50	12,223		
Dayforce Inc.	0.00	0.00	0.00	0.00	7,736		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Deckers Outdoor	28.50	0.00	0.00	28.50	22,864		
DexCom Inc.	0.00	0.00	0.00	0.00	43,884		
Dollar Tree Inc.	-9.50	0.00	0.00	-9.50	22,153		
Edwards Lifesciences	13.50	0.00	0.00	13.50	56,493		
Enphase Energy	0.00	0.00	0.00	0.00	14,517		
EPAM Systems	22.00	0.00	0.00	22.00	10,526		
Etsy Inc.	51.00	0.00	0.00	51.00	6,710		
Expedia Group	-4.00	0.00	0.00	-4.00	17,296		
F5 Inc.	-2.00	0.00	0.00	-2.00	10,140		
Fair Isaac	27.00	0.00	0.00	27.00	37,973		
First Solar Inc.	0.00	0.00	0.00	0.00	24,466		
Fiserv Inc.	20.00	0.00	0.00	20.00	87,250		
Fortinet Inc.	53.50	0.00	0.00	53.50	45,479		
Gartner Inc.	26.00	0.00	0.00	26.00	35,079		
GE Vernova Inc	0.00	0.00	0.00	0.00	49,261		
Generac Holdings	17.50	0.00	0.00	17.50	8,585		
GoDaddy Inc.	0.00	0.00	0.00	0.00	20,290		
Hologic Inc.	33.00	0.00	0.00	33.00	17,683		
IDEXX Labs.	21.50	0.00	0.00	21.50	40,060		
Incyte Corp.	0.00	0.00	0.00	0.00	13,636		
Insulet Corp.	0.00	0.00	0.00	0.00	13,841		
Intuitive Surgical	10.50	0.00	0.00	10.50	157,749		
IQVIA Holdings	16.00	0.00	0.00	16.00	38,623		
Keysight Technologies	31.00	0.00	0.00	31.00	24,011		
Live Nation Entertain.	0.00	0.00	0.00	0.00	21,699		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
lululemon athletica	29.00	0.00	0.00	29.00	36,179		
Match Group	8.50	0.00	0.00	8.50	8,192		
Mettler-Toledo Int'l	16.50	0.00	0.00	16.50	28,279		
MGM Resorts Int'l	0.00	0.00	0.00	0.00	13,828		
Moderna Inc.	0.00	0.00	0.00	0.00	44,980		
Mohawk Inds.	-1.00	0.00	0.00	-1.00	8,041		
Molina Healthcare	37.00	0.00	0.00	37.00	16,930		
Monster Beverage	13.00	0.00	0.00	13.00	51,929		
Netflix Inc.	49.00	0.00	0.00	49.00	292,043		
Norwegian Cruise Line	0.00	0.00	0.00	0.00	8,044		
NVR Inc.	24.50	0.00	0.00	24.50	24,152		
O'Reilly Automotive	21.00	0.00	0.00	21.00	60,645		
ON Semiconductor	25.50	0.00	0.00	25.50	32,929		
Palo Alto Networks	0.00	0.00	0.00	0.00	109,005		
PayPal Holdings	17.00	0.00	0.00	17.00	62,022		
PTC Inc.	0.00	0.00	0.00	0.00	21,153		
Qorvo Inc.	0.00	0.00	0.00	0.00	12,080		
Regeneron Pharmac.	30.50	0.00	0.00	30.50	118,037		
Royal Caribbean	0.00	0.00	0.00	0.00	41,865		
Schein (Henry)	3.00	0.00	0.00	3.00	8,247		
ServiceNow Inc.	0.00	0.00	0.00	0.00	152,630		
Solventum Corp	0.00	0.00	0.00	0.00	8,321		
Super Micro Computer	39.50	0.00	0.00	39.50	52,696		
Synopsys Inc.	21.00	0.00	0.00	21.00	94,919		
Take-Two Interactive	0.00	0.00	0.00	0.00	25,420		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Teledyne Technologies	21.50	0.00	0.00	21.50	18,433		
Tesla Inc.	0.00	0.00	0.00	0.00	839,536		
TransDigm Group	4.00	0.00	0.00	4.00	71,186		
Trimble Inc.	27.50	0.00	0.00	27.50	13,644		
Tyler Technologies	13.00	0.00	0.00	13.00	24,646		
Uber Technologies	0.00	0.00	0.00	0.00	144,514		
Ulta Beauty	21.50	0.00	0.00	21.50	18,948		
Under Armour 'C'	-16.00	0.00	0.00	-16.00	2,968		
United Airlines Hldgs.	0.00	0.00	0.00	0.00	15,503		
Veralto Corp.	0.00	0.00	0.00	0.00			
VeriSign Inc.	9.50	0.00	0.00	9.50	17,480		
Vertex Pharmac.	68.50	0.00	0.00	68.50	126,984		
Warner Bros. Discovery	0.00	0.00	0.00	0.00	17,927		
Waters Corp.	9.00	0.00	0.00	9.00	17,100		
Western Digital	-20.50	0.00	0.00	-20.50	26,158		
WestRock Co.	4.00	0.00	0.00	4.00	13,295		
Zebra Techn. 'A'	14.00	0.00	0.00	14.00	16,644		
Companies with EPS ≤ 0%							
Southwest Airlines	-44.50	2.61	1.45	-43.05	16,535		
3M Company	-22.50	2.75	2.13	-20.37	56,260		
AES Corp.	0.00	3.91	3.91	3.91	12,735		
Alexandria Real Estate	0.00	4.34	4.34	4.34	19,967		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Allstate Corp.	-7.50	2.30	2.13	-5.37	42,232		
Amcor plc	0.00	5.13	5.13	5.13	14,079		
AT&T Inc.	-3.00	5.92	5.74	2.74	134,367		
Baker Hughes	0.00	2.57	2.57	2.57	33,772		
Bath & Body Works	-2.00	2.19	2.15	0.15	8,148		
Campbell Soup	0.00	3.42	3.42	3.42	13,580		
Carrier Global	0.00	1.20	1.20	1.20	57,300		
CF Industries	0.00	3.01	3.01	3.01	12,858		
Clorox Co.	0.00	3.56	3.56	3.56	16,726		
Colgate-Palmolive	-1.50	2.05	2.02	0.52	79,903		
Constellation Energy	0.00	0.64	0.64	0.64	69,158		
Corteva Inc.	0.00	1.33	1.33	1.33	35,602		
Coterra Energy	0.00	3.15	3.15	3.15	19,999		
Delta Air Lines	-19.50	1.28	1.03	-18.47	30,239		
Disney (Walt)	-27.00	0.77	0.56	-26.44	181,625		
Dominion Energy	-2.00	5.37	5.26	3.26	41,691		
Dow Inc.	0.00	5.61	5.61	5.61	36,363		
DTE Energy	-0.50	3.74	3.72	3.22	22,573		
DuPont de Nemours	0.00	1.96	1.96	1.96	33,266		
Eastman Chemical	-0.50	3.37	3.35	2.85	11,301		
Ecolab Inc.	-2.00	0.94	0.92	-1.08	69,478		
Electronic Arts	0.00	0.56	0.56	0.56	38,328		
EQT Corp.	-25.00	1.72	1.29	-23.71	16,179		
Equity Residential	-12.50	3.98	3.48	-9.02	25,673		
Exelon Corp.	-2.50	4.38	4.27	1.77	34,690		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Federal Rlty. Inv. Trust	0.00	4.25	4.25	4.25	8,347		
FirstEnergy Corp.	-1.00	4.37	4.33	3.33	22,399		
Ford Motor	-14.00	4.56	3.92	-10.08	54,998		
Fortive Corp.	-5.00	0.43	0.41	-4.59	25,928		
Fox Corp. 'A'	0.00	1.47	1.47	1.47	16,535		
Franklin Resources	-3.50	5.52	5.33	1.83	11,813		
GE HealthCare	0.00	0.15	0.15	0.15	36,036		
Gen'l Electric	-21.50	0.68	0.53	-20.97	181,376		
Gilead Sciences	-9.50	4.48	4.05	-5.45	85,663		
Hasbro Inc.	-2.50	4.90	4.78	2.28	7,956		
Hess Corp.	0.00	1.18	1.18	1.18	45,502		
Hormel Foods	0.00	3.72	3.72	3.72	16,666		
Host Hotels & Resorts	0.00	4.70	4.70	4.70	12,756		
Howmet Aerospace	0.00	0.62	0.62	0.62	32,727		
Ingersoll Rand Inc.	0.00	0.09	0.09	0.09	38,071		
Int'l Business Mach.	-6.50	3.76	3.52	-2.98	163,364		
Int'l Flavors & Frag.	-3.50	1.66	1.60	-1.90	24,580		
Int'l Paper	-3.00	4.33	4.20	1.20	14,830		
Intel Corp.	-5.00	1.43	1.36	-3.64	148,442		
Invesco Ltd.	-11.50	5.39	4.77	-6.73	7,094		
Invitation Homes	0.00	3.12	3.12	3.12	21,913		
Kellanova	-1.00	4.03	3.99	2.99	19,400		
Kenvue Inc.	0.00	4.52	4.52	4.52	33,896		
Kimberly-Clark	-1.00	3.47	3.44	2.44	47,418		
Kraft Heinz Co.	-3.50	5.01	4.83	1.33	38,751		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
L3Harris Technologies	0.00	2.05	2.05	2.05	43,059		
Lamb Weston Holdings	0.00	1.95	1.95	1.95	11,258		
Las Vegas Sands	0.00	1.93	1.93	1.93	30,865		
Linde plc	0.00	1.28	1.28	1.28	209,070		
Marathon Oil Corp.	0.00	1.88	1.88	1.88	15,995		
Micron Technology	-9.00	0.34	0.31	-8.69	151,257		
Molson Coors Beverage	-2.00	3.53	3.46	1.46	10,701		
News Corp. 'A'	0.00	0.72	0.72	0.72	15,853		
News Corp. 'B'	0.00	0.70	0.70	0.70	16,916		
NRG Energy	0.00	2.06	2.06	2.06	16,478		
Otis Worldwide	0.00	1.40	1.40	1.40	39,165		
Paramount Global	-14.00	1.71	1.47	-12.53	7,664		
PG&E Corp.	0.00	0.23	0.23	0.23	37,699		
PPL Corp.	-14.00	3.72	3.20	-10.80	20,421		
RTX Corp.	-7.50	2.50	2.31	-5.19	133,855		
Stanley Black & Decker	-5.50	3.94	3.72	-1.78	12,782		
Targa Resources	0.00	2.26	2.26	2.26	29,522		
Trane Technologies plc	0.00	0.99	0.99	0.99	77,264		
UDR Inc.	-1.50	4.30	4.24	2.74	13,375		
Ventas Inc.	0.00	3.57	3.57	3.57	20,954		
Viatris Inc.	0.00	4.41	4.41	4.41	12,964		
Vistra Corp.	0.00	0.94	0.94	0.94	32,192		
Walgreens Boots	-2.50	8.88	8.66	6.16	9,721		
Wells Fargo	-5.00	2.38	2.26	-2.74	209,120		
Welltower Inc.	-22.00	2.56	2.00	-20.00	58,991		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Wynn Resorts	0.00	3.58	3.58	3.58	9,404		
Zimmer Biomet Hldgs.	-3.00	0.90	0.87	-2.13	21,989		
Companies with EPS > 20%							
Archer Daniels Midl'd	20.50	3.11	3.75	24.25	32,244		
Alphabet Inc.	23.50	0.41	0.51	24.01	2,380,892		
Amer. Int'l Group	22.50	2.11	2.58	25.08	50,971		
APA Corp.	66.50	3.48	5.79	72.29	8,663		
Ball Corp.	23.00	1.35	1.66	24.66	18,559		
Berkley (W.R.)	24.00	0.60	0.74	24.74	20,429		
Broadcom Inc.	55.00	1.20	1.86	56.86	811,281		
Bunge Global SA	37.00	2.47	3.38	40.38	15,743		
Chevron Corp.	28.50	4.28	5.50	34.00	286,527		
ConocoPhillips	54.00	2.77	4.27	58.27	131,608		
Crown Castle Int'l	25.00	6.48	8.10	33.10	42,543		
Deere & Co.	32.50	1.67	2.21	34.71	96,871		
Devon Energy	45.00	1.92	2.78	47.78	29,061		
Diamondback Energy	38.00	1.78	2.46	40.46	36,094		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
EOG Resources	46.50	3.10	4.54	51.04	72,529		
Equinix Inc.	21.00	2.20	2.66	23.66	73,642		
Expeditors Int'l	21.00	1.21	1.46	22.46	17,015		
Exxon Mobil Corp.	22.50	3.39	4.15	26.65	441,301		
Fidelity Nat'l Info.	23.00	1.95	2.40	25.40	41,617		
Healthpeak Properties	26.00	6.05	7.62	33.62	10,834		
Horton D.R.	35.50	0.93	1.26	36.76	46,092		
Intuit Inc.	21.00	0.57	0.69	21.69	176,909		
Jabil Inc.	28.50	0.28	0.36	28.86	13,920		
Keurig Dr Pepper	20.50	2.82	3.40	23.90	43,311		
Kinder Morgan Inc.	26.50	5.72	7.24	33.74	44,609		
KLA Corp.	27.00	0.65	0.83	27.83	120,211		
Lam Research	23.00	0.73	0.90	23.90	147,379		
Lennar Corp.	27.50	1.37	1.75	29.25	40,015		
Lowe's Cos.	23.50	2.08	2.57	26.07	126,263		
Marathon Petroleum	33.50	2.04	2.72	36.22	57,574		
Microsoft Corp.	22.50	0.68	0.83	23.33	3,465,636		
Monolithic Power Sys.	42.50	0.58	0.83	43.33	41,893		
Mosaic Company	45.00	3.13	4.54	49.54	8,623		
MSCI Inc.	23.00	1.31	1.61	24.61	38,741		
Nucor Corp.	39.00	1.47	2.04	41.04	36,770		
NVIDIA Corp.	42.00	0.03	0.04	42.04	3,317,437		
Occidental Petroleum	26.00	1.51	1.90	27.90	54,454		
Old Dominion Freight	26.00	0.58	0.73	26.73	39,629		
Paycom Software	32.50	1.07	1.42	33.92	7,934		

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Pool Corp.	29.50	1.61	2.08	31.58	11,495		
PulteGroup Inc.	32.50	0.75	0.99	33.49	22,572		
Quanta Services	24.00	0.14	0.17	24.17	37,748		
Revvity Inc.	27.00	0.26	0.33	27.33	13,175		
Salesforce Inc.	26.00	0.63	0.79	26.79	263,199		
SBA Communications	42.50	2.03	2.89	45.39	21,057		
Steel Dynamics	40.00	1.45	2.03	42.03	20,095		
Thermo Fisher Sci.	24.00	0.29	0.36	24.36	204,932		
Tractor Supply	21.00	1.77	2.14	23.14	27,971		
United Rentals	22.00	1.01	1.23	23.23	43,097		
Valero Energy	26.50	2.95	3.73	30.23	47,382		
VICI Properties	53.00	5.95	9.10	62.10	26,861		
West Pharmac. Svcs.	30.50	0.25	0.33	30.83	23,459		
Weyerhaeuser Co.	24.00	2.90	3.60	27.60	20,110		
Qualifying Companies							
Alexandria Real Estate	1.00	4.03	4.07	5.07	19,939	0.00064	0.0032
Allegion plc	8.50	1.42	1.54	10.04	11,838	0.00038	0.0038
Alliant Energy	6.00	3.71	3.93	9.93	12,498	0.00040	0.0040
Allstate Corp.	11.00	2.28	2.53	13.53	42,227	0.00136	0.0184
Altria Group	5.00	8.75	9.19	14.19	79,273	0.00255	0.0361
Amcor plc	7.50	5.46	5.87	13.37	13,213	0.00042	0.0057

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Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Amer. Elec. Power	6.50	4.31	4.59	11.09	43,549	0.00140	0.0155
Amer. Express	8.50	1.23	1.33	9.83	166,146	0.00534	0.0525
Amer. Int'l Group	9.00	1.88	2.05	11.05	54,069	0.00174	0.0192
Amer. Tower 'A'	5.50	3.33	3.51	9.01	90,729	0.00292	0.0263
Amer. Water Works	3.00	2.54	2.62	5.62	22,996	0.00074	0.0041
Ameren Corp.	6.00	3.72	3.94	9.94	18,942	0.00061	0.0061
Ameriprise Fin'l	12.50	1.34	1.51	14.01	43,708	0.00140	0.0197
AMETEK Inc.	13.00	0.61	0.69	13.69	42,513	0.00137	0.0187
Amgen	4.50	3.30	3.45	7.95	146,109	0.00469	0.0373
Amphenol Corp.	13.00	0.79	0.89	13.89	67,143	0.00216	0.0300
Analog Devices	7.50	1.89	2.03	9.53	96,365	0.00310	0.0295
Aon plc	10.00	0.86	0.95	10.95	65,475	0.00210	0.0230
APA Corp.	19.50	3.55	4.24	23.74	10,367	0.00033	0.0079
Apple Inc.	6.50	0.54	0.58	7.08	2,762,278	0.08876	0.6280
Applied Materials	10.00	0.69	0.76	10.76	170,384	0.00547	0.0589
Archer Daniels Midl'd	7.50	2.94	3.16	10.66	31,452	0.00101	0.0108
Assurant Inc.	10.50	1.60	1.77	12.27	9,525	0.00031	0.0038
AT&T Inc.	4.00	6.45	6.71	10.71	123,053	0.00395	0.0423
Atmos Energy	7.00	2.87	3.07	10.07	17,572	0.00056	0.0057
Automatic Data Proc.	11.00	2.34	2.60	13.60	101,739	0.00327	0.0445
AvalonBay Communities	5.50	3.76	3.97	9.47	26,087	0.00084	0.0079
Avery Dennison	5.00	1.59	1.67	6.67	17,438	0.00056	0.0037
Ball Corp.	10.00	1.23	1.35	11.35	20,599	0.00066	0.0075
Bank of America	4.50	2.67	2.79	7.29	291,183	0.00936	0.0682
Bank of NY Mellon	9.00	3.08	3.36	12.36	43,183	0.00139	0.0171
Bath & Body Works	6.00	1.66	1.76	7.76	10,919	0.00035	0.0027

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Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Baxter Int'l Inc.	4.00	2.77	2.88	6.88	21,234	0.00068	0.0047
Becton Dickinson	5.50	1.62	1.71	7.21	68,721	0.00221	0.0159
Berkley (W.R.)	16.00	0.51	0.59	16.59	22,285	0.00072	0.0119
Bio-Techne Corp.	10.00	0.44	0.48	10.48	11,295	0.00036	0.0038
BlackRock Inc.	7.50	2.69	2.89	10.39	121,819	0.00391	0.0407
Blackstone Inc.	15.00	2.51	2.89	17.89	90,745	0.00292	0.0522
BorgWarner	5.50	1.35	1.42	6.92	7,519	0.00024	0.0017
Boston Properties	0.50	6.08	6.11	6.61	10,089	0.00032	0.0021
Broadcom Inc.	17.50	1.65	1.94	19.44	590,788	0.01898	0.3690
Broadridge Fin'l	9.50	1.57	1.72	11.22	24,050	0.00077	0.0087
Brown & Brown	6.50	0.60	0.64	7.14	24,666	0.00079	0.0057
Brown-Forman 'B'	16.50	1.66	1.93	18.43	25,044	0.00080	0.0148
Bunge Global SA	1.50	2.80	2.84	4.34	14,156	0.00045	0.0020
C.H. Robinson	3.50	3.35	3.47	6.97	8,613	0.00028	0.0019
Campbell Soup	5.00	3.60	3.78	8.78	12,918	0.00042	0.0036
Capital One Fin'l	4.00	1.69	1.76	5.76	53,928	0.00173	0.0100
Cardinal Health	10.00	1.80	1.98	11.98	27,301	0.00088	0.0105
Carrier Global	13.50	1.30	1.48	14.98	49,157	0.00158	0.0237
Caterpillar Inc.	13.00	1.46	1.65	14.65	181,463	0.00583	0.0854
Cboe Global Markets	13.00	1.20	1.36	14.36	19,338	0.00062	0.0089
CDW Corp.	7.00	0.99	1.06	8.06	33,632	0.00108	0.0087
Celanese Corp.	4.50	1.74	1.82	6.32	18,010	0.00058	0.0037
Cencora	8.00	0.86	0.93	8.93	48,244	0.00155	0.0138
CenterPoint Energy	6.00	2.85	3.02	9.02	17,737	0.00057	0.0051
CF Industries	2.00	2.32	2.37	4.37	16,211	0.00052	0.0023
Chevron Corp.	16.50	4.27	4.97	21.47	291,752	0.00937	0.2013

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Chubb Ltd.	16.00	1.33	1.54	17.54	105,468	0.00339	0.0595
Church & Dwight	5.50	1.11	1.17	6.67	25,376	0.00082	0.0054
Cigna Group	12.00	1.58	1.77	13.77	103,537	0.00333	0.0458
Cincinnati Financial	10.50	2.73	3.02	13.52	18,608	0.00060	0.0081
Cintas Corp.	14.00	0.85	0.97	14.97	64,355	0.00207	0.0310
Cisco Systems	4.50	3.23	3.38	7.88	200,678	0.00645	0.0508
Citigroup Inc.	2.50	3.53	3.62	6.12	115,082	0.00370	0.0226
Citizens Fin'l Group	4.50	4.94	5.16	9.66	16,243	0.00052	0.0050
Clorox Co.	7.00	3.19	3.41	10.41	18,673	0.00060	0.0062
CME Group	7.50	2.15	2.31	9.81	76,731	0.00247	0.0242
CMS Energy Corp.	5.00	3.52	3.70	8.70	17,231	0.00055	0.0048
Coca-Cola	8.00	3.23	3.49	11.49	261,711	0.00841	0.0966
Cognizant Technology	6.50	1.60	1.70	8.20	37,650	0.00121	0.0099
Colgate-Palmolive	8.00	2.26	2.44	10.44	72,745	0.00234	0.0244
Comcast Corp.	8.00	2.88	3.11	11.11	171,078	0.00550	0.0611
Comerica Inc.	2.50	5.49	5.63	8.13	6,827	0.00022	0.0018
Conagra Brands	3.50	4.92	5.09	8.59	13,786	0.00044	0.0038
ConocoPhillips	9.00	1.97	2.15	11.15	143,622	0.00461	0.0514
Consol. Edison	6.00	3.75	3.98	9.98	30,630	0.00098	0.0098
Constellation Brands	6.50	1.33	1.42	7.92	49,086	0.00158	0.0125
Corning Inc.	12.50	3.43	3.86	16.36	26,789	0.00086	0.0141
Corteva Inc.	9.00	1.20	1.31	10.31	39,081	0.00126	0.0129
Costco Wholesale	9.50	0.59	0.65	10.15	328,546	0.01056	0.1071
Crown Castle Int'l	6.00	5.99	6.35	12.35	45,362	0.00146	0.0180
CSX Corp.	7.00	1.28	1.37	8.37	74,322	0.00239	0.0200
Cummins Inc.	7.50	2.34	2.52	10.02	40,699	0.00131	0.0131

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CVS Health	5.50	3.37	3.56	9.06	101,726	0.00327	0.0296
Danaher Corp.	7.50	0.43	0.46	7.96	186,042	0.00598	0.0476
Darden Restaurants	13.00	3.00	3.39	16.39	20,862	0.00067	0.0110
Deere & Co.	5.00	1.49	1.56	6.56	109,687	0.00352	0.0231
Dentsply Sirona	8.50	1.92	2.08	10.58	7,053	0.00023	0.0024
Devon Energy	9.50	3.62	3.96	13.46	31,159	0.00100	0.0135
Dollar General	2.00	1.51	1.54	3.54	34,254	0.00110	0.0039
Dominion Energy	0.50	5.54	5.57	6.07	40,310	0.00130	0.0079
Domino's Pizza	11.50	1.34	1.49	12.99	15,686	0.00050	0.0065
Dover Corp.	6.50	1.16	1.24	7.74	24,558	0.00079	0.0061
Dow Inc.	1.50	4.90	4.97	6.47	40,852	0.00131	0.0085
DTE Energy	6.00	3.71	3.93	9.93	22,697	0.00073	0.0072
Duke Energy	5.50	4.34	4.58	10.08	73,561	0.00236	0.0238
DuPont de Nemours	9.00	2.07	2.26	11.26	32,048	0.00103	0.0116
Eastman Chemical	5.00	3.46	3.63	8.63	10,987	0.00035	0.0030
Eaton Corp. plc	12.50	1.21	1.36	13.86	123,707	0.00398	0.0551
eBay Inc.	7.00	2.15	2.30	9.30	27,024	0.00087	0.0081
Ecolab Inc.	7.00	1.00	1.07	8.07	65,257	0.00210	0.0169
Edison Int'l	4.50	4.52	4.72	9.22	26,658	0.00086	0.0079
Electronic Arts	17.50	0.62	0.73	18.23	35,462	0.00114	0.0208
Elevance Health	11.50	1.27	1.42	12.92	120,813	0.00388	0.0501
Emerson Electric	7.00	1.88	2.01	9.01	64,042	0.00206	0.0185
Entergy Corp.	0.50	4.39	4.41	4.91	21,928	0.00070	0.0035
EOG Resources	13.00	2.97	3.36	16.36	73,289	0.00235	0.0385
Equifax Inc.	4.50	0.59	0.62	5.12	32,636	0.00105	0.0054
Equinix Inc.	16.00	2.07	2.40	18.40	77,442	0.00249	0.0458

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Essex Property Trust	1.00	4.01	4.05	5.05	14,983	0.00048	0.0024
Everest Group	10.00	1.84	2.02	12.02	16,957	0.00054	0.0066
Evergy Inc.	5.50	5.04	5.32	10.82	11,892	0.00038	0.0041
Eversource Energy	5.50	4.81	5.07	10.57	20,681	0.00066	0.0070
Exelon Corp.	2.00	4.18	4.26	6.26	36,377	0.00117	0.0073
Extra Space Storage	5.00	4.85	5.09	10.09	18,816	0.00060	0.0061
Exxon Mobil Corp.	7.00	3.36	3.60	10.60	447,779	0.01439	0.1524
FactSet Research	11.00	0.88	0.98	11.98	18,570	0.00060	0.0071
Fastenal Co.	9.00	2.01	2.19	11.19	44,420	0.00143	0.0160
FedEx Corp.	5.50	1.94	2.05	7.55	64,970	0.00209	0.0158
Fifth Third Bancorp	5.00	3.93	4.13	9.13	24,936	0.00080	0.0073
FirstEnergy Corp.	4.50	4.34	4.54	9.04	21,954	0.00071	0.0064
FMC Corp.	5.00	3.70	3.89	8.89	7,998	0.00026	0.0023
Fortive Corp.	15.00	0.37	0.43	15.43	30,178	0.00097	0.0150
Fox Corp. 'A'	8.00	1.72	1.86	9.86	14,397	0.00046	0.0046
Franklin Resources	3.00	4.53	4.67	7.67	13,531	0.00043	0.0033
Freep't-McMoRan Inc.	12.50	1.30	1.46	13.96	66,024	0.00212	0.0296
Gallagher (Arthur J.)	17.50	0.94	1.10	18.60	55,242	0.00178	0.0330
Garmin Ltd.	5.00	2.06	2.16	7.16	28,130	0.00090	0.0065
Gen Digital Inc.	10.50	2.32	2.56	13.06	13,753	0.00044	0.0058
Gen'l Dynamics	10.00	2.01	2.21	12.21	77,306	0.00248	0.0303
Gen'l Mills	6.00	3.49	3.70	9.70	39,499	0.00127	0.0123
Gen'l Motors	8.50	1.12	1.22	9.72	59,990	0.00193	0.0187
Genuine Parts	8.50	2.58	2.80	11.30	21,676	0.00070	0.0079
Gilead Sciences	3.00	4.16	4.28	7.28	92,179	0.00296	0.0216
Global Payments	13.50	0.84	0.95	14.45	34,651	0.00111	0.0161

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Globe Life Inc.	8.00	0.81	0.87	8.87	12,404	0.00040	0.0035
Goldman Sachs	1.50	2.77	2.81	4.31	129,489	0.00416	0.0179
Grainger (W.W.)	7.00	0.74	0.79	7.79	50,114	0.00161	0.0125
Hartford Fin'l Svcs.	8.50	1.86	2.02	10.52	30,582	0.00098	0.0103
Hasbro Inc.	4.50	5.16	5.39	9.89	7,531	0.00024	0.0024
HCA Healthcare	10.00	0.80	0.88	10.88	88,453	0.00284	0.0309
Healthpeak Properties	18.50	6.83	8.09	26.59	9,477	0.00030	0.0081
Henry (Jack) & Assoc.	6.50	1.28	1.36	7.86	12,495	0.00040	0.0032
Hershey Co.	9.50	2.77	3.03	12.53	40,476	0.00130	0.0163
Hess Corp.	20.00	1.17	1.40	21.40	45,867	0.00147	0.0315
Hewlett Packard Ent.	5.50	3.78	3.99	9.49	22,005	0.00071	0.0067
Home Depot	6.00	2.34	2.48	8.48	381,335	0.01225	0.1039
Honeywell Int'l	10.50	2.15	2.38	12.88	131,129	0.00421	0.0543
Hormel Foods	5.50	3.36	3.54	9.04	18,892	0.00061	0.0055
Horton D.R.	4.00	0.79	0.82	4.82	52,679	0.00169	0.0082
Howmet Aerospace	17.00	0.30	0.35	17.35	27,682	0.00089	0.0154
HP Inc.	7.00	3.74	4.00	11.00	29,086	0.00093	0.0103
Hubbell Inc.	9.00	1.20	1.31	10.31	21,850	0.00070	0.0072
Humana Inc.	8.00	1.02	1.10	9.10	42,866	0.00138	0.0125
Hunt (J.B.)	8.50	0.88	0.95	9.45	20,119	0.00065	0.0061
Huntington Bancshs.	8.00	4.66	5.03	13.03	19,292	0.00062	0.0081
Huntington Ingalls	11.50	1.78	1.98	13.48	11,577	0.00037	0.0050
IDEX Corp.	6.00	1.12	1.19	7.19	18,242	0.00059	0.0042
Illinois Tool Works	9.50	2.08	2.28	11.78	80,867	0.00260	0.0306
Ingersoll Rand Inc.	12.50	0.09	0.10	12.60	37,786	0.00121	0.0153
Int'l Business Mach.	4.00	3.42	3.56	7.56	177,109	0.00569	0.0430

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Int'l Flavors & Frag.	0.50	1.91	1.92	2.42	21,422	0.00069	0.0017
Int'l Paper	5.50	4.72	4.98	10.48	13,574	0.00044	0.0046
Intel Corp.	6.00	1.18	1.25	7.25	178,422	0.00573	0.0416
Intercontinental Exch.	6.50	1.32	1.41	7.91	77,985	0.00251	0.0198
Interpublic Group	8.50	4.02	4.36	12.86	12,868	0.00041	0.0053
Intuit Inc.	13.50	0.57	0.65	14.15	179,118	0.00576	0.0814
Invesco Ltd.	3.00	5.43	5.59	8.59	7,116	0.00023	0.0020
Invitation Homes	8.50	3.27	3.55	12.05	21,302	0.00068	0.0082
Iron Mountain	7.00	3.24	3.47	10.47	23,404	0.00075	0.0079
Jabil Inc.	15.00	0.25	0.29	15.29	16,325	0.00052	0.0080
Jacobs Solutions	9.00	0.77	0.84	9.84	18,917	0.00061	0.0060
Johnson & Johnson	3.50	3.17	3.28	6.78	374,927	0.01205	0.0817
Johnson Ctrls. Int'l plc	11.00	2.31	2.56	13.56	43,703	0.00140	0.0190
JPMorgan Chase	8.50	2.14	2.32	10.82	567,592	0.01824	0.1974
Juniper Networks	8.50	2.39	2.59	11.09	11,793	0.00038	0.0042
Kellanova	1.50	4.06	4.12	5.62	18,780	0.00060	0.0034
Keurig Dr Pepper	12.50	3.03	3.41	15.91	41,310	0.00133	0.0211
Kimberly-Clark	7.50	3.92	4.21	11.71	41,930	0.00135	0.0158
Kimco Realty	18.00	5.04	5.95	23.95	12,050	0.00039	0.0093
Kinder Morgan Inc.	15.00	6.27	7.21	22.21	40,168	0.00129	0.0287
KLA Corp.	10.50	0.83	0.92	11.42	94,134	0.00302	0.0345
Kraft Heinz Co.	4.00	4.53	4.71	8.71	43,374	0.00139	0.0121
Kroger Co.	6.00	2.04	2.16	8.16	40,918	0.00131	0.0107
L3Harris Technologies	9.50	2.19	2.40	11.90	40,287	0.00129	0.0154
Lam Research	9.00	0.87	0.95	9.95	124,593	0.00400	0.0398
Lamb Weston Holdings	15.00	1.43	1.64	16.64	14,896	0.00048	0.0080

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Lauder (Estee)	2.50	1.80	1.85	4.35	52,603	0.00169	0.0073
Leidos Hldgs.	7.50	1.19	1.28	8.78	17,362	0.00056	0.0049
Lennar Corp.	4.00	1.22	1.27	5.27	45,974	0.00148	0.0078
Linde plc	7.50	1.09	1.17	8.67	226,342	0.00727	0.0631
LKQ Corp.	7.00	2.29	2.45	9.45	14,011	0.00045	0.0043
Lockheed Martin	9.00	2.89	3.15	12.15	106,422	0.00342	0.0415
Loews Corp.	19.50	0.32	0.38	19.88	17,438	0.00056	0.0111
Lowe's Cos.	6.50	1.75	1.86	8.36	144,877	0.00466	0.0389
M&T Bank Corp.	6.50	3.77	4.02	10.52	23,789	0.00076	0.0080
Marathon Petroleum	14.50	1.67	1.91	16.41	72,772	0.00234	0.0384
MarketAxess Holdings	8.50	1.37	1.49	9.99	8,213	0.00026	0.0026
Marsh & McLennan	12.00	1.39	1.56	13.56	101,775	0.00327	0.0443
Martin Marietta	10.50	0.50	0.55	11.05	37,318	0.00120	0.0133
Masco Corp.	6.50	1.52	1.62	8.12	17,106	0.00055	0.0045
MasterCard Inc.	16.00	0.54	0.63	16.63	458,270	0.01473	0.2448
McCormick & Co.	4.50	2.44	2.55	7.05	18,443	0.00059	0.0042
McDonald's Corp.	10.00	2.40	2.64	12.64	205,572	0.00661	0.0835
McKesson Corp.	8.50	0.48	0.52	9.02	69,528	0.00223	0.0202
Medtronic plc	6.50	3.28	3.49	9.99	111,744	0.00359	0.0359
Merck & Co.	15.50	2.49	2.88	18.38	313,543	0.01007	0.1851
Meta Platforms	17.00	0.40	0.47	17.47	1,294,637	0.04160	0.7267
MetLife Inc.	7.00	2.84	3.04	10.04	54,607	0.00175	0.0176
Microchip Technology	6.00	2.13	2.26	8.26	47,738	0.00153	0.0127
Micron Technology	19.50	0.49	0.59	20.09	106,260	0.00341	0.0686
Microsoft Corp.	10.50	0.72	0.80	11.30	3,160,309	0.10155	1.1471
Mondelez Int'l	11.00	2.37	2.63	13.63	97,805	0.00314	0.0428

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Monolithic Power Sys.	10.50	0.75	0.83	11.33	32,035	0.00103	0.0117
Moody's Corp.	5.50	0.79	0.83	6.33	71,202	0.00229	0.0145
Morgan Stanley	7.50	3.72	4.00	11.50	150,020	0.00482	0.0554
Motorola Solutions	10.50	1.13	1.25	11.75	57,510	0.00185	0.0217
MSCI Inc.	12.50	1.14	1.28	13.78	44,223	0.00142	0.0196
Nasdaq Inc.	7.00	1.45	1.55	8.55	29,911	0.00096	0.0082
NetApp Inc.	8.50	1.91	2.07	10.57	21,515	0.00069	0.0073
Newmont Corp.	5.00	2.91	3.06	8.06	27,234	0.00088	0.0070
News Corp. 'A'	16.00	0.77	0.89	16.89	14,805	0.00048	0.0080
NextEra Energy	8.50	3.31	3.59	12.09	127,616	0.00410	0.0496
NIKE Inc. 'B'	16.50	1.48	1.72	18.22	152,110	0.00489	0.0891
NiSource Inc.	6.00	3.84	4.07	10.07	11,102	0.00036	0.0036
Nordson Corp.	9.50	1.03	1.13	10.63	15,153	0.00049	0.0052
Norfolk Southern	9.50	2.07	2.27	11.77	58,955	0.00189	0.0223
Northern Trust Corp.	3.00	3.57	3.68	6.68	17,251	0.00055	0.0037
Northrop Grumman	8.00	1.70	1.84	9.84	70,664	0.00227	0.0223
NRG Energy	1.00	2.43	2.45	3.45	13,974	0.00045	0.0016
Nucor Corp.	2.00	1.08	1.10	3.10	47,570	0.00153	0.0047
NXP Semi. NV	10.00	1.68	1.85	11.85	62,601	0.00201	0.0238
Occidental Petroleum	15.50	1.38	1.59	17.09	55,989	0.00180	0.0308
Old Dominion Freight	8.50	0.48	0.52	9.02	47,412	0.00152	0.0137
Omnicom Group	7.00	3.18	3.40	10.40	18,657	0.00060	0.0062
ONEOK Inc.	13.50	5.07	5.75	19.25	45,980	0.00148	0.0284
Oracle Corp.	9.50	1.24	1.36	10.86	355,022	0.01141	0.1239
Otis Worldwide	11.50	1.37	1.53	13.03	40,388	0.00130	0.0169
PACCAR Inc.	14.50	3.57	4.09	18.59	63,526	0.00204	0.0379

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Packaging Corp.	7.00	2.71	2.90	9.90	16,511	0.00053	0.0053
Parker-Hannifin	12.50	1.11	1.25	13.75	70,172	0.00225	0.0310
Paychex Inc.	10.00	3.14	3.45	13.45	44,255	0.00142	0.0191
Paycom Software	18.50	0.78	0.92	19.42	11,040	0.00035	0.0069
Pentair plc	12.00	1.12	1.25	13.25	13,604	0.00044	0.0058
PepsiCo Inc.	7.50	3.03	3.26	10.76	236,136	0.00759	0.0816
Pfizer Inc.	2.50	6.07	6.22	8.72	156,394	0.00503	0.0438
Philip Morris Int'l	5.00	5.55	5.83	10.83	145,364	0.00467	0.0506
Phillips 66	17.50	2.77	3.25	20.75	69,847	0.00224	0.0466
Pinnacle West Capital	2.50	4.86	4.98	7.48	8,249	0.00027	0.0020
Pioneer Natural Res.	8.50	4.03	4.37	12.87	59,265	0.00190	0.0245
PNC Financial Serv.	6.50	4.18	4.45	10.95	61,269	0.00197	0.0216
Pool Corp.	5.50	1.08	1.14	6.64	15,837	0.00051	0.0034
PPG Inds.	6.50	1.74	1.85	8.35	33,545	0.00108	0.0090
PPL Corp.	7.50	3.81	4.10	11.60	19,939	0.00064	0.0074
Price (T. Rowe) Group	1.50	4.27	4.33	5.83	26,425	0.00085	0.0050
Principal Fin'l Group	5.50	3.29	3.47	8.97	20,134	0.00065	0.0058
Procter & Gamble	5.00	2.32	2.44	7.44	381,166	0.01225	0.0911
Progressive Corp.	14.50	0.19	0.22	14.72	120,346	0.00387	0.0569
Prologis	0.50	3.03	3.05	3.55	118,969	0.00382	0.0136
Prudential Fin'l	5.50	4.51	4.76	10.26	41,428	0.00133	0.0137
Public Serv. Enterprise	4.00	3.76	3.91	7.91	31,817	0.00102	0.0081
Public Storage	7.00	4.26	4.56	11.56	49,393	0.00159	0.0183
PulteGroup Inc.	6.50	0.72	0.77	7.27	24,229	0.00078	0.0057
Qualcomm Inc.	7.50	1.91	2.05	9.55	187,455	0.00602	0.0575
Quanta Services	15.50	0.15	0.17	15.67	36,306	0.00117	0.0183

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Quest Diagnostics	1.50	2.35	2.39	3.89	14,305	0.00046	0.0018
Ralph Lauren	13.00	1.58	1.79	14.79	12,161	0.00039	0.0058
Raymond James Fin'l	12.50	1.47	1.65	14.15	25,603	0.00082	0.0116
Realty Income Corp.	5.50	5.89	6.21	11.71	31,006	0.00100	0.0117
Regency Centers Corp.	14.50	4.45	5.10	19.60	10,292	0.00033	0.0065
Regions Financial	7.50	4.96	5.33	12.83	18,235	0.00059	0.0075
Republic Services	11.00	1.14	1.27	12.27	59,176	0.00190	0.0233
ResMed Inc.	8.50	1.04	1.13	9.63	28,297	0.00091	0.0088
Robert Half Inc.	6.00	2.64	2.80	8.80	8,492	0.00027	0.0024
Rockwell Automation	10.00	1.77	1.95	11.95	32,292	0.00104	0.0124
Rollins Inc.	9.00	1.28	1.40	10.40	22,668	0.00073	0.0076
Roper Tech.	8.50	0.54	0.59	9.09	59,229	0.00190	0.0173
Ross Stores	15.00	1.00	1.15	16.15	49,525	0.00159	0.0257
RTX Corp.	12.00	2.49	2.79	14.79	125,857	0.00404	0.0598
S&P Global	8.00	0.85	0.92	8.92	134,966	0.00434	0.0387
Salesforce Inc.	18.00	0.52	0.61	18.61	297,204	0.00955	0.1778
SBA Communications	19.00	1.85	2.20	21.20	23,324	0.00075	0.0159
Schwab (Charles)	10.00	1.61	1.77	11.77	127,044	0.00408	0.0481
Seagate Technology plc	11.00	3.20	3.55	14.55	18,315	0.00059	0.0086
Sempra Energy	6.50	3.56	3.79	10.29	44,055	0.00142	0.0146
Sherwin-Williams	11.50	0.84	0.94	12.44	87,309	0.00281	0.0349
Simon Property Group	3.50	5.15	5.33	8.83	51,063	0.00164	0.0145
Skyworks Solutions	1.50	2.75	2.79	4.29	16,911	0.00054	0.0023
Smith (A.O.)	11.50	1.46	1.63	13.13	12,929	0.00042	0.0055
Smucker (J.M.)	7.50	3.50	3.76	11.26	13,105	0.00042	0.0047
Snap-on Inc.	7.50	2.55	2.74	10.24	15,412	0.00050	0.0051

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
Southern Co.	6.00	4.07	4.31	10.31	76,594	0.00246	0.0254
Stanley Black & Decker	3.50	3.52	3.64	7.14	14,189	0.00046	0.0033
Starbucks Corp.	9.00	2.46	2.68	11.68	104,842	0.00337	0.0394
State Street Corp.	7.00	3.82	4.09	11.09	22,780	0.00073	0.0081
Steel Dynamics	1.50	1.29	1.31	2.81	23,333	0.00075	0.0021
STERIS plc	7.50	0.94	1.01	8.51	23,049	0.00074	0.0063
Stryker Corp.	8.50	0.92	1.00	9.50	134,248	0.00431	0.0410
Synchrony Financial	4.50	2.31	2.41	6.91	17,954	0.00058	0.0040
Sysco Corp.	16.00	2.46	2.85	18.85	40,886	0.00131	0.0248
T-Mobile US	19.50	1.64	1.96	21.46	192,716	0.00619	0.1329
Tapestry Inc.	12.50	2.95	3.32	15.82	10,874	0.00035	0.0055
Target Corp.	10.50	2.58	2.85	13.35	78,693	0.00253	0.0338
TE Connectivity	8.00	1.67	1.80	9.80	43,730	0.00141	0.0138
Teleflex Inc.	9.00	0.62	0.68	9.68	10,361	0.00033	0.0032
Teradyne Inc.	16.50	0.46	0.54	17.04	16,356	0.00053	0.0090
Texas Instruments	3.00	3.06	3.15	6.15	154,342	0.00496	0.0305
Textron Inc.	16.00	0.08	0.09	16.09	18,323	0.00059	0.0095
Thermo Fisher Sci.	5.00	0.27	0.28	5.28	224,115	0.00720	0.0380
TJX Companies	16.50	1.40	1.63	18.13	112,796	0.00362	0.0657
Tractor Supply	11.00	1.71	1.90	12.90	27,880	0.00090	0.0116
Trane Technologies plc	14.50	1.12	1.28	15.78	67,838	0.00218	0.0344
Travelers Cos.	10.50	1.78	1.97	12.47	51,388	0.00165	0.0206
Truist Fin'l	6.00	5.87	6.22	12.22	49,106	0.00158	0.0193
U.S. Bancorp	4.50	4.51	4.71	9.21	67,710	0.00218	0.0200
UDR Inc.	2.50	4.67	4.79	7.29	12,193	0.00039	0.0029
Union Pacific	6.50	2.15	2.29	8.79	150,142	0.00482	0.0424

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
United Parcel Serv.	3.50	4.26	4.41	7.91	131,825	0.00424	0.0335
United Rentals	17.00	0.92	1.08	18.08	47,717	0.00153	0.0277
UnitedHealth Group	12.00	1.52	1.70	13.70	457,163	0.01469	0.2013
Universal Health `B'	6.00	0.44	0.47	6.47	12,279	0.00039	0.0026
V.F. Corp.	2.00	2.50	2.55	4.55	5,607	0.00018	0.0008
Valero Energy	6.50	2.41	2.57	9.07	57,731	0.00186	0.0168
Verisk Analytics	9.00	0.66	0.72	9.72	34,270	0.00110	0.0107
Verizon Communic.	0.50	6.63	6.66	7.16	168,669	0.00542	0.0388
VICI Properties	9.50	5.76	6.31	15.81	18,126	0.00058	0.0092
Visa Inc.	13.50	0.74	0.84	14.34	531,118	0.01707	0.2447
Vulcan Materials	8.00	0.68	0.73	8.73	35,897	0.00115	0.0101
Wabtec Corp.	12.00	0.56	0.63	12.63	25,401	0.00082	0.0103
Walmart Inc.	6.50	1.26	1.34	7.84	494,839	0.01590	0.1247
Waste Management	6.00	1.42	1.51	7.51	85,343	0.00274	0.0206
WEC Energy Group	6.50	4.15	4.42	10.92	25,411	0.00082	0.0089
Wells Fargo	10.50	2.44	2.70	13.20	208,093	0.00669	0.0882
West Pharmac. Svcs.	7.50	0.20	0.22	7.72	29,163	0.00094	0.0072
WestRock Co.	8.50	2.45	2.66	11.16	12,706	0.00041	0.0046
Williams Cos.	10.00	5.02	5.52	15.52	46,088	0.00148	0.0230
Willis Towers Wat. plc	8.50	1.22	1.32	9.82	28,383	0.00091	0.0090
Xcel Energy Inc.	6.00	4.22	4.47	10.47	29,006	0.00093	0.0098
Xylem Inc.	15.50	1.13	1.31	16.81	27,928	0.00090	0.0151
Yum! Brands	10.50	1.90	2.10	12.60	38,223	0.00123	0.0155
Zimmer Biomet Hldgs.	4.50	0.77	0.80	5.30	26,445	0.00085	0.0045
Zoetis Inc.	8.00	1.01	1.09	9.09	78,376	0.00252	0.0229

	A	B	C	D	E	F	G
Company Name	**EPS Growth Rate (%)**	**Dividend Yield (%)**	**Expected Dividend Yield (%)**	**Rate of Return on Equity (%)**	**Market Cap $ (Mil)**	**Market Cap Weight Factor**	**Weighted Rate of Return on Equity (%)**
			Totals		31,121,063	1.00	11.33

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM ROE Analysis--Value Line **Exhibit MFG-15**
Calculation for Proxy Group **Schedule 7**

	A	B	C	D	E	F	G
	Market Return	**Rf**	**MRP**	**Beta**	**RP**	**CAPM ROE**	**Filtered Results**
Atmos Energy Corporation	11.33%	4.45%	6.88%	0.85	5.85%	10.30%	10.30%
Chesapeake Utilities	11.33%	4.45%	6.88%	0.80	5.50%	9.95%	9.95%
NiSource	11.33%	4.45%	6.88%	0.95	6.54%	10.99%	10.99%
Northwest Natural Holding Co.	11.33%	4.45%	6.88%	0.85	5.85%	10.30%	10.30%
Southwest Gas Holdings	11.33%	4.45%	6.88%	0.85	5.85%	10.30%	10.30%
ONE Gas, Inc.	11.33%	4.45%	6.88%	0.90	6.19%	10.64%	10.64%
Spire, Inc.	11.33%	4.45%	6.88%	0.85	5.85%	10.30%	10.30%
					Mean	10.40%	10.40%
					Median	10.30%	10.30%

A: MFG-15, Sch 5
B: MFG-15 Sch 1
C: A - B
D: MFG-15, Sch 2

E: C * D
F: B + E
G: Low-end test < Column F < High-end test

Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence)	5.84%
	CAPM Risk Premium, Column C	6.88%
	20 percent of CAPM risk premium	1.38%
	Moody's 10-Year Baa Corporate Bond Index + 20 percent of CAPM risk premium	7.22%

High-End Test:	Proxy Group median, Column F	10.30%
	150 percent of Proxy Group median	15.45%
	200 percent of Proxy Group median	20.60%

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
CAPM ROE Analysis **Exhibit MFG-15**
Average of Low-End Tests for Value Line and Kroll **Schedule 8**

Value Line Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence. MFG-15, Schedule 5	5.84%
	CAPM Risk Premium, Value Line, MFG-15, Schedule 7	6.88%
	20 percent of CAPM risk premium	1.38%
	Moody's 10-Year Baa Public Corporate Bond Index + 20 percent of CAPM risk premium	7.22%

Kroll Low-End Test:	Moody's 10-Year Baa Corporate Bond Index, S&P Global Market Intelligence. MFG-15, Schedule 3	5.84%
	CAPM Risk Premium, Kroll, MFG-15, Schedule 5	5.00%
	20 percent of CAPM risk premium	1.00%
	Moody's 10-Year Baa Public Corporate Bond Index + 20 percent of CAPM risk premium	6.84%

Mean of Value Line and Kroll Low-End Tests 7.03%

S&P Capital IQ PRO

Source: S&P Capital IQ Pro Regulatory Research Associates Rate Case History
Downloaded April 8, 2024

2021

State	Company	Docket	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Equity Ratio (%)
Georgia	Atlanta Gas Light Co.	D-42315 (2020 review)	Distribution	1/1/2021	Fully Litigated	NA	56.00
Colorado	Black Hills Colorado Gas	D-20AL-0380G	Distribution	1/6/2021	Fully Litigated	NA	NA
Delaware	Delmarva Power & Light Co.	D-20-0150	Distribution	1/6/2021	Settled	9.60	50.37
Oregon	Cascade Natural Gas Corp.	D-UG 390	Distribution	1/6/2021	Settled	9.40	50.00
Illinois	Ameren Illinois	D-20-0308	Distribution	1/13/2021	Fully Litigated	9.67	52.00
Minnesota	CenterPoint Energy Resources	D-G-008/GR-19-524	Distribution	1/14/2021	Settled	NA	NA
Nebraska	Black Hills Nebraska Gas	D-NG-109	Distribution	1/26/2021	Settled	9.50	50.00
Montana	MDU Resources Group	D2020.06.076	Distribution	2/16/2021	Settled	NA	NA
Tennessee	Piedmont Natural Gas Co.	D-20-00086	Distribution	2/16/2021	Settled	9.80	50.50
Pennsylvania	Columbia Gas of Pennsylvania	D-R-2020-3018835	Distribution	2/19/2021	Fully Litigated	9.86	54.19
District of Columbia	Washington Gas Light Co.	FC-1162	Distribution	2/24/2021	Settled	9.25	52.10
California	Southwest Gas Corp.	A-19-08-015 (SoCal)	Distribution	3/25/2021	Settled	10.00	52.00
California	Southwest Gas Corp.	A-19-08-015 (NoCal)	Distribution	3/25/2021	Settled	10.00	52.00
California	Southwest Gas Corp.	A-19-08-015 (LkTah)	Distribution	3/25/2021	Settled	10.00	52.00
Maryland	Washington Gas Light Co.	C-9651	Distribution	4/9/2021	Fully Litigated	9.70	52.03
North Dakota	MDU Resources Group	C-PU-20-379	Distribution	5/5/2021	Settled	9.30	50.31

Washington	Cascade Natural Gas Corp.	D-UG-200568	Distribution	5/18/2021	Fully Litigated	9.40	49.10
New York	Corning Natural Gas Corp.	C-20-G-0101	Distribution	5/19/2021	Fully Litigated	8.80	48.00
Pennsylvania	PECO Energy Co	D-R-2020-3018929	Distribution	6/17/2021	Fully Litigated	10.24	53.38
Kentucky	Louisville Gas & Electric Co.	C-2020-00350 (gas)	Distribution	6/30/2021	Settled	9.43	NA
Tennessee	Atmos Energy Corp.	D-21-00019	Distribution	7/19/2021	Settled	NA	59.88
West Virginia	Hope Gas Inc.	C-20-0746-G-42T	Distribution	7/27/2021	Fully Litigated	9.54	47.45
New Hampshire	Liberty Utilities EnergyNorth	D-DG-20-105	Distribution	7/30/2021	Settled	9.30	52.00
Wisconsin	Wisconsin Electric Power Co.	D-5-AF-107 (WEP-Gas)	Distribution	8/11/2021	NA	NA	NA
Wisconsin	Wisconsin Gas LLC	D-5-AF-107	Distribution	8/11/2021	NA	NA	NA
Wisconsin	Wisconsin Public Service Corp.	D-5-AF-107 (Gas)	Distribution	8/11/2021	NA	NA	NA
New York	KeySpan Gas East Corp.	C-19-G-0310	Distribution	8/12/2021	Settled	8.80	48.00
New York	The Brooklyn Union Gas Co.	C-19-G-0309	Distribution	8/12/2021	Settled	8.80	48.00
Oklahoma	CenterPoint Energy Resources	Ca-PUD202100054	Distribution	8/19/2021	Settled	NA	NA
Idaho	Avista Corp.	C-AVU-G-21-01	Distribution	9/1/2021	Settled	9.40	50.00
Illinois	North Shore Gas Co.	D-20-0810	Distribution	9/8/2021	Fully Litigated	9.67	51.58
Michigan	Michigan Gas Utilities Corp.	C-U-20718	Distribution	9/9/2021	Settled	9.85	NA
Virginia	Virginia Natural Gas Inc.	C-PUR-2020-00095	Distribution	9/14/2021	Settled	9.50	51.89
Arkansas*	CenterPoint Energy Resources	D-17-010-FR (2021 filing	Distribution	9/23/2021	Fully Litigated	NA	32.27
Washington	Avista Corp.	D-UG-200901	Distribution	9/27/2021	Settled	9.40	48.50
South Carolina	Piedmont Natural Gas Co.	D-2021-7-G	Distribution	9/29/2021	Settled	9.80	52.20
Massachusetts	Boston Gas Co.	DPU 20-120	Distribution	9/30/2021	Fully Litigated	9.70	53.44
Indiana	Sthrn IN Gas & Electric Co.	Ca-45447	Distribution	10/6/2021	Settled	9.70	45.74
Washington	Northwest Natural Gas Co.	D-UG-200994	Distribution	10/21/2021	Settled	NA	NA
Missouri	Spire Missouri Inc.	C-GR-2021-0108	Distribution	10/27/2021	Fully Litigated	9.37	49.86
Massachusetts	NSTAR Gas Co.	DPU 21-107	Distribution	10/29/2021	Fully Litigated	NA	NA
Indiana	Indiana Gas Co.	Ca-45468	Distribution	11/17/2021	Settled	9.80	46.21
New Jersey	New Jersey Natural Gas Co.	D-GR21030679	Distribution	11/17/2021	Settled	9.60	54.00
Georgia	Atlanta Gas Light Co.	D-42315 (2021 review)	Distribution	11/18/2021	Settled	NA	56.00

Illinois	Northern Illinois Gas Co.	D-21-0098	Distribution	11/18/2021	Fully Litigated	9.75	54.46
New York	Central Hudson Gas & Electric	C-20-G-0429	Distribution	11/18/2021	Settled	9.00	50.00
Wisconsin	Northern States Power Co.	D- 4220-UR-125 (Gas)	Distribution	11/18/2021	Settled	10.00	52.50
Wisconsin	Wisconsin Power and Light Co.	D-6680-UR-123 (Gas)	Distribution	11/18/2021	Settled	10.00	52.50
Wisconsin	Madison Gas and Electric	D-3270-UR-124 (Gas)	Distribution	11/23/2021	Settled	9.80	55.00
Oklahoma	Oklahoma Natural Gas Co	Ca-PUD202100063	Distribution	11/30/2021	Settled	9.40	58.55
Maryland	Columbia Gas of Maryland	C-9664	Distribution	12/3/2021	Fully Litigated	9.65	52.95
Michigan	DTE Gas Co.	C-U-20940	Distribution	12/9/2021	Fully Litigated	9.90	39.23
Colorado	Black Hills Colorado Gas	D-21AL-0236G	Distribution	12/13/2021	Settled	9.20	50.26
Pennsylvania	Columbia Gas of Pennsylvania	D-R-2021-3024296	Distribution	12/16/2021	Settled	NA	NA
Missouri	Union Electric Co.	C-GR-2021-0241	Distribution	12/22/2021	Settled	NA	NA
Iowa	Black Hills Iowa Gas Utility	D-RPU-2021-0002	Distribution	12/28/2021	Settled	9.60	50.01
Kentucky	Columbia Gas of Kentucky	C-2021-00183	Distribution	12/28/2021	Settled	9.35	52.64
Kentucky	Duke Energy Kentucky Inc.	C-2021-00190	Distribution	12/28/2021	Settled	9.38	51.34
Kansas	Black Hills Kansas Gas Utility	D-21-BHCG-418-RTS	Distribution	12/30/2021	Settled	NA	NA

*-CenterPoint Energy Arkansas case excluded from Equity Ratio. Capital Structure includes unusual ite

Mean	**9.56**	**51.32**
Median	**9.60**	**51.95**
Range	**8.80-10.24**	**39.23-59.88**
	n = 43	**n = 44**

2022

State	Company	Docket	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Equity Ratio (%)
Kentucky	Delta Natural Gas Co.	C-2021-00185	Distribution	1/3/2022	Settled	9.25	NA
North Carolina	Piedmont Natural Gas Co.	D-G-9, Sub 781	Distribution	1/6/2022	Settled	9.60	51.60
New York	Niagara Mohawk Power Co.	C-20-G-0381	Distribution	1/20/2022	Settled	9.00	48.00
North Carolina	Public Service Co. of NC	D-G-5 Sub 632	Distribution	1/21/2022	Settled	9.60	51.60
Nevada	Southwest Gas Corp.	D-21-09001 (Southern)	Distribution	3/22/2022	Settled	9.40	50.00
Nevada	Southwest Gas Corp.	D-21-09001 (Northern)	Distribution	3/22/2022	Settled	9.40	50.00

New York	Orange & Rockland Utlts.	C-21-G-0073	Distribution	4/14/2022	Settled	9.20	48.00
Kentucky	Atmos Energy Corp.	C-2021-00214	Distribution	5/19/2022	Fully Litigated	9.23	54.50
New York	Corning Natural Gas Corp.	C-21-G-0394	Distribution	6/16/2022	Settled	9.25	48.00
Tennessee	Atmos Energy Corp.	D-22-00010	Distribution	6/20/2022	Fully Litigated	NA	60.59
Missouri	Empire District Gas Co.	C-GR-2021-0320	Distribution	6/23/2022	Settled	NA	NA
Michigan	Consumers Energy Co.	C-U-21148	Distribution	7/7/2022	Settled	9.90	NA
New Hampshire	Northern Utilities Inc.	D-DG-21-104	Distribution	7/20/2022	Settled	9.30	52.00
Indiana	Northern IN Public Svc Co. LLC	Ca-45621	Distribution	7/27/2022	Settled	9.85	49.47
Oregon	Avista Corp.	D-UG 433	Distribution	8/2/2022	Settled	9.40	50.00
New Jersey	Elizabethtown Gas Co.	D-GR21121254	Distribution	8/17/2022	Settled	9.60	52.00
Minnesota	CenterPoint Energy Resources	D-G-008/GR-21-435	Distribution	8/18/2022	Settled	9.39	51.00
Washington	Cascade Natural Gas Corp.	D-UG-210755	Distribution	8/23/2022	Settled	9.40	47.00
Pennsylvania	UGI Utilities Inc.	D-R-2021-3030218	Distribution	9/15/2022	Settled	NA	NA
South Carolina	Piedmont Natural Gas Co.	D-2022-89-G	Distribution	9/15/2022	Settled	9.30	52.20
Massachusetts	Boston Gas Co.	DPU 22-74	Distribution	9/26/2022	Fully Litigated	NA	NA
Delaware	Delmarva Power & Light Co.	D-22-0002	Distribution	10/12/2022	Settled	9.60	49.94
Arkansas	Black Hills Energy Arkansas	D-21-097-U	Distribution	10/10/2022	Fully Litigated	9.60	45.00
Oregon	Northwest Natural Gas Co.	D-UG-435	Distribution	10/24/2022	Settled	9.40	50.00
Colorado	Public Service Co. of CO	D-22AL-0046G	Distribution	10/25/2022	Fully Litigated	9.20	53.78
Massachusetts	The Berkshire Gas Co.	DPU 22-20	Distribution	10/27/2022	Settled	9.70	54.00
North Dakota	Northern States Power Co.	C-PU-21-381	Distribution	10/27/2022	Settled	9.80	52.54
Pennsylvania	PECO Energy Co	D-R-2022-3031113	Distribution	10/27/2022	Settled	NA	NA
California	San Diego Gas & Electric Co.	A-21-08-014 (Gas)	Distribution	11/3/2022	Fully Litigated	10.20	52.00
Oklahoma	Summit Utilities Inc.	Ca-PUD202200022	Distribution	11/10/2022	Settled	NA	NA
Maryland	Columbia Gas of Maryland Inc	C-9680	Distribution	11/17/2022	Settled	9.65	52.97
Oklahoma	Oklahoma Natural Gas Co	Ca-PUD202200023	Distribution	11/29/2022	Settled	NA	NA
Missouri	Spire Missouri Inc.	C-GR-2022-0179	Distribution	11/30/2022	Settled	NA	NA
New Mexico	New Mexico Gas Co.	C-21-00267-UT	Distribution	11/30/2022	Settled	9.38	52.00

Pennsylvania	Columbia Gas of Pennsylvania	D-R-2022-3031211	Distribution	12/8/2022	Settled	NA	NA
Washington	Avista Corp.	D-UG-220054	Distribution	12/12/2022	Settled	NA	NA
California	Southern California Gas Co.	A-22-04-011	Distribution	12/15/2022	Fully Litigated	9.80	52.00
New Jersey	South Jersey Gas Co.	D-GR22040253	Distribution	12/21/2022	Settled	9.60	54.00
Washington	Puget Sound Energy Inc.	D-UG-220067	Distribution	12/22/2022	Settled	9.40	49.00
Wisconsin	Wisconsin Public Service Corp.	D-6690-UR-127 (Gas)	Distribution	12/22/2022	Fully Litigated	9.80	53.40
Utah	Dominion Energy Inc.	D-22-057-03	Distribution	12/23/2022	Fully Litigated	9.60	51.00
Wisconsin	Wisconsin Electric Power Co.	D-5-UR-110 (WEP-Gas)	Distribution	12/29/2022	Fully Litigated	9.80	58.22
Wisconsin	Wisconsin Gas LLC	D-5-UR-110	Distribution	12/29/2022	Fully Litigated	9.80	52.70

*-Black Hills Energy Arkansas case excluded from Equity Ratio. Capital Structure includes unusual item

Mean	**9.53**	**51.52**
Median	**9.60**	**51.80**
Range	**9.20-10.20**	**45.00-60.59**
	n = 33	**n = 32**

2023

State	Company	Docket	Case Type	Date of Decision	Decision Type	Return on Equity (%)	Equity Ratio (%)
Texas	Texas Gas Service Co.	D-OSS-22-00009896	Distribution	1/19/2023	Fully Litigated	9.60	59.74
Arizona	Southwest Gas Corp.	D-G-01551A-21-0368	Distribution	1/23/2023	Settled	9.30	50.00
Florida	Florida Public Utilities Co.	D-20220067-GU	Distribution	1/24/2023	Fully Litigated	10.25	45.16
Ohio	Columbia Gas Ohio Inc.	C-21-0637-GA-AIR	Distribution	1/26/2023	Settled	9.60	50.60
Minnesota	Northern States Power Co.	D-G-002/GR-21-678	Distribution	3/23/2023	Settled	9.57	52.50
Florida	Pivotal Utility Holdings Inc.	20220069-GU	Distribution	3/28/2023	Fully Litigated	9.50	59.60
South Dakota	MidAmerican Energy Co.	D-NG22-005	Distribution	3/28/2023	Settled	NA	NA
Colorado	Atmos Energy Corp.	D-22AL-0348G	Distribution	5/4/2023	Settled	9.30	58.00
Kansas	Atmos Energy Corp.	D-23-ATMG-359-RTS	Distribution	5/9/2023	Settled	NA	NA
Virginia	Columbia Gas of Virginia Inc	C-PUR-2022-00036	Distribution	5/15/2023	Settled	NA	NA
Pennsylvania	Natl Fuel Gas Distribution Co.	D-R-2022-3035730	Distribution	6/15/2023	Settled	NA	NA

Idaho	Intermountain Gas Co.	C-INT-G-22-07	Distribution	6/30/2023	Settled	9.50	50.00
Oklahoma	Oklahoma Natural Gas Co	Ca-PUD2023-000012	Distribution	7/11/2023	Settled	NA	NA
New York	Consolidated Edison Company of	C-22-G-0065	Distribution	7/20/2023	Settled	9.25	48.00
Virginia	Virginia Natural Gas Inc.	C-PUR-2022-00052	Distribution	8/28/2023	Settled	NA	NA
Virginia	Washington Gas Light Co.	C-PUR-2022-00054	Distribution	8/29/2023	Settled	NA	NA
Michigan	Consumers Energy Co.	C-U-21308	Distribution	8/30/2023	Settled	9.90	NA
Michigan	Michigan Gas Utilities Corp.	C-U-21366	Distribution	8/30/2023	Settled	9.80	NA
Idaho	Avista Corp.	C-AVU-G-23-01	Distribution	8/31/2023	Settled	9.40	50.00
Maine	Northern Utilities Inc.	D-2023-00051	Distribution	9/20/2023	Settled	9.35	52.01
South Carolina	Dominion Energy South Carolina	D-2023-70-G	Distribution	9/20/2023	Settled	9.49	54.78
Massachusetts	Boston Gas Co.	DPU 23-56	Distribution	9/28/2023	Fully Litigated	NA	NA
South Carolina	Piedmont Natural Gas Co.	D-2023-7-G	Distribution	10/5/2023	Settled	9.30	53.13
Tennessee	Chattanooga Gas Co.	D-23-00029	Distribution	10/6/2023	Settled	9.80	49.23
New York	NY State Electric & Gas	C-22-G-0318	Distribution	10/12/2023	Settled	9.20	48.00
New York	Rochester Gas & Electric Corp.	C-22-G-0320	Distribution	10/12/2023	Settled	9.20	48.00
Montana	NorthWestern Energy	D-2022-7-78 (gas)	Distribution	10/25/2023	Settled	9.55	48.02
Maryland	Columbia Gas of Maryland	C-9701	Distribution	10/26/2023	Settled	NA	NA
Minnesota	Minnesota Energy	D-G-011/GR-22-504	Distribution	10/26/2023	Settled	9.65	53.00
Oregon	Avista Corp.	D-UG-461	Distribution	10/26/2023	Settled	9.50	50.00
Massachusetts	NSTAR Gas Co.	DPU 23-94	Distribution	10/30/2023	Fully Litigated	NA	NA
Ohio	Duke Energy Ohio Inc.	C-22-0507-GA-AIR	Distribution	11/1/2023	Settled	9.60	52.32
Wisconsin	Madison Gas and Electric Co.	D-3270-UR-125 (Gas)	Distribution	11/3/2023	Fully Litigated	9.70	56.06
Wyoming	Questar Gas Co.	D-30010-215-GR-23	Distribution	11/7/2023	Settled	9.65	51.56
Florida	Peoples Gas System	D-20230023-GU	Distribution	11/9/2023	Fully Litigated	10.15	NA
Wisconsin	Northern States Power Co.	D-4220-UR-126 (Gas)	Distribution	11/9/2023	Fully Litigated	9.80	52.50
Wisconsin	Wisconsin Power and Light Co	D-6680-UR-124 (Gas)	Distribution	11/9/2023	Fully Litigated	9.80	53.70
California	Pacific Gas and Electric Co.	A-21-06-021 (Gas)	Distribution	11/16/2023	Fully Litigated	NA	NA
Illinois	Ameren Illinois	D-23-0067	Distribution	11/16/2023	Fully Litigated	9.44	50.00
Illinois	North Shore Gas Co.	D-23-0068	Distribution	11/16/2023	Fully Litigated	9.38	52.58

Illinois	Northern Illinois Gas Co.	D-23-0066	Distribution	11/16/2023	Fully Litigated	9.51	50.00
Illinois	The Peoples Gas Light & Coke C	D-23-0069	Distribution	11/16/2023	Fully Litigated	9.38	50.79
Tennessee	Piedmont Natural Gas Co.	D-23-00035	Distribution	12/4/2023	Settled	9.80	50.09
Maryland	Baltimore Gas and Electric Co.	C-9692 (GAS)	Distribution	12/14/2023	Fully Litigated	9.45	52.00
Maryland	Washington Gas Light Co.	C-9704	Distribution	12/14/2023	Fully Litigated	9.50	52.60
District of Columbia	Washington Gas Light Co.	FC-1169	Distribution	12/15/2023	Fully Litigated	9.65	52.00
Virginia	Roanoke Gas Co.	C-PUR-2022-00205 (Exp	Distribution	12/19/2023	Settled	NA	NA
West Virginia	Mountaineer Gas Co.	C-23-0280-G-42T	Distribution	12/21/2023	Settled	9.75	NA
California	Southern California Gas Co.	Advice Letter No. 6207-G	Distribution	12/22/2023	Fully Litigated	10.50	52.00

Mean	**9.60**	**51.76**
Median	**9.55**	**50.60**
Range	**9.20-10.50**	**45.16-59.74**
	n = 37	**n = 33**

Overall 2021-2023

Mean	**9.56**	**51.34**
Median	**9.60**	**51.95**
Range	**8.80-10.50**	**45.16-59.74**
	n = 113	**n = 109**

ROE and ROR Analysis for MDU Gas
Summary of ROE Analyses and Recommended ROE

Docket No. PU-23-341
Exhibit MFG-17
Schedule 1

Analysis	Weight		ROE	Exhibit
Constant-Growth DCF		**Mean**	10.23%	Exhibit MFG-14, Schedule 1
		Median	10.33%	
Multistage DCF		**Mean**	9.57%	Exhibit MFG-14, Schedule 5
		Median	9.51%	
CAPM Kroll Market Risk Premium		**Mean**	8.77%	Exhibit MFG-15, Schedule 4
		Median	8.70%	
CAPM S&P 500 Value Line		**Mean**	10.40%	Exhibit MFG-15, Schedule 6
		Median	10.30%	
DCF and CAPM Value Line results		**Mean**	9.742%	
		Median	9.710%	

		2121	**2022**	**2023**	
Recently awarded ROEs	**Mean**	9.56	9.53	9.60	Exhibit MFG-16
	Median	9.60	9.60	9.55	
	Range	8.80-10.24	9.20-10.20	9.20-10.50	
	Cases	n = 43	n = 33	n = 37	

	Overall
Mean	9.56
Median	9.60
Range	8.80-10.50
Cases	n = 113

Recommended ROE for MDU Gas		9.725%

S&P Capital IQ PRO

S&P Market Intelligence website, downloaded June 23, 2024
In thousands of dollars

Company Name	2024Q1	2023Q4	2023Q3	2023Q2	2023Q1	2022Q4	2022Q3	2022Q2	Average 2022Q2-2024Q1
	Average Long-Term Debt for each quarter								
Atmos Energy Corporation	7,527,695	7,181,468	6,738,154	6,597,871	6,552,446	6,248,372	5,852,056	5,758,380	6,919,527
Chesapeake Utilities	1,196,312	926,233	656,084	662,861	629,587	593,794	598,210	605,826	733,613
NiSource, Inc.	11,402,950	11,046,300	11,007,050	10,633,750	9,910,100	9,538,350	9,520,700	9,350,000	10,059,308
Northwest Natural Holding Company	1,577,194	1,502,325	1,437,288	1,372,711	1,349,012	1,345,304	1,244,916	1,124,093	1,369,105
ONE Gas, Inc.	2,160,532	2,018,651	1,869,407	1,875,893	2,277,358	2,554,098	2,356,459	2,283,743	2,040,368
Southwest Gas Holdings, Inc.	4,694,173	4,987,463	5,260,192	4,931,222	4,546,128	5,190,124	5,227,023	4,574,106	4,926,304
Spire Inc.	3,334,600	3,436,000	3,588,750	3,627,900	3,429,400	3,094,250	3,120,050	3,207,600	3,354,819

Company Name	2024Q1	2023Q4	2023Q3	2023Q2	2023Q1	2022Q4	2022Q3	2022Q2	Average 2022Q2-2024Q1
	Average Short-Term Debt for each quarter								
Atmos Energy Corporation	10,538	150,363	148,378	4,513	1,101,498	2,313,276	2,313,249	2,201,417	283,058
Chesapeake Utilities	196,079	170,871	129,552	118,152	172,161	208,764	176,167	162,066	166,726
NiSource, Inc.	2,163,500	2,663,700	1,933,000	1,465,600	1,554,300	1,549,750	947,550	585,100	1,377,633
Northwest Natural Holding Company	170,300	253,261	273,495	299,179	332,662	271,693	208,671	279,254	261,064
ONE Gas, Inc.	938,255	1,011,145	1,075,757	1,055,689	829,984	623,070	1,281,762	1,897,644	982,166
Southwest Gas Holdings, Inc.	694,278	400,810	78,728	283,514	1,061,331	1,017,870	963,254	1,634,546	766,791
Spire Inc.	1,298,750	1,311,700	1,041,550	890,900	1,150,600	1,404,400	1,032,800	689,350	1,102,506

Quarter omitted from analysis

Atmos Energy and ONE Gas quarters omitted because of the effect of temporary securitized debt created due to Winter Storm Uri.

NiSource quarters omitted due to sale of 19.9 percent of the utility which caused debt to rise temporarily.

Company Name	2024Q1	2023Q4	2023Q3	2023Q2	2023Q1	2022Q4	2022Q3	2022Q2	Average 2022Q2-2024Q1
	Average Common Equity for each quarter								
Atmos Energy Corporation	11,445,924	11,071,637	10,736,223	10,403,793	10,020,740	9,627,683	9,343,631	9,125,701	10,735,663
Chesapeake Utilities	1,263,504	1,056,391	865,453	861,408	845,695	823,620	815,070	810,607	917,718
NiSource, Inc.	7,201,250	6,283,200	6,068,800	6,102,750	5,970,050	5,621,650	5,446,250	5,450,250	5,965,367
Northwest Natural Holding Company	1,313,612	1,251,689	1,229,909	1,244,293	1,211,874	1,148,149	1,129,818	1,063,362	1,199,088
ONE Gas, Inc.	2,797,931	2,706,312	2,650,787	2,653,153	2,617,953	2,515,350	2,449,935	2,451,493	2,685,227
Southwest Gas Holdings, Inc.	3,333,139	3,274,391	3,250,786	3,279,491	3,177,458	3,235,837	3,435,884	3,473,967	3,307,619
Spire Inc.	2,978,550	2,742,050	2,682,900	2,717,500	2,683,300	2,599,300	2,590,200	2,601,550	2,699,419

Quarter omitted from analysis

Atmos Energy and ONE Gas quarters omitted because of the effect of temporary securitized debt created due to Winter Storm Uri.

NiSource quarters omitted due to sale of 19.9 percent of the utility which caused debt to rise temporarily.

Company Name	Average Total Capital 2022Q2-2024Q1		Long-Term Debt %	Short-Term Debt %	Common Equity %	
Atmos Energy Corporation	17,938,248		38.57%	1.58%	59.85%	100.00%
Chesapeake Utilities	1,818,057		40.35%	9.17%	50.48%	100.00%
NiSource, Inc.	17,402,308		57.80%	7.92%	34.28%	100.00%
Northwest Natural Holding Company	2,829,257		48.39%	9.23%	42.38%	100.00%
ONE Gas, Inc.	5,707,761		35.75%	17.21%	47.05%	100.00%
Southwest Gas Holdings, Inc.	9,000,714		54.73%	8.52%	36.75%	100.00%
Spire Inc.	7,156,744		46.88%	15.41%	37.72%	100.00%
	Proxy Group	**Average %**	46.07%	9.86%	44.07%	100.00%
	Proxy Group w/o ONE Gas, Spire	**Average %**	47.97%	7.28%	44.75%	100.00%

Capital structure requested by MDU Gas	45.30%	4.52%	50.19%	100.00%

ROE and ROR Analysis for MDU Gas **Docket No. PU-23-341**
Recommended ROE and ROR **Exhibit MFG-17**
Weighted Average Cost of Capital **Schedule 3**
Based on Inputs from MFG-20, Schedules 1-2

Rate of Return NDPSC

	Ratio	Cost	WACC
Long-Term Debt	45.296%	4.569%	2.070%
Short-Term Debt	4.519%	4.954%	0.224%
Common Equity	50.185%	9.725%	4.880%
Overall Rate of Return	100.00%		7.174%

The recommended common equity cost of 9.725 percent is taken from Exhibit MFG-17, Schedule 1. The capital structure is for December 31, 2024 and is taken from the MDU Statement E, Page 1 of 1. The cost of long-term debt and short-term debt are taken from the Direct Testimony of Tammy Nygard, page 5.

Requested Rate of Return
MDU Gas

	Ratio	Cost	WACC
Long-Term Debt	45.296%	4.569%	2.070%
Short-Term Debt	4.519%	4.954%	0.224%
Common Equity	50.185%	10.500%	5.269%
Overall Rate of Return	100.00%		7.563%

The recommended common equity cost of 10.50 percent is taken from the Direct Testimony of Ann E. Bulkley, Exhibit (AEB-1), Page 6. The capital structure is for December 31, 2024 and is taken from the MDU Statement E, Page 1 of 1. The cost of long-term debt and short-term debt are taken from the Direct Testimony of Tammy Nygard, page 5.

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

Montana-Dakota Utilities Co.
2023 Natural Gas Rate Increase
Application

Case No. PU-23-341

Verification

State Of Minnesota)
) ss.
County Of Ramsey)

Marlon Griffing, being first duly sworn on oath, deposes and states that he has read the testimony and exhibits submitted in the above captioned matters under his name, that they were prepared by him or under his direction, that he knows the contents thereof, and that the same are true and correct to the best of his knowledge and belief.

Marlon Griffing

Subscribed and sworn to before me this 29th day of July, 2024.

Notary Public
My Commission Expires: 01-31-2027

ESTEPHANIE NAOMI DIAZ CELON
Notary Public - Minnesota
My Commission Expires Jan. 31, 2027