BEFORE THE
INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF WESTFIELD GAS, LLC, D/B/A CITIZENS GAS OF WESTFIELD FOR (1) AUTHORITY TO INCREASE RATES AND CHARGES FOR GAS UTILITY SERVICE AND APPROVAL OF A NEW SCHEDULE OF RATES AND CHARGES; (2) APPROVAL OF CERTAIN REVISIONS TO ITS TERMS AND CONDITIONS APPLICABLE TO GAS UTILITY SERVICE; AND (3) APPROVAL PURSUANT TO INDIANA CODE SECTION 8-1-2.5-6 OF AN ALTERNATIVE REGULATORY PLAN UNDER WHICH IT WOULD CONTINUE ITS ENERGY EFFICIENCY PROGRAM PORTFOLIO AND ENERGY EFFICIENCY RIDER	)	**CAUSE NO.** 45761

DIRECT TESTIMONY

of

ADRIEN M. MCKENZIE, CFA

Petitioner's Exhibit No. 3

DIRECT TESTIMONY OF ADRIEN M. MCKENZIE

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I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A1. Adrien M. McKenzie, 3907 Red River, Austin, Texas, 78751.

Q2. IN WHAT CAPACITY ARE YOU EMPLOYED?

A2. I am a Vice President of FINCAP, Inc., a firm providing financial, economic, and policy consulting services to business and government.

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND QUALIFICATIONS.

A3. A description of my background and qualifications, including a resume containing the details of my experience, is attached as Attachment AMM-1.

Q4. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS CASE?

A4. The purpose of my testimony is to present to the Indiana Utility Regulatory Commission ("Commission") my independent assessment of a reasonable cost of equity ("COE") for the jurisdictional gas utility operations of Westfield Gas Corporation, d/b/a Citizens Gas of Westfield ("Westfield" or "the Company"). My analysis includes a review of fair value ratemaking and the development of a reasonable estimate of expected inflation relevant to the determination of a fair rate of return on fair value ("RFV") for Westfield.

Q5. PLEASE SUMMARIZE THE INFORMATION AND MATERIALS YOU RELIED ON TO SUPPORT THE OPINIONS AND CONCLUSIONS CONTAINED IN YOUR TESTIMONY.

A5. To prepare my testimony, I used information from a variety of sources that would normally be relied upon by a person in my capacity. In connection with the present filing, I considered and relied upon discussions with corporate management, publicly available financial reports, and prior regulatory filings relating to Westfield. I also reviewed information relating generally to current capital market conditions and specifically to investor perceptions, requirements, and expectations for Westfield's gas

utility operations. These sources, coupled with my experience in the fields of finance and utility regulation, have given me a working knowledge of the issues relevant to investors' required return for Westfield, and they form the basis of my analyses and conclusions.

Q6. HOW IS YOUR TESTIMONY ORGANIZED?

A6. After first summarizing my conclusions and recommendations, I briefly review Westfield's operations and finances, develop a relevant proxy group of natural gas utilities, and examine Westfield's risk profile in relation to this group, including the implications of regulatory mechanisms. I then consider current conditions in the capital markets and their implications in evaluating a fair COE for Westfield. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for a separate reference group of natural gas utilities. These included the discounted cash flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the empirical form of the Capital Asset Pricing Model ("ECAPM"), an equity risk premium approach based on allowed ROEs, and reference to expected earned rates of return for gas utilities. Finally, consistent with the fact that utilities must compete for capital with firms outside their own industry, I corroborate my utility quantitative analyses by applying the DCF model to a group of low-risk non-utility firms.

Based on the cost of equity estimates indicated by my analyses, I evaluate a fair COE for Westfield's gas utility operations considering the Company's specific risks and requirements for financial strength. Finally, I conclude my testimony with a review of the principles underlying fair value ratemaking and present my recommendation for a fair RFV for Westfield.

Q7. WHAT IS THE ROLE OF THE COE IN SETTING A UTILITY'S RATES?

A7. The COE is the cost of attracting and retaining common equity investment in the utility's physical plant and assets. This investment is necessary to finance the asset base needed

to provide utility service. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. Moreover, a fair and reasonable return on the fair value of utility property is integral in meeting sound regulatory economics and the standards set forth by the U.S. Supreme Court in the *Bluefield*[1] and *Hope*[2] cases. A utility's allowed RFV should be sufficient to: 1) fairly compensate the utility's investors, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity. So long as the utility has a reasonable opportunity to actually earn the allowed rate of return, these standards should permit the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system replacement and expansion.

II. COST OF EQUITY FOR WESTFIELD

Q8. WHAT IS THE PURPOSE OF THIS SECTION?

A8. This section presents my conclusions regarding a reasonable COE applicable to Westfield's gas utility operations. This section also discusses the relationship between the return on equity and preservation of a utility's financial integrity and the ability to attract capital.

A. Importance of Financial Strength

Q9. WHAT IS THE ROLE OF THE COE IN SETTING A UTILITY'S RATES?

A9. The COE is the cost of attracting and retaining common equity investment in the utility's physical plant and assets. This investment is necessary to finance the asset base needed to provide utility service. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. Moreover, a just and reasonable COE is integral in meeting

[1] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923).
[2] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

sound regulatory economics and the standards set forth by the U.S. Supreme Court. The *Bluefield* case set the standard against which just and reasonable rates are measured:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . . The return should be reasonable, sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary for the proper discharge of its public duties.[3]

The *Hope* case expanded on the guidelines as to a reasonable COE, reemphasizing its findings in *Bluefield* and establishing that the rate-setting process must produce an end-result that allows the utility a reasonable opportunity to cover its capital costs. The Court stated:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. . . . By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain credit and attract capital.[4]

In summary, the Supreme Court's findings in *Hope* and *Bluefield* established that a just and reasonable COE must be sufficient to 1) fairly compensate the utility's investors, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity. These standards should allow the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system replacement and expansion, but the

[3] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923).
[4] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

Supreme Court's requirements can only be met if the utility has a reasonable opportunity to actually earn its allowed COE.

While the *Hope* and *Bluefield* decisions did not establish a particular method to be followed in fixing rates (or in determining the allowed COE),[5] these and subsequent cases enshrined the importance of an end result that meets the opportunity cost standard of finance. Under this doctrine, the required return is established by investors in the capital markets based on expected returns available from comparable risk investments. Coupled with modern financial theory, which has led to the development of formal risk-return models (e.g., DCF and CAPM), practical application of the *Bluefield* and *Hope* standards involves the independent, case-by-case consideration of capital market data in order to evaluate a COE that will produce a balanced and fair end result for investors and customers.

Q10. THROUGHOUT YOUR TESTIMONY YOU REFER REPEATEDLY TO THE CONCEPTS OF "FINANCIAL STRENGTH," "FINANCIAL INTEGRITY," AND "FINANCIAL FLEXIBILITY." WOULD YOU BRIEFLY DESCRIBE WHAT YOU MEAN BY THESE TERMS?

A10. These terms are generally synonymous and refer to the utility's ability to attract and retain the capital that is necessary to provide service at reasonable cost, consistent with the Supreme Court standards. Rating agencies and potential debt investors tend to place significant emphasis on maintaining strong financial metrics and credit ratings that support access to debt capital markets under reasonable terms. This emphasis on financial metrics and credit ratings is shared by equity investors who also focus on cash flows, capital structure and liquidity, much like debt investors. Investors understand the important role that a supportive regulatory environment plays in establishing a sound

[5] *Id.* at 602 (finding, "the Commission was not bound to the use of any single formula or combination of formulae in determining rates." and, "[I]t is not theory but the impact of the rate order which counts.")

financial profile that will permit the utility access to debt and equity capital markets on reasonable terms in both favorable financial markets and during times of potential disruption and crisis.

Q11. WHAT PART DOES REGULATION PLAY IN ENSURING THAT WESTFIELD HAS ACCESS TO CAPITAL UNDER REASONABLE TERMS AND ON A SUSTAINABLE BASIS?

A11. Regulatory signals are a major driver of investors' risk assessment for utilities. Investors recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity. Security analysts study commission orders and regulatory policy statements to advise investors about where to put their money. As Moody's noted, "the regulatory environment is the most important driver of our outlook because it sets the pace for cost recovery."[6] Similarly, S&P observed that, "Regulatory advantage is the most heavily weighted factor when S&P Global Ratings analyzes a regulated utility's business risk profile."[7] Value Line summarizes these sentiments:

> As we often point out, the most important factor in any utility's success, whether it provides electricity, gas, or water, is the regulatory climate in which it operates. Harsh regulatory conditions can make it nearly impossible for the best run utilities to earn a reasonable return on their investment.[8]

Q12. DO CUSTOMERS BENEFIT BY ENHANCING THE UTILITY'S FINANCIAL FLEXIBILITY?

A12. Yes. Providing a COE that is sufficient to maintain Westfield's ability to attract capital under reasonable terms, even in times of financial and market stress, is not only consistent with the economic requirements embodied in the U.S. Supreme Court's *Hope*

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[6] Moody's Investors Service, *Regulation Will Keep Cash Flow Stable As Major Tax Break Ends*, Industry Outlook (Feb. 19, 2014).
[7] S&P Global Ratings, *Assessing U.S. Investors-Owned Utility Regulatory Environments*, RatingsExpress (Aug. 10, 2016).
[8] Value Line Investment Survey, *Water Utility Industry* (Jan. 13, 2017) at p. 1780.

and *Bluefield* decisions, it is also in customers' best interests. Customers enjoy the benefits that come from ensuring that the utility has the financial wherewithal to take whatever actions are required to ensure safe and reliable service.

B. Conclusions and Recommendations

Q13. WHAT ARE YOUR FINDINGS REGARDING THE FAIR COE FOR WESTFIELD?

A13. Based on the results of my analyses and the economic requirements necessary to support continuous access to capital under reasonable terms, I determined that 10.9% is a conservative estimate of investors' required COE for Westfield. The bases for my conclusion are summarized below:

- In order to reflect the risks and prospects associated with Westfield's jurisdictional utility operations, my analyses focused on a proxy group of firms with gas utility operations.
- Because investors' required return on equity is unobservable and no single method should be viewed in isolation, I applied the DCF, CAPM, ECAPM, risk premium, and expected earnings methods to estimate a fair COE for Westfield.
- Current capital market conditions highlight the imperative of considering alternatives to the DCF model.
- Widespread expectations for higher interest rates emphasize the need to consider the impact of projected bond yields in evaluating the results of these quantitative methods.
- Based on the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I concluded that the COE for a regulated gas utility is in the 9.6% to 10.9% range.
- A COE from the upper end of my recommended range is warranted for Westfield because of the additional uncertainties associated with the Company's relatively small size.
- Because the utilities in my proxy group operate under a wide variety of adjustment mechanisms, including decoupling, the mitigation in risks associated with Westfield's regulatory mechanisms is already reflected in the results of my analyses, and no separate adjustment to the Company's COE is necessary or warranted.

Considering the risks to which Westfield is exposed and its relative size compared to the proxy group, 10.9% represents a conservative estimate of investors' COE for the Company.

Q14. WHAT DID THE DCF RESULTS FOR YOUR SELECT GROUP OF NON-UTILITY FIRMS INDICATE WITH RESPECT TO YOUR EVALUATION?

A14. Average DCF estimates for a low-risk group of firms in the competitive sector of the economy ranged from 10.2% to 10.7%. Considering risk differences, these results confirm that my recommended COE for Westfield is within a reasonable range.

Q15. WHAT ARE YOUR CONCLUSIONS AS TO THE POTENTIAL IMPACT OF EXPECTED INFLATION ON THE RFV?

A15. Consistent with Indiana fair value standards and economic logic, my testimony discusses the concepts underlying a determination of RFV for Westfield. While the RFV recognizes that expectations for inflation are a persistent feature of the economic landscape that is embodied in investors' nominal COE, it must also consider the earnings attrition implicit in the use of original cost depreciation within the current cost ratemaking paradigm. As outlined in my testimony:

- The specific risks faced by Westfield warrant a COE from the upper end of my reasonable range, or 10.9%.
- Based on widely-referenced, independent forecasts and observable yields on Treasury bond instruments, investors' expectations of future inflation are likely to fall in the range of approximately 2.3% to 3.0%.
- Because investors recognize that a firm's ability to adjust future prices to offset higher costs provides a hedge against inflation, generalized inflation rates or those imputed from yields on debt securities are likely to overstate inflation premiums built into the COE.
- The use of historical cost depreciation expense (as is typical in Indiana ratemaking and as proposed by Westfield in this case) will produce a return that falls short of investors' requirements under current value ratemaking.

- Considering the implications for common equity investors and the attrition impact associated with historical cost depreciation expense, if inflation is considered in evaluating the RFV, I recommend using the lower end of my inflation range, or 2.3%.

Given the risks to which Westfield is exposed, its relative size compared to the proxy group used to estimate the COE, and the attrition that results from the use of book value depreciation in current cost ratemaking, a 2.3% inflation rate represents a conservative basis on which to calculate a fair RFV in this proceeding. This conclusion is reinforced by the need to maintain Westfield's financial integrity, provide a return commensurate with investments of comparable risk, and support the Company's ability to attract capital. In addition, broad-based expectations for higher bond yields imply that current cost of capital estimates are likely to understate investors' requirements at the time the outcome of this proceeding becomes effective and beyond.

Q16. IS IT WIDELY ACCEPTED THAT A UTILITY'S ABILITY TO ATTRACT CAPITAL MUST BE CONSIDERED IN ESTABLISHING A FAIR RATE OF RETURN?

A16. Yes. This is a fundamental standard underlying the regulation of public utilities. The Supreme Court's *Bluefield* and *Hope* decisions established that a regulated utility's authorized returns on capital must be sufficient to assure investors' confidence and that, if the utility is efficient and prudent on a prospective basis, it will be able to maintain and support its credit and have the opportunity to raise necessary capital.[9]

Q17. WHAT IS YOUR CONCLUSION AS TO THE REASONABLENESS OF WESTFIELD'S CAPITAL STRUCTURE?

A17. Based on my evaluation, I concluded that Westfield's actual capital structure, consisting of 75.00% common equity, 24.82% debt, and 0.18% customer deposits, represents a reasonable basis on which to establish the Company's return. This compares with a

[9] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923) ("*Bluefield*"); *FPC v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*").

capital structure consisting of 100% common equity that was used in the Commission's determination of the fair return for Westfield in its last litigated rate case, Cause No. 43624.

III. FUNDAMENTAL ANALYSES

Q18. WHAT IS THE PURPOSE OF THIS SECTION?

A18. My objective is to evaluate and recommend a fair and reasonable COE for Westfield. Much of my work is predicated on a comparison of the Company with the utility industry, and more specifically to a proxy group of publicly traded natural gas distribution utilities. As a foundation for my opinions and subsequent quantitative analyses, this section briefly reviews the operations and finances of Westfield. In addition, I explain the basis for the proxy group I use to estimate the cost of equity and compare the investment risks of Westfield with my reference group. An understanding of the fundamental factors driving the risks and prospects of gas utilities is essential in developing an informed opinion of investors' expectations and requirements that are the basis of the COE.

A. Westfield Gas

Q19. BRIEFLY DESCRIBE WESTFIELD AND ITS GAS UTILITY OPERATIONS.

A19. Westfield is a natural gas local distribution company that is engaged in the sale, distribution, and transportation of natural gas to approximately 6,100 customers in and around Westfield, Indiana. Approximately 52% of the Company's throughput is attributable to residential customers, with commercial, industrial, and large volume interruptible customers making up 37%, 1% and 10% of the remaining balance, respectively. For the twelve months ended December 31, 2021, Westfield had total assets of $22.7 million, with total operating revenues of approximately $5.7 million.

Q20. WHERE WAS THE CAPITAL USED TO FINANCE WESTFIELD'S INVESTMENT IN UTILITY PLANT OBTAINED?

A20. As a wholly-owned subsidiary, the Company has no publicly traded common stock and obtains its common equity capital from retained earnings and from its parent, Citizens Resources, which in turn is a subsidiary of Citizens Energy Group.[10] Westfield has not been rated by any of the major credit rating agencies—Moody's Investors Service ("Moody's"), S&P Global Ratings ("S&P"), or Fitch Ratings Inc.

Q21. DOES WESTFIELD ANTICIPATE THE NEED FOR ADDITIONAL CAPITAL IN THE FUTURE?

A21. Yes. Westfield will require capital in order to fund new investment in mains and in modernizing its underground gas distribution system. Since Westfield was acquired in 2004, the Company has undertaken a significant program of capital expenditures to enhance the gas utility system.

B. Gas Utility Group

Q22. HOW DO YOU IMPLEMENT QUANTITATIVE METHODS TO ESTIMATE THE COST OF COMMON EQUITY FOR WESTFIELD?

A22. Application of quantitative methods to estimate the cost of common equity requires observable capital market data, such as stock prices and beta values. Moreover, even for a firm with publicly traded stock, the cost of common equity can only be estimated. As a result, applying quantitative models using observable market data only produces an estimate that inherently includes some degree of observation error. Thus, the accepted approach to increase confidence in the results is to apply quantitative methods to a proxy group of publicly traded companies that investors regard as risk comparable.

[10] The paid in capital of Westfield was provided by Citizens Energy Services Corporation ("CESCO") before the current parent of Westfield, Citizens Westfield Utilities, LLC, was formed in 2014.

The results of the analysis on the sample of companies are relied upon to establish a range of reasonableness for the cost of equity for the specific company at issue.

Q23. HOW DO YOU IDENTIFY THE SPECIFIC UTILITIES THAT ARE INCLUDED IN YOUR PROXY GROUP?

A23. To reflect the risks and prospects associated with natural gas utility operations, I examine quantitative estimates of investors' required ROE for a group of eight natural gas utilities. To identify this group, I begin with those companies included in the Natural Gas Utility industry group compiled by Value Line. Value Line is one of the most widely available sources of investment advisory information, and its industry groups provide an objective source to identify publicly traded firms that investors would regard to be similar in operations.

Q24. WHAT OTHER FACTORS DO YOU CONSIDER IN EVALUATING YOUR PROXY GROUP?

A24. From the list of gas utilities compiled by Value Line, I eliminated South Jersey Industries due to its pending acquisition by Infrastructure Investment Fund. I also exclude UGI Corporation because it is primarily engaged in propane sales and marketing, which are not directly comparable to Westfield's gas distribution operations. Further, I confirm that all of the proxy group firms have investment-grade credit ratings from S&P and Moody's.[11] Finally, I verify that the remaining firms have not cut dividend payments during the past six months and have not announced a dividend cut since that time. As

[11] Credit rating firms, such as Moody's and S&P, use designations consisting of upper- and lower-case letters 'A' and 'B' to identify a bond's credit quality rating. 'Aaa', 'Aa', 'A', and 'Baa' ratings are considered investment grade. Credit ratings for bonds below these designations ('Ba', 'B', 'Caa', etc.) are considered speculative grade, and are commonly referred to as "junk bonds." The term "investment grade" refers to bonds with ratings in the 'Baa' category ('BBB' by S&P) and above.

While the debt of Chesapeake Utilities is not rated by Moody's or S&P, Value Line continues to assign Chesapeake Utilities its second-best Safety Rank of "2." The Value Line Investment Survey, *Chesapeake Utilities* (Feb. 25, 2022).

shown in the table below, application of these criteria results in a proxy group composed of eight companies, which I refer to as the "Gas Group:"

TABLE AMM-1
GAS GROUP

Atmos Energy Corp.
Chesapeake Utilities
New Jersey Resources
NiSource Inc.
Northwest Natural
ONE Gas, Inc.
Southwest Gas
Spire Inc.

Q25. HOW DO YOU EVALUATE THE INVESTMENT RISKS OF THE GAS GROUP?

A25. My evaluation of relative risk considers four published benchmarks that are widely relied on by investors; namely, credit ratings from Moody's and S&P, along with Value Line's Safety Rank, Financial Strength Rating, and beta values. Credit ratings are assigned by independent rating agencies for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default).[12] Other symbols (*e.g.*, "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes virtually all of the factors normally considered important in assessing a firm's relative credit standing, corporate credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently

[12] Credit rating firms, such as S&P, use designations consisting of upper- and lower-case letters 'A' and 'B' to identify a bond's credit quality rating. 'AAA', 'AA', 'A', and 'BBB' ratings are considered investment grade. Credit ratings for bonds below these designations ('BB', 'B', 'CCC', etc.) are considered speculative grade, and are commonly referred to as "junk bonds". The term "investment grade" refers to bonds with ratings in the 'BBB' category and above.

used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

While credit ratings provide the most widely referenced benchmark for investment risks, other quality rankings published by investment advisory services also provide relative assessments of risks that are considered by investors in forming their expectations for common stocks. Value Line's primary risk indicator is its Safety Rank, which ranges from "1" (Safest) to "5" (Riskiest). This overall risk measure is intended to capture the total risk of a stock, and incorporates elements of stock price stability and financial strength. Given that Value Line is perhaps the most widely available source of investment advisory information, its Safety Rank provides useful guidance regarding the risk perceptions of investors.

The Financial Strength Rating is designed as a guide to overall financial strength and creditworthiness, with the key inputs including financial leverage, business volatility measures, and company size. Value Line's Financial Strength Ratings range from "A++" (strongest) down to "C" (weakest) in nine steps. These published indicators incorporate consideration of a broad spectrum of risks, including financial and business position, relative size, and exposure to firm-specific factors.

Finally, beta measures a utility's stock price volatility relative to the market as a whole and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.00, while stocks that tend to move more than the market have betas greater than 1.00. Beta is the only relevant measure of investment risk under modern capital market theory and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions. Moreover, in my experience, Value Line is the most widely referenced source for beta in regulatory proceedings. As noted in *New Regulatory Finance*:

> Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors. … Value Line betas are computed on a theoretically sound basis using a broadly based market index, and they are adjusted for the regression tendency of betas to converge to 1.00.[13]

Q26. WHAT DO THESE MEASURES INDICATE WITH RESPECT TO THE OVERALL RISKS OF THE GAS GROUP?

A26. The average risk indicators for the Gas Group are shown in the table below:

TABLE AMM-2
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Gas Group	A-	A3	2	A	0.83

The average single-A ratings corresponding to the Gas Group place their credit risks solidly within the investment-grade range. Similarly, the average Value Line risk indicators for the Gas Group, which incorporate a broad spectrum of risks, including financial and business position and exposure to company specific factors, are generally indicative of a company with a conservative risk profile.

C. Westfield's Relative Risks

Q27. ARE THE RESULTS OF YOUR VARIOUS QUANTITATIVE ANALYSES DIRECTLY APPLICABLE TO WESTFIELD?

A27. No. The cost of equity estimates developed in my testimony are predicated on the investment risk associated with the utilities in the benchmark group, all of which have published risk measures and are materially larger than Westfield. Published risk indicators, such as those compiled by the credit rating agencies and Value Line, provide investors with an objective benchmark to evaluate relative risk. The ability to rely on

[13] Morin, Roger A., "New Regulatory Finance," *Public Utilities Reports* at 71 (2006).

such measures in evaluating the exposure associated with a given investment has important implications for investors' risk perceptions and the utility's access to capital. For example, many investors are restricted by federal regulations or investment guidelines from the purchase of debt securities that do not have an investment-grade rating. As a result, in contrast to the utilities in the Gas Group, the lack of objective risk indicators corresponding to Westfield complicates investors' analyses and limits the Company's access to capital.

Q28. WOULD INVESTORS CONSIDER WESTFIELD'S RELATIVE SIZE IN THEIR ASSESSMENT OF THE COMPANY'S RISKS AND PROSPECTS?

A28. Yes. A firm's relative size has important implications for investors in their evaluation of alternative investments, and it is well established that smaller firms are more risky than larger firms. With total assets of approximately $22.7 million, Westfield is significantly smaller than the publicly traded firms in the utility proxy groups used to estimate the cost of equity.[14]

The magnitude of the size disparity between Westfield and other firms in the utility industry has important practical implications with respect to the risks faced by investors. All else being equal, it is well accepted that smaller firms are more risky than their larger counterparts, due in part to their relative lack of diversification and lower financial resiliency. In the case of a smaller utility, its earnings are principally dependent on the economic, social, regulatory, and other factors affecting a more limited constituency. This can result in significant exposure, especially where key employers or industries dominate the economy. As Moody's recently noted:

> We generally regard smaller companies as more vulnerable to single event related costs or cash flow pressure because of their lack of economies of scale and market position. Should there be an unforeseen event or regulatory change that causes significant cost increases over a

[14] Based on data reported by Value Line, the average market capitalization for the firms in the Gas Group is $5.6 billion.

> short period of time or reduces sources of cash flow, smaller companies are more at-risk than larger companies, which are able to spread the costs across a larger range of assets or have greater diversification in sources of cash flow.[15]

Meanwhile, larger utilities generally enjoy improved exposure to financial markets, which enhances their ability to raise additional capital relative to smaller utilities. As a result, they are better prepared to withstand adverse events and possess greater financial flexibility to respond or adapt to changing conditions in the economy and industry.

Q29. IS THERE EMPIRICAL EVIDENCE IN THE FINANCIAL LITERATURE THAT A COMPANY'S SIZE AFFECTS ITS RELATIVE RISKS?

A29. Yes. It is well established in the financial literature that smaller firms are more risky than larger firms.[16] For example, a classic University of Kansas study demonstrated that large firms are assigned higher bond ratings than small firms with similar characteristics,[17] and there is ample empirical evidence that investors in smaller firms realize higher rates of return than in larger firms.[18] Common sense and accepted financial doctrine hold that these greater risks mean that investors require higher returns from smaller companies, and unless that compensation is provided in the rate of return allowed for a utility, the legal tests embodied in the *Hope* and *Bluefield* cases cannot be met.

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[15] Moody's Investors Service, *Alaska Electric Light and Power Company*, Credit Opinion (Aug. 10, 2021).
[16] See, *e.g.*, Eugene F. Fama and Kenneth R. French, *The Cross-Section of Expected Stock Returns*, The Journal of Finance (June 1992).
[17] George E. Pinches, J. Clay Singleton, and Ali Jahankhani, *Fixed Coverage as a Determinant of Electric Utility Bond Ratings*, Financial Management (Summer 1978).
[18] See for example Rolf W. Banz, *The Relationship Between Return and Market Value of Common Stocks*, Journal of Financial Economics (September 1981) at 16.

Q30. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT REQUIRED TO ACCOUNT FOR THIS SIZE PREMIUM?

A30. One estimate of the size premium is available from Kroll,[19] which reports data for "Low-Cap" and "Micro-Cap" stocks in addition to its better-known reports on the S&P 500. Low-Cap companies comprise the 6th through 8th size-deciles of those stocks listed on the New York Stock Exchange, NYSE American, and NASDAQ, while Micro-Cap stocks represent the 9th through 10th size-deciles.

The individual firms in the Low-Cap group have market capitalizations at or below about $3.3 billion but greater than $629 million, with the market capitalization of Micro-Cap stocks falling between approximately $11 million and $628 million.[20] These smaller companies have historically earned higher rates of return than the large companies comprising the S&P 500. For the 1926 to 2021 period, Kroll reported an average size premium in excess of the return implied by the CAPM of 123 basis points for the Low-Cap sector, and 304 basis points for Micro-Cap companies.[21]

Q31. HOW ELSE MIGHT THE SIZE PREMIUM BE ESTIMATED FOR WESTFIELD?

A31. The additional return attributable to the significant distinction in size between Westfield and the Gas Group can be estimated by reference to the relative size premiums quantified by Kroll for their respective market capitalizations. Because Westfield does not have publicly traded common stock, its implied market capitalization is estimated by multiplying the Company's total common equity of approximately $15.1 million by the average market-to-book ratio for the Gas Group of 2.12 times. This implies a market capitalization for Westfield of $32.0 million and corresponds to the 10th decile of the

[19] Kroll, formerly Duff & Phelps, compiles and publishes updated financial data originally presented in *Stocks, Bonds, Bills and Inflation* by Roger G. Ibbotson and Rex A. Sinquefield.
[20] Kroll, *2022 Supplementary CRSP Decile Size Study Data Exhibits*.
[21] *Id.*

publicly-traded firms, which had market capitalizations ranging from $10.6 to $289.0 million and a size premium of 4.85%.[22] Meanwhile, the average size adjustment corresponding to the market capitalizations of the utilities in the Gas Group is 87 basis points. Subtracting the size premium associated with the Gas Group of 87 basis points from the 485 basis point premium for firms in the 10th size decile results in an implied size adjustment of 398 basis points to reflect the additional risks of Westfield relative to the much larger gas utilities in the proxy group.

Q32. IS THERE ANY OTHER EVIDENCE THAT QUANTIFIES THE DIFFERENCE IN THE COST OF EQUITY BETWEEN LARGE AND SMALL UTILITIES?

A32. Yes. A study reported in *Public Utilities Fortnightly* noted that the betas of small companies do not fully account for the higher realized rates of return associated with small company stocks:

> The smaller deciles show returns not fully explainable by the CAPM. The difference in risk premium (realized versus CAPM) grows larger as one moves from the largest companies in decile 1 to the smallest in decile 10. The difference is especially pronounced for deciles 9 and 10, which contain the smallest companies. [23]

The study went on to conclude that a publicly traded utility with a market capitalization of $1.0 billion would require a small company premium of approximately 130 basis points above the rate of return for larger firms.

Q33. WHAT DOES THIS EVIDENCE IMPLY WITH RESPECT TO THE COE FOR A SMALL UTILITY, SUCH AS WESTFIELD?

A33. Considering Westfield's relative size, this data implies that investors require a rate of return significantly in excess of COE estimates for the Gas Group.

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[22] *Id.*
[23] Michael, Michael, *Equity and the Small-Stock Effect*, Pub. Util. Fortnightly (Oct. 15, 1995) at 43.

Q34. DO YOU CONSIDER THE IMPLICATIONS OF COST RECOVERY MECHANISMS IN EVALUATING WESTFIELD'S RELATIVE RISK?

A34. Yes. Adjustment mechanisms and cost trackers have been increasingly prevalent in the utility industry in recent years. Reflective of this trend, companies in the gas utility industry operate under a wide variety of cost adjustment mechanisms, in addition to the standard gas cost recovery clauses that they all have. These enhanced mechanisms range from revenue decoupling and adjustment clauses designed to address rising capital investment outside of a traditional rate case, to recovery riders for costs of environmental compliance measures, bad debt expense, and post-retirement employee benefit costs. In its most recent review of adjustment clauses, RRA reported that "roughly half of the utilities utilize some type of decoupling mechanism."[24] RRA went on to conclude that:

> More recently and with greater frequency, commissions have approved mechanisms that permit the costs associated with the construction of new generation capacity or delivery infrastructure to be reflected in rates, effectively including these items in rate base without a full rate case. In some instances, these mechanisms may even provide the utilities a cash return on construction work in progress.[25]

A review of state regulatory programs for natural gas utilities published by NARUC observed that, "Commissions and state legislatures have instituted a number of policies and regulations setting forth objectives and methods to remove and replace aging infrastructure," and cited relevant programs in 41 states and the District of Columbia.[26]

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[24] S&P Global Market Intelligence, *Adjustment Clauses, A State-by-State Overview*, RRA Regulatory Focus (Nov. 12, 2019).
[25] *Id.*
[26] NARUC, *Natural Gas Distribution Infrastructure Replacement and Modernization: A Review of State Programs* (Jan. 2020).

Q35. WHAT IS REVENUE DECOUPLING?

A35. Revenue decoupling is a ratemaking mechanism that is designed to eliminate or reduce the dependence of a utility's revenues on the quantity of natural gas sold to customers. By separating revenues from customer usage, revenue decoupling addresses the economic disincentive that a utility would otherwise have to administer and promote conservation or energy efficiency efforts that lead to reduced natural gas consumption. Revenue decoupling takes the form of a tracker or attrition allowance under which authorized per customer margins are subject to a true-up mechanism to maintain or cap a given level of revenues. Thus, while revenue decoupling shields the utility's revenues from declines in customer usage, it also removes the opportunity for shareholders to benefit from throughput that exceeds the established baseline.

Q36. HAVE YOU SUMMARIZED THE VARIOUS REGULATORY MECHANISMS AVAILABLE TO THE GAS GROUP?

A36. Yes. As summarized on Attachment AMM-3, these mechanisms are ubiquitous and wide ranging. For example, of the 29 operating companies controlled by the Gas Group parent companies, 22 of them operate under some form of decoupling mechanism that accounts for the impact of various factors affecting sales volumes and revenues, with Atmos Energy Corporation operating under formula rate provisions in four of its jurisdictions, which have a similar impact. In addition, a weather normalization mechanism has been approved for 17 of these utilities, while 22 of the 29 operating gas utilities benefit from trackers designed to address rising capital investment in utility infrastructure outside of a traditional rate case.

Q37. WHAT REGULATORY CLAUSES HAVE BEEN APPROVED FOR WESTFIELD?

A37. In addition to a gas cost adjustment mechanism, like the majority of utilities represented in the Gas Group, revenue decoupling has been approved for Westfield. The Company also operates under an Energy Efficiency Rider ("EER").

Q38. DO THE COMPANY'S REGULATORY MECHANISMS SET WESTFIELD APART FROM OTHER FIRMS OPERATING IN THE UTILITY INDUSTRY?

A38. No. Adjustment mechanisms and cost trackers have been increasingly prevalent in the utility industry in recent years.[27] As documented in Attachment AMM-3, companies in the gas utility industry operate under a wide variety of cost adjustment mechanisms, which range from riders to recover bad debt expense and post-retirement employee benefit costs to revenue decoupling and adjustment clauses designed to address rising capital investment outside of a traditional rate case and increasing costs of environmental compliance measures. The majority of gas utilities benefit from revenue decoupling, along with a variety of other provisions that enhance their ability to recover operating and capital costs on a timely basis. As a result, the mitigation in risks associated with Westfield's ability to adjust revenues and attenuate the risk of cost recovery is consistent with the regulatory mechanisms available to the Gas Group.

Q39. DO THE FINANCIAL IMPACTS OF WINTER STORM URI HIGHLIGHT THE IMPORTANCE OF MAINTAINING WESTFIELD'S FINANCIAL INTEGRITY?

A39. Yes. A severe winter storm in February 2021 resulted in uncharacteristically frigid temperatures across the south-central United States that disrupted natural gas supplies at a time of unprecedented winter natural gas demand. In turn, this produced dramatic

[27] In Indiana, for example, state statutes specifically provide for electric and gas utilities to employ a capital tracker for investment related to transmission, distribution, and storage services. *See*, Indiana Code, Ch. 8-1-39.

spikes in the costs of natural gas and wholesale power throughout the region. As a result, natural gas utilities throughout the region were required to secure liquidity quickly in order to fund the extraordinary purchased gas costs necessary to maintain service to customers. Continued support for the Company's financial strength is instrumental to ensure that Westfield can maintain access to the capital necessary to respond effectively under times of turmoil in the energy and capital markets.

D. Capital Structure

Q40. WHAT CAPITAL STRUCTURE DOES THE COMPANY USE IN THIS CASE?

A40. According to the Direct Testimony of Company witness Craig Jackson, Westfield's actual capital structure consists of 75.00% common equity, 24.82% debt, and 0.18% customer deposits.

Q41. WHAT CAPITAL STRUCTURE WAS APPROVED IN THE COMPANY'S LAST LITIGATED CASE?

A41. In the final order from Cause No. 43624, the approved capital structure consisted of 98.56% common equity, 1.25% customer deposits, and 0.18% deferred income taxes.[28]

Q42. HAS WESTFIELD TAKEN STEPS TO INCREASE THE AMOUNT OF DEBT FINANCING IN ITS CAPITAL STRUCTURE?

A42. Yes. Company witness Craig Jackson discusses Westfields financial policies and the Company's gradual transition to increased debt leverage since 2016.

Q43. IS IT REASONABLE FOR A SMALL UTILITY TO MAINTAIN A RELATIVELY HIGHER EQUITY RATIO?

A43. Yes. Small utilities such as Westfield do not have ready access to the public capital markets in which to sell debt securities and other sources of additional debt capital may also be limited. Although in some cases the utility may be able to place debt privately with insurance companies or pension funds, these sources may not always be available.

[28] *Verified Petition of Westfield Gas Corp.*, Cause No. 43624, Order at 25 (Mar. 10, 2010).

And while banks may provide another potential source of debt financing, their loans are often relatively short-term and carry a variable interest rate tied to the prime rate. Moreover, small utilities face greater uncertainties than do their larger counterparts, which also supports a conservative financial posture. The facts and circumstances of this case support the use of Westfield's actual capital structure.

IV. CAPITAL MARKET ESTIMATES

Q44. WHAT IS THE PURPOSE OF THIS SECTION?

A44. This section presents capital market estimates of the COE. First, I discuss the current outlook for capital costs, including expectations for interest rates. Next, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. I then describe the DCF, CAPM, ECAPM, risk premium, and expected earnings analyses conducted to estimate the cost of common equity for the benchmark group of comparable risk firms.

A. Outlook for Capital Costs

Q45. PLEASE SUMMARIZE CURRENT ECONOMIC AND CAPITAL MARKET CONDITIONS.

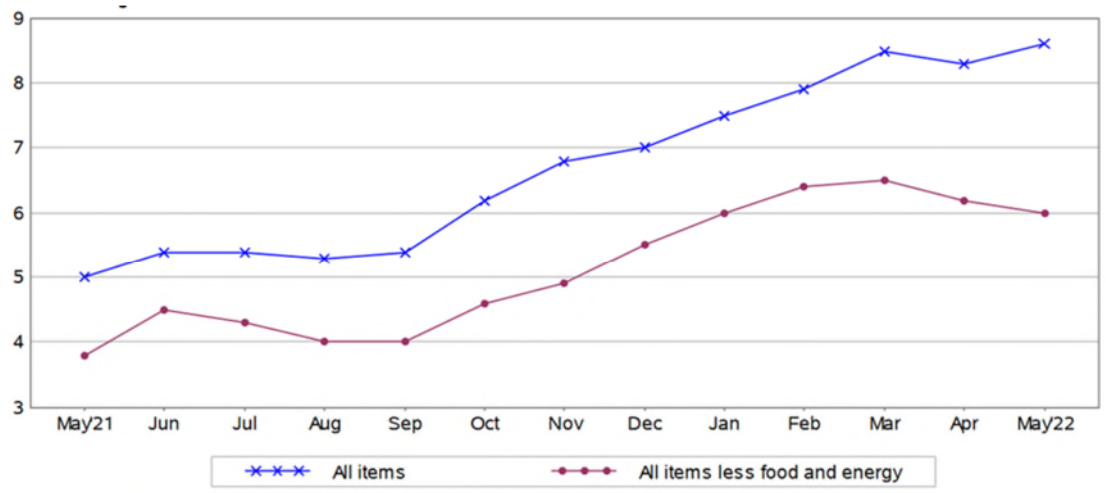
A45. U.S. real GDP contracted 3.4% during 2020, including a decline of 31.2% in the second quarter and a rebound of 33.8% in the third quarter. With the easing of lockdowns accompanying the COVID-19 vaccine rollout, the economic outlook improved significantly in 2021, with GDP growing at a pace of 5.7%. The strong growth of 2021 reversed course in the first quarter of 2022, with GDP contracting at an annual rate of 1.4%, increasing uncertainty and stoking fears of economic recession. Despite the turnaround in GDP growth, indicators of employment have continued to strengthen, with the national unemployment rate in May 2022 remaining stable at 3.6%.[29]

[29] https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm (last visited Jun. 21, 2022).

More recently, the underlying risk and unease associated with successive waves of the COVID-19 pandemic and related supply chain disruptions have been overshadowed by Russia's full-scale invasion of Ukraine on February 24, 2022. The dramatic increase in geopolitical risks has also been accompanied by heightened economic uncertainties as a wide-ranging sanctions regime seeks to isolate the Russian economy.

Stimulative monetary and fiscal policies, coupled with economic ramifications stemming from the conflict in Ukraine, have led to increasing concern that inflation may remain significantly above the 2% longer-run benchmark cited by the Federal Reserve. The U.S. inflation rate as measured by the Consumer Price Index ("CPI") reached 8.6% in May 2022, its highest level since December 1981.[30] As illustrated in Figure AMM-1, below, this represents the twelfth straight month in which inflation exceeded 5%. The so-called "core" price index, which excludes more volatile energy and food costs, rose at an annual rate of 6.0%

FIGURE AMM-1
TREND IN CONSUMER PRICE INDEX



Source: Bureau of Labor Statistics, *Consumer Price Index - May 2022*, Press Release (Jun. 10, 2022).

[30] https://www.bls.gov/news.release/pdf/cpi.pdf (last visited Jun. 13, 2022).

Similarly, Personal Consumption Expenditure Price Index ("PCE") inflation rose 6.3% in April 2022, or 4.9% after excluding more volatile food and energy cost.[31]

The Social Security Administration announced that beneficiaries would receive a cost-of-living adjustment of 5.9% for 2022, up from 1.3% a year earlier.[32] Meanwhile, the May 2022 *Survey of Consumer Expectations* conducted by the New York Fed reported a median point prediction for year-ahead inflation of 6.6% and an expected three-year inflation rate of 3.9%.[33] After abandoning the word "transitory" for describing the nature of the current high inflation rate,[34] Fed Chair Jerome Powell recently noted that:

> Inflation remains well above our longer-run goal of 2 percent. Aggregate demand is strong, and bottlenecks and supply constraints are limiting how quickly production can respond. These supply disruptions have been larger and longer lasting than anticipated, exacerbated by waves of the virus here and abroad, and price pressures have spread to a broader range of goods and services. Additionally, higher energy prices are driving up overall inflation.[35]

As The Value Line Investment Survey ("Value Line") concluded, "Inflation clearly is worrisome."[36]

Q46. HOW HAVE COMMON EQUITY MARKETS BEEN IMPACTED BY THESE EVENTS?

A46. The threats posed by the coronavirus pandemic and military conflict in Ukraine have led to extreme volatility in the capital markets as investors have been forced to dramatically revise their risk perceptions and return requirements in the face of the

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[31] https://www.bea.gov/news/2022/personal-income-and-outlays-april-2022 (last visited Jun. 13, 2022).
[32] Social Security Administration, *Fact Sheet: 2022 Social Security Changes*, https://www.ssa.gov/news/press/factsheets/colafacts2022.pdf.
[33] Federal Reserve Bank of New York, https://www.newyorkfed.org/microeconomics/sce#/ (last visited Jun. 13, 2022).
[34] https://www.reuters.com/article/usa-fed-instant/feds-powell-floats-dropping-transitory-label-for-inflation-idUSKBN2IF1S0.
[35] Federal Reserve, *Transcript of Chair Powell's Press Conference* (Mar. 16, 2021), https://www.federalreserve.gov/monetarypolicy/fomcpresconf20220316.htm.
[36] The Value Line Investment Survey, *Selection and Opinion* (Dec. 3, 2021).

severe disruptions to commerce and the world economy. Despite the actions of the world's central banks to ease market strains and bolster the economy, global equity markets have experienced precipitous declines as investors come to grips with the related exposures. S&P noted that the conflict "could have profound effects on macroeconomic prospects and credit conditions around the world,"[37] concluding that:

> The implications of the Russia-Ukraine conflict could come in the form of energy supply disruptions price shocks, sustained inflationary pressures, a drag on economic growth or policy missteps by central banks, a migrant crisis in Eastern Europe, additional cyber attacks between Russia and its perceived adversaries, risk-repricing that drives up borrowing costs or limits funding access, and profit erosion for certain sectors.[38]

As Fed Chair Powell concluded, "The financial and economic implications for the global economy and the U.S. Economy are highly uncertain."[39]

The greater uncertainty faced by equity investors is confirmed by reference to the Chicago Board Options Exchange Volatility Index (commonly known as the "VIX"), which is a key measure of expectations of near-term volatility and market sentiment referenced by the investment community. The VIX has trended sharply higher in 2022, reaching more than double its pre-pandemic level. Similarly, the Merrill Lynch Option Volatility Estimate, or "MOVE" index, which is a market-based measure of uncertainty about interest rates and is often referred to as the "investor fear gauge," is also elevated. During May 2022, the MOVE index fluctuated in the range of approximately 97 to 133, which is over 90% higher than it was at the same time in 2021.[40] This ongoing volatility in capital markets is evidence of the greater risks now faced by investors.

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[37] S&P Global Ratings, *Russia-Ukraine Military Conflict: Key takeaways From Out Articles*, Comments (Mar. 8, 2022).
[38] *Id.*
[39] Federal Reserve, *Transcript of Chair Powell's Press Conference* (Mar. 16, 2021), https://www.federalreserve.gov/monetarypolicy/fomcpresconf20220316.htm.
[40] https://www.google.com/finance/quote/MOVE:INDEXNYSEGIS?sa=X&ved=2ahUKEwiWvr7E-uH0AhVcl2oFHQLTAzsQ3ecFegQIBxAc&window=MAX (last visited Jun. 18, 2022).

Q47. HAVE UTILITIES AND THEIR INVESTORS ALSO FACED HEIGHTENED LEVELS OF UNCERTAINTY?

A47. Yes. Concerns over weakening credit quality prompted S&P to revise its outlook for the regulated utility industry from "stable" to "negative."[41] As S&P explained:

> Even before the current downturn and COVID-19, a confluence of factors, including the adverse impacts of tax reform, historically high capital spending, and associated increased debt, resulted in little cushion in ratings for unexpected operating challenges.[42]

While recognizing that regulatory protections have helped to mitigate the worst of the coronavirus pandemic, S&P concluded that credit quality in the U.S. utility industry weakened during 2020 and 2021, in part due to regulatory lag attributable to COVID-19.[43]

Meanwhile, rising inflation expectations also pose a challenge for utilities, with S&P recently noting that "the threat of inflation comes at a time when credit metrics are already under pressure relative to downside ratings thresholds."[44] S&P recently affirmed its negative outlook for investor-owned utilities, noting that "risk will continue to pressure the credit quality of the industry in 2022."[45] As S&P elaborated:

> Recently, several new credit risks have emerged, including inflation, higher interest rates, and rising commodity prices. Persistent pressure from any of these risks would likely lead to a further weakening of the industry's credit quality in 2022.[46]

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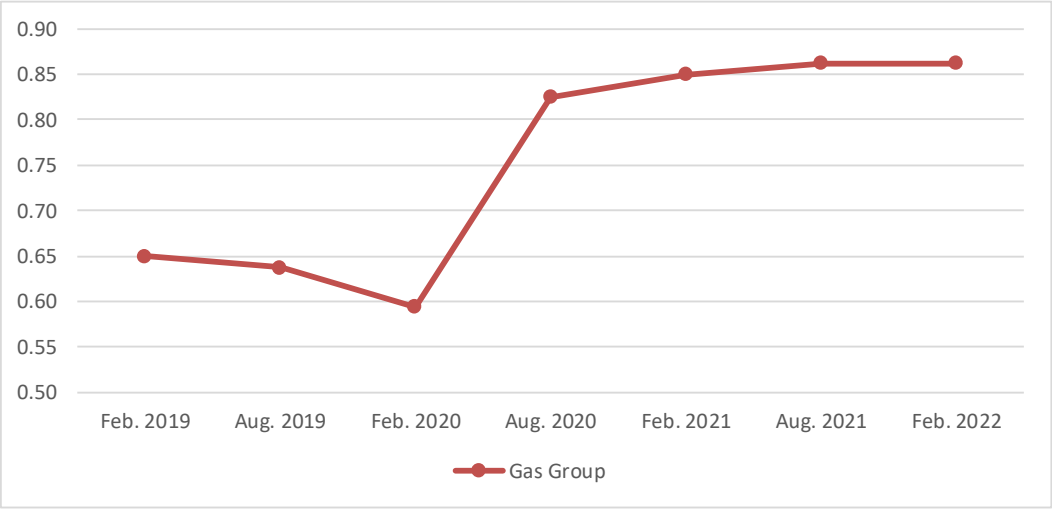
[41] S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (April 2, 2020).
[42] S&P Global Ratings, *North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic*, RatingsDirect (May 11, 2020).
[43] S&P Global Ratings, *Report: North American Regulated Utilities' Credit Quality Begins The Year On A Downward Path*, RatingsDirect (Apr. 7, 2021); S&P Global Ratings, *For The First Time Ever, The Median Investor-Owned Utility Ratings Falls To The 'BBB' Category*, RatingsDirect (Jan. 20, 2022).
[44] S&P Global Ratings, *Will Rising Inflation Threaten North American Investor-Owned Regulated Utilities' Credit Quality?* (Jul. 20, 2021).
[45] S&P Global Ratings, *For The First Time Ever, The Median Investor-Owned Utility Ratings Falls To The 'BBB' Category*, RatingsDirect (Jan. 20, 2022).
[46] *Id.*

Q48. DO CHANGES IN GAS COMPANY BETA VALUES SINCE THE PANDEMIC BEGAN CORROBORATE AN INCREASE IN INDUSTRY RISK?

A48. Yes. Beta is used by the investment community as an important guide to investors' risk perceptions. As shown in Table AMM-2, the average beta for the proxy group of comparable utilities I rely on in this case for estimating the Company's ROE, is 0.83.[47] Prior to the pandemic, the average beta for the same group of companies was 0.59.[48]

The significant shift in pre- and post-pandemic beta values for the Gas Group is further exemplified in Figure AMM-2 below. As illustrated there, the Gas Group's average beta value increased significantly with the beginning of the pandemic in March 2020, continued to increase during 2021, and has remained elevated in 2022. This dramatic increase in a primary gauge of investors' risk perceptions is further proof of the rise in the risk of gas utility common stocks.

FIGURE AMM-2
GAS GROUP BETA VALUES



[47] As indicated on Attachment AMM-6, this is based on data as of June 24, 2022.
[48] The Value Line Investment Survey, *Summary & Index* (Feb. 14, 2020).

Q49. HAVE INCREASED RISKS AND HIGHER INFLATION RESULTED IN HIGHER CAPITAL COSTS?

A49. Yes. While the cost of equity is unobservable, the yields on long-term bonds provide a widely referenced benchmark for the direction of capital costs, including required returns on common stocks. The table below compares the average yields on Treasury securities and Baa-rated public utility bonds during 2021 with those required in June 2022.

TABLE AMM-3
BOND YIELD TRENDS

Series	June 2022	2021	Change (bps)
10-Year Treasury Bonds	3.14%	1.44%	170
30-Year Treasury Bonds	3.25%	2.05%	120
Baa Utility Bonds	5.22%	3.35%	187

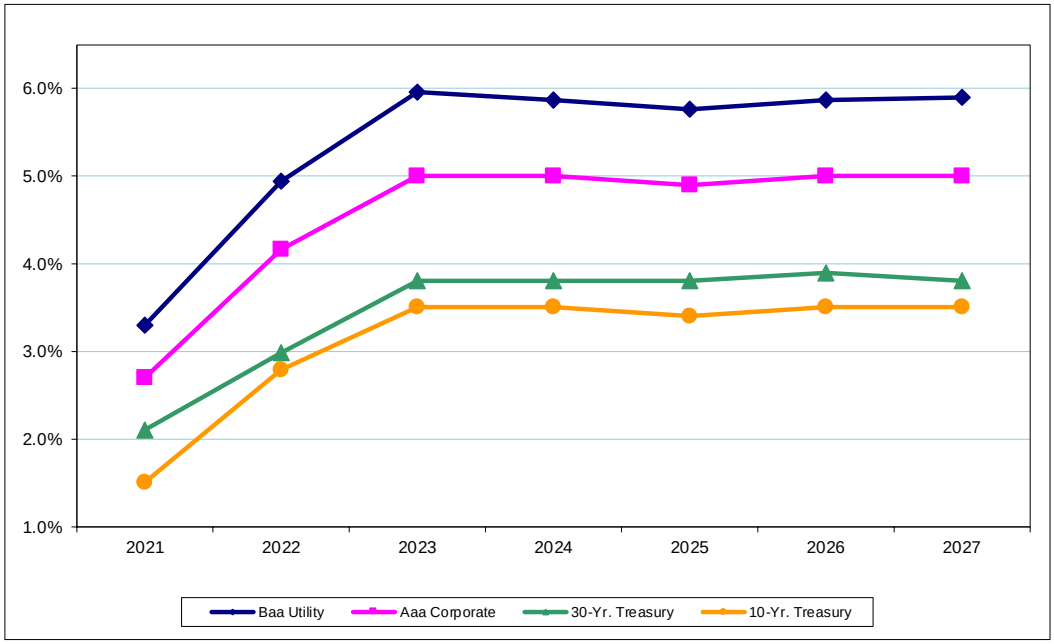
Source: https://fred.stlouisfed.org/series/GS30; Moody's Credit Trends.

As shown above, trends in bond yields since 2021 document a substantial increase in the returns on long-term capital demanded by investors. With respect to utility bond yields—which are the most relevant indicator in gauging the implications for the Company's COE—average yields are now more than 180 basis points above 2021 levels.

Q50. ARE BOND YIELDS EXPECTED TO REMAIN AT CURRENT LEVELS OVER THE NEXT FEW YEARS?

A50. No. As illustrated in Figure AMM-3 below, economic forecasters anticipate a sustained increase in bond yields over the near-term.

FIGURE AMM-3
INTEREST RATE TRENDS



	2021	2022	2023	2024	2025	2026	2027	Change (bps) 2021-27
(a) 10-Yr. Treasury	1.5%	2.8%	3.5%	3.5%	3.4%	3.5%	3.5%	200
(a) 30-Yr. Treasury	2.1%	3.0%	3.8%	3.8%	3.8%	3.9%	3.8%	170
(a) Aaa Corporate	2.7%	4.2%	5.0%	5.0%	4.9%	5.0%	5.0%	230
(b) Baa Utility	3.3%	4.9%	6.0%	5.9%	5.8%	5.9%	5.9%	260

(a) Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2022).
(b) Based on projected yields on Baa corporate bonds (Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2022)), adjusted for six-month average yield spreads at May 2022 (Moody's Investors Service).

Q51. ARE EXPECTATIONS OF HIGHER BOND YIELDS AND EXPOSURE TO INFLATION CONSISTENT WITH RECENT FEDERAL RESERVE ACTIONS AND THE VIEWS OF THE FOMC?[49]

A51. Yes. The FOMC responded to concerns over accelerating inflation by raising the benchmark range for the federal funds rate by 0.25% in March 2022, 0.50% in May

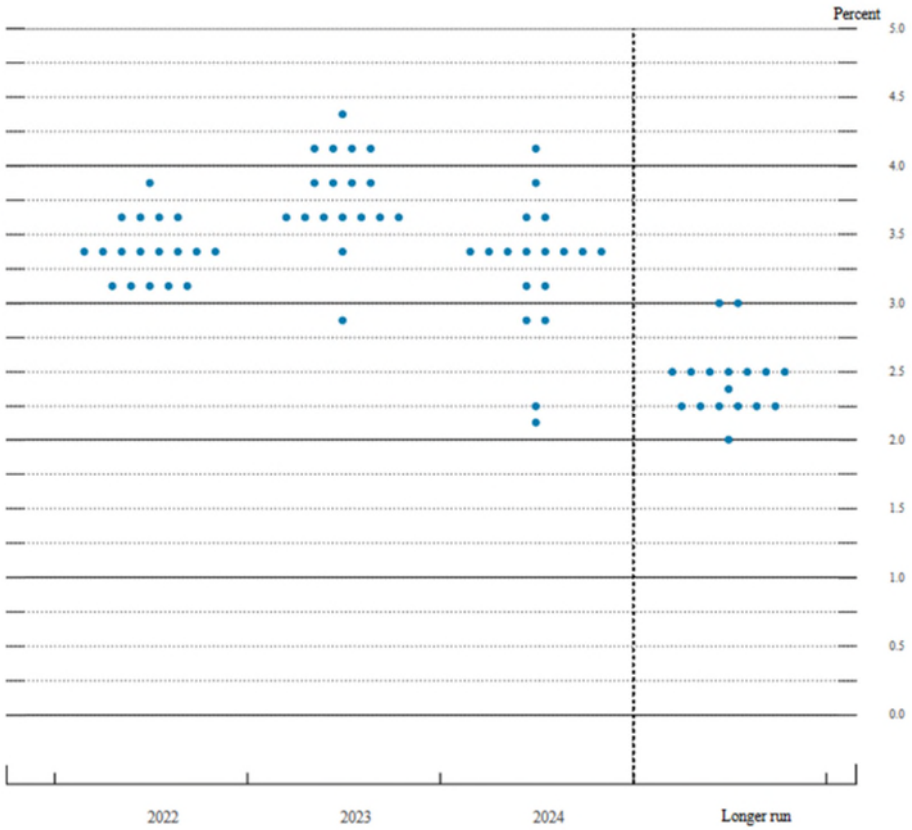
[49] The FOMC is a committee composed of twelve members that serves as the monetary policymaking body of the Federal Reserve System.

2022, and a further 0.75% at its policy meeting on June 14-15 2022.[50] Chair Powell noted that "ongoing increases in the target range will be appropriate."[51] The Federal Reserve also began a significant draw-down of its balance sheet holdings beginning in June 2022,[52] and Fed Chair Powell surmised that this process could be the equivalent of another one quarter percent rate hike over the course of a year.[53]

In conjunction with the June 14-15, 2022 policy meeting, the FOMC submitted updated projections about where short-term interest rates are headed. The results are the dot plot—a visual representation of where members think interest rates will trend over the short, medium, and longer run. As shown in Figure AMM-4 below, the most recent dot plot indicates that all of the FOMC participants expect its benchmark interest rate to be dramatically higher than current levels by the end of 2022,[54] with the median of the federal funds target range rising to 3.375% , versus 1.625% currently.

[50] Federal Reserve, *Press Release* (Jun. 15, 2022), https://www.federalreserve.gov/monetarypolicy/files/monetary20220504a1.pdf.
[51] Federal Reserve, *Transcript of Chair Powell's Press Conference* (Jun. 15, 2022), https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20220615.pdf.
[52] Federal Reserve, *Plans for Reducing the Size of the Federal Reserve's Balance Sheet*, Press Release (May 4, 2022), https://www.federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm
[53] Federal Reserve, *Transcript of Chair Powell's Press Conference* (May 4, 2022), https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20220504.pdf.
[54] *Summary of Economic Projections* (Mar. 16, 2021). https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20220316.pdf.

FIGURE AMM-4
FEDERAL RESERVE DOT PLOT



Q52. WHAT IMPLICATIONS DO THESE FORECASTS HAVE IN EVALUATING A FAIR ROE FOR WESTFIELD?

A52. These expectations for higher interest rates suggest that long-term capital costs—including the cost of equity—will increase significantly over the intermediate term. As a result, cost of equity estimates based on current data are likely to understate the return that will be required by investors over the period when the rates established in this proceeding will be in effect.

Q53. WOULD IT BE REASONABLE TO DISREGARD THE IMPLICATIONS OF CURRENT CAPITAL MARKET CONDITIONS IN EVALUATING A FAIR COE FOR WESTFIELD?

A53. No. They reflect the reality of the situation in which Westfield must attract and retain capital. The standards underlying a fair rate of return require a COE for the Company that is competitive with other investments of comparable risk and sufficient to preserve its ability to maintain access to capital on reasonable terms. These standards can only be met by considering the requirements of investors over the time period when the rates established in this proceeding will be in effect. If the upward shift in investors' risk perceptions and required rates of return for long-term capital is not incorporated in the COE and allowed RFV, the results will fail to meet the comparable earnings standard that is fundamental in determining the cost of capital. From a more practical perspective, failing to provide investors with the opportunity to earn a rate of return commensurate with Westfield's risks will weaken its financial integrity and ability to attract necessary capital.

B. Economic Standards

Q54. WHAT ROLE DOES THE COE/RFV PLAY IN A UTILITY'S RATES?

A54. The return component of a utility's revenue requirements compensates common equity investors for the use of their capital to finance the plant and equipment necessary to provide utility service. Investors will commit money to a particular investment only if they expect it to produce a return commensurate with those from other investments with comparable risks. To be consistent with sound regulatory economics and the standards set forth by the Supreme Court in the *Bluefield* and *Hope* cases, a utility's allowed equity return should be sufficient to: (1) fairly compensate investors for capital invested in the utility, (2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and (3) maintain the utility's financial integrity. Meeting these objectives allows

the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through necessary system expansion.

Q55. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF EQUITY CONCEPT?

A55. The fundamental economic principle underlying the cost of equity concept is the notion that investors are risk averse. In capital markets where relatively risk-free assets are available (*e.g.*, U.S. Treasury securities), investors can be induced to hold riskier assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Because all assets compete with each other for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to invest and hold them.

Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can generally be expressed as:

$$k_i = R_f + RP_i$$

where: R_f = Risk-free rate of return, and
RP_i = Risk premium required to hold riskier asset i.

Thus, the required rate of return for a particular asset at any time is a function of: (1) the yield on risk-free assets, and (2) the asset's relative risk, with investors demanding correspondingly larger risk premiums for bearing greater risk.

Q56. IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE ACTUALLY OPERATES IN THE CAPITAL MARKETS?

A56. Yes. The risk-return tradeoff can be readily documented in segments of the capital markets where required rates of return can be directly inferred from market data and where generally accepted measures of risk exist. Bond yields, for example, reflect investors' expected rates of return, and bond ratings measure the risk of individual bond issues. Comparing the observed yields on government securities, which are considered

free of default risk, to the yields on bonds of various rating categories demonstrates that the risk-return tradeoff does, in fact, exist.

Q57. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?

A57. It is widely accepted that the risk-return tradeoff evidenced with long-term debt extends to all assets. Documenting the risk-return tradeoff for assets other than fixed income securities, however, is complicated by two factors. First, there is no standard measure of risk applicable to all assets. Second, for most assets – including common stock – required rates of return cannot be directly observed. Yet there is every reason to believe that investors exhibit risk aversion in deciding whether or not to hold common stocks and other assets, just as when choosing among fixed-income securities.

Q58. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN FIRMS?

A58. No. The risk-return tradeoff principle applies not only to investments in different firms, but also to different securities issued by the same firm. The securities issued by a utility vary considerably in risk because they have different characteristics and priorities. As noted earlier, long-term debt is senior among all capital in its claim on a utility's net revenues and is, therefore, the least risky. The last investors in line are common shareholders: they receive only the net revenues, if any, remaining after all other claimants have been paid. As a result, the rate of return that investors require from a utility's common stock, the most junior and riskiest of its securities, must be considerably higher than the yield offered by the utility's senior, long-term debt.

Q59. WHAT ARE THE CHALLENGES IN DETERMINING A JUST AND REASONABLE ROE FOR A REGULATED ENTERPRISE?

A59. The actual return investors require is unobservable. Different methodologies have been developed to estimate investors' expected and required return on capital, but all such

methodologies are merely theoretical tools and generally produce a range of estimates, based on different assumptions and inputs. The DCF method, which is frequently referenced and relied on by regulators, is only one theoretical approach to gain insight into the return investors require; there are numerous other methodologies for estimating the cost of capital and the ranges produced by the different approaches can vary widely.

Q60. IS IT CUSTOMARY TO CONSIDER THE RESULTS OF MULTIPLE APPROACHES WHEN EVALUATING A JUST AND REASONABLE ROE?

A60. Yes. In my experience, financial analysts and regulators routinely consider the results of alternative approaches in determining allowed ROEs. It is widely recognized that no single method can be regarded as failsafe; with all approaches having advantages and shortcomings. As FERC has noted, "[t]he determination of rate of return on equity starts from the premise that there is no single approach or methodology for determining the correct rate of return."[55] Similarly, a publication of the Society of Utility and Regulatory Financial Analysts concluded that:

> Each model requires the exercise of judgment as to the reasonableness of the underlying assumptions of the methodology and on the reasonableness of the proxies used to validate the theory. Each model has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises, most of which cannot be validated empirically. Investors clearly do not subscribe to any singular method, nor does the stock price reflect the application of any one single method by investors.[56]

As this treatise succinctly observed, "no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models."[57] Similarly, *New Regulatory Finance* concluded that:

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[55] *Northwest Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 4 (1997).
[56] David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (2010) at 84.
[57] *Id*.

> There is no single model that conclusively determines or estimates the expected return for an individual firm. Each methodology possesses its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises that cannot be validated empirically. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. There is no monopoly as to which method is used by investors. In the absence of any hard evidence as to which method outdoes the other, all relevant evidence should be used and weighted equally, in order to minimize judgmental error, measurement error, and conceptual infirmities.[58]

Thus, while the DCF model is a recognized approach to estimating the ROE, it is not without shortcomings and does not otherwise eliminate the need to ensure that the "end result" is fair. The Commission has recognized this principle:

> There are three principal reasons for our unwillingness to place a great deal of weight on the results of any DCF analysis. One is. . . the failure of the DCF model to conform to reality. The second is the undeniable fact that rarely if ever do two expert witnesses agree on the terms of a DCF equation for the same utility – for example, as we shall see in more detail below, projections of future dividend cash flow and anticipated price appreciation of the stock can vary widely. And, the third reason is that the unadjusted DCF result is almost always well below what any informed financial analysis would regard as defensible, and therefore require an upward adjustment based largely on the expert witness's judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[59]

More recently, FERC recognized the potential for any application of the DCF model to produce unreliable results.[60]

As this discussion indicates, consideration of the results of alternative approaches reduces the potential for error associated with any single quantitative method. Just as investors inform their decisions using a variety of methodologies, my

[58] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 429.
[59] *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).
[60] *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).

evaluation of a fair ROE for the Company considered the results of multiple financial models.

C. Discounted Cash Flow Analyses

Q61. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF COMMON EQUITY?

A61. DCF models assume that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:[61]

$$P_0 = \frac{D_1}{k_e - g}$$

where: P_0 = Current price per share;
D_1 = Expected dividend per share in the coming year;
k_e = Cost of equity; and,
g = Investors' long-term growth expectations.

The cost of common equity (k_e) can be isolated by rearranging terms within the equation:

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

This constant growth form of the DCF model recognizes that the rate of return to stockholders consists of two parts: 1) dividend yield (D_1/P_0); and 2) growth (g). In

[61] The constant growth DCF model is dependent on a number of strict assumptions, which in practice are never met. These include a constant growth rate for both dividends and earnings; a stable dividend payout ratio; the discount rate exceeds the growth rate; a constant growth rate for book value and price; a constant earned rate of return on book value; no sales of stock at a price above or below book value; a constant price-earnings ratio; a constant discount rate (*i.e.*, no changes in risk or interest rate levels and a flat yield curve); and all the above extend to infinity. Nevertheless, the DCF method provides a workable and practical approach to estimate investors' required return that is widely referenced in utility ratemaking.

other words, investors expect to receive a portion of their total return in the form of current dividends and the remainder through price appreciation.

Q62. WHAT STEPS ARE REQUIRED TO APPLY THE CONSTANT GROWTH DCF MODEL?

A62. The first step in implementing the constant growth DCF model is to determine the expected dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an estimate of dividends to be paid in the coming year divided by the current price of the stock. The second, and more controversial, step is to estimate investors' long-term growth expectations (g) for the firm. The final step is to add the firm's dividend yield and estimated growth rate to arrive at an estimate of its cost of common equity.

Q63. HOW DO YOU DETERMINE THE DIVIDEND YIELD FOR THE GAS GROUP?

A63. Estimates of dividends to be paid by each of these utilities over the next twelve months, obtained from Value Line, served as D_1. This annual dividend was then divided by a 30-day average stock price for each utility to arrive at the expected dividend yield. The expected dividends, stock prices, and resulting dividend yields for the firms in the Gas Group are presented on Attachment AMM-4. As shown on page 1, dividend yields for the firms in the Gas Group ranged from 1.7% to 3.7% and average 3.0%.

Q64. WHAT IS THE NEXT STEP IN APPLYING THE CONSTANT GROWTH DCF MODEL?

A64. The next step is to evaluate long-term growth expectations, or "g," for the firm in question. In constant growth DCF theory, earnings, dividends, book value, and market price are all assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But implementation of the DCF model is more than just a theoretical exercise; it is an attempt to replicate the mechanism investors used to arrive at observable stock

prices. Growth rates can be estimated using a wide variety of techniques, but the only "*g*" that matters in applying the DCF model is the value that investors expect.

Q65. WHAT ARE INVESTORS MOST LIKELY TO CONSIDER IN DEVELOPING THEIR LONG-TERM GROWTH EXPECTATIONS?

A65. Implementation of the DCF model is solely concerned with replicating the forward-looking evaluation of real-world investors. In the case of utilities, dividend growth rates are not likely to provide a meaningful guide to investors' current growth expectations. Utility dividend policies reflect the need to accommodate business risks and investment requirements in the industry, as well as potential uncertainties in the capital markets. As a result, dividend growth in the utility industry has lagged growth in earnings as utilities conserve financial resources.

A measure that plays a pivotal role in determining investors' long-term growth expectations is future trends in earnings per share "EPS", which provide the source for future dividends and ultimately support share prices. The importance of earnings in evaluating investors' expectations and requirements is well accepted in the investment community, and surveys of analytical techniques relied on by professional analysts indicate that growth in earnings is far more influential than trends in dividends per share ("DPS").

The availability of projected EPS growth rates also is key to investors relying on this measure as compared to future trends in DPS. Apart from Value Line, investment advisory services do not generally publish comprehensive DPS growth projections, and this scarcity of dividend growth rates relative to the abundance of earnings forecasts attests to their relative influence. The fact that securities analysts focus on EPS growth, and that DPS growth rates are not routinely published, indicates that projected EPS growth rates are likely to provide a superior indicator of the future long-term growth expected by investors.

Q66. DO THE GROWTH RATE PROJECTIONS OF SECURITY ANALYSTS CONSIDER HISTORICAL TRENDS?

A66. Yes. Professional security analysts study historical trends extensively in developing their projections of future earnings. Hence, to the extent there is any useful information in historical patterns, that information is incorporated into analysts' growth forecasts.

Q67. DID PROFESSOR MYRON J. GORDON, A PIONEER OF THE CONSTANT GROWTH DCF APPROACH, RECOGNIZE THE PIVOTAL ROLE THAT EARNINGS PLAY IN FORMING INVESTORS' EXPECTATIONS?

A67. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that should be used" in applying the DCF model and he concluded, "A number of considerations suggest that investors may, in fact, use earnings growth as a measure of expected future growth."[62]

Q68. ARE ANALYSTS' ASSESSMENTS OF GROWTH RATES APPROPRIATE FOR ESTIMATING INVESTORS' REQUIRED RETURN USING THE DCF MODEL?

A68. Yes. In applying the DCF model to estimate the cost of common equity, the only relevant growth rate is the forward-looking expectations of investors that are captured in current stock prices. Investors, just like securities analysts and others in the investment community, do not know how the future will actually turn out. They can only make investment decisions based on their best estimate of what the future holds in the way of long-term growth for a particular stock, and securities prices are constantly adjusting to reflect their assessment of available information.

The highly competitive market for investment guidance supports a finding that analysts' estimates are relied on by investors. If financial analysts' forecasts do not add value to investors' decision-making, then it is irrational for investors to pay for these

[62] Myron J. Gordon, *The Cost of Capital to a Public Utility*, MSU Public Utilities Studies (1974) at 89.

estimates. Similarly, those financial analysts who fail to provide reliable forecasts will lose out in competitive markets relative to those analysts whose forecasts investors find more credible. The reality that the financial media and investment advisory publications (e.g., Value Line) routinely reference analysts' estimates implies that investors use them as a basis for their expectations.

While the projections of securities analysts may prove optimistic or pessimistic in hindsight, this is irrelevant in assessing the expected growth that investors have incorporated into current stock prices, and any bias in analysts' forecasts – whether pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings growth projections of security analysts provide the most frequently referenced guide to investors' views and are widely accepted in applying the DCF model. As explained in *New Regulatory Finance*:

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are a cause of *g* [growth]. The accuracy of these forecasts in the sense of whether they turn out to be correct is not an issue here, as long as they reflect widely held expectations.[63]

Q69. HAVE REGULATORS ALSO RECOGNIZED THAT ANALYSTS' GROWTH RATE ESTIMATES ARE AN IMPORTANT AND MEANINGFUL GUIDE TO INVESTORS' EXPECTATIONS?

A69. Yes. The Kentucky Public Service Commission has indicated its preference for relying on analysts' projections in establishing investors' expectations:

> KU's argument concerning the appropriateness of using investors' expectations in performing a DCF analysis is more persuasive than the AG's argument that analysts' projections should be rejected in favor of historical results. The Commission agrees that analysts' projections of

[63] Morin, Roger A., "New Regulatory Finance," *Public Utilities Reports, Inc.* at 298 (2006) (emphasis added).

> growth will be relatively more compelling in forming investors' forward-looking expectations than relying on historical performance . . .[64]

The Public Utility Regulatory Authority of Connecticut has also noted that "there is not growth in DPS without growth in EPS," and concluded that securities analysts' growth projections have a greater influence over investors' expectations and stock prices.[65]

In addition, the Regulatory Commission of Alaska ("RCA") has previously determined that analysts' EPS growth rates provide a superior basis on which to estimate investors' expectations:

> We also find persuasive the testimony . . . that projected EPS returns are more indicative of investor expectations of dividend growth than historical growth data because persons making the forecasts already consider the historical numbers in their analyses.[66]

The RCA has concluded that arguments against exclusive reliance on analysts' EPS growth rates to apply the DCF model "are not convincing."[67] Similarly, FERC has also rejected arguments that securities analysts' EPS growth rates are biased, noting that, "in fact the analysts have a significant incentive to make their analyses as accurate as possible to meet the needs of their clients since those investors will not utilize brokerage firms whose analysts repeatedly overstate the growth potential of companies."[68]

Q70. WHAT SOURCES OF SECURITY ANALYSTS' EPS GROWTH RATES DO YOU RELY ON IN YOUR DCF ANALYSIS?

A70. I rely on EPS growth projections for each of the firms in the Gas Group reported by Value Line, IBES,[69] and Zacks. These growth rates are displayed on page 2 of Attachment AMM-4.

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[64] *Kentucky Utilities Co.*, Case No. 2009-00548 (Ky PSC Jul. 30, 2010) at 30-31.
[65] *Decision*, Docket No. 13-02-20 (Sept. 24, 2013).
[66] Regulatory Commission of Alaska, U-07-76(8) at 65, n. 258.
[67] Regulatory Commission of Alaska, U-08-157(10) at 36.
[68] *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted).
[69] Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Refinitiv.

Q71. HOW ELSE ARE INVESTORS' EXPECTATIONS OF FUTURE LONG-TERM GROWTH PROSPECTS OFTEN ESTIMATED WHEN APPLYING THE CONSTANT GROWTH DCF MODEL?

A71. In constant growth theory, growth in book equity will be equal to the product of the earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return on book equity. Furthermore, if the earned rate of return and the payout ratio are constant over time, growth in earnings and dividends will be equal to growth in book value. Despite the fact that these conditions are never met in practice, this "sustainable growth" approach may provide a rough guide for evaluating a firm's growth prospects and is frequently proposed in regulatory proceedings.

The sustainable growth rate is calculated by the formula, g = br+sv, where "b" is the expected retention ratio, "r" is the expected earned return on equity, "s" is the percent of common equity expected to be issued annually as new common stock, and "v" is the equity accretion rate. Under DCF theory, the "sv" factor is a component of the growth rate designed to capture the impact of issuing new common stock at a price above, or below, book value. The sustainable, "br+sv" growth rates for each firm in the Gas Group are summarized on page 2 of Attachment AMM-4, with the underlying details being presented in Attachment AMM-5.

The sustainable growth rate analysis shown in Attachment AMM-5 incorporates an "adjustment factor" because Value Line's reported returns are based on year-end book values. Since earnings is a flow over the year while book value is determined at a given point in time, the measurement of earnings and book value are distinct concepts. It is this fundamental difference between a flow (earnings) and point estimate (book value) that makes it necessary to adjust to mid-year in calculating the ROE. Given that book value will increase or decrease over the year, using year-end book value (as Value Line does) understates or overstates the average investment that corresponds to the flow

of earnings. To address this concern, earnings must be matched with a corresponding representative measure of book value, or the resulting ROE will be distorted. The adjustment factor determined in Attachment AMM-5 is solely a means of converting Value Line's end-of-period values to an average return over the year, and the formula for this adjustment is supported in recognized textbooks and has been adopted by other regulators.[70]

Q72. ARE THERE SIGNIFICANT SHORTCOMINGS ASSOCIATED WITH THE "BR+SV" GROWTH RATE?

A72. Yes. First, in order to calculate the sustainable growth rate, it is necessary to develop estimates of investors' expectations for four separate variables; namely, "b", "r", "s", and "v." Given the inherent difficulty in forecasting each parameter and the difficulty of estimating the expectations of investors, the potential for measurement error is significantly increased when using four variables, as opposed to referencing a direct projection for EPS growth. Second, empirical research in the finance literature indicates that sustainable growth rates are not as significantly correlated to measures of value, such as share prices, as are analysts' EPS growth forecasts.[71] The "sustainable growth" approach is included for completeness, but evidence indicates that analysts' forecasts provide a superior and more direct guide to investors' growth expectations. Accordingly, I give less weight to cost of equity estimates based on br+sv growth rates in evaluating the results of the DCF model.

[70] *See*, Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 305-306; *Bangor Hydro-Electric Co. et al*., 122 FERC ¶ 61,265 at n.12 (2008).
[71] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 307.

Q73. WHAT COST OF COMMON EQUITY ESTIMATES WERE IMPLIED FOR THE GAS GROUP USING THE DCF MODEL?

A73. After combining the dividend yields and respective growth projections for each utility, the resulting cost of common equity estimates are shown on page 3 of Attachment AMM-4.

Q74. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL, IS IT APPROPRIATE TO ELIMINATE ILLOGICAL ESTIMATES?

A74. Yes. It is essential that cost of equity estimates resulting from quantitative methods pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated when evaluating the results of this method.

Q75. HAVE OTHER REGULATORS EMPLOYED SUCH TESTS?

A75. Yes. FERC has noted that adjustments are justified where applications of the DCF approach and other methods produce illogical results. FERC evaluates low-end DCF results against observable yields on long-term public utility debt and eliminates estimates that do not sufficiently exceed this threshold,[72] while also excluding estimates that are "irrationally or anomalously high."[73] Similarly, the Staff of the Maryland Department of Public Service Commission ("MDPSC") recently elected to eliminate DCF values below 6.5%, observing that returns "below that level would be too close to [the utility's] cost of debt to be attractive to an equity investor."[74]

[72] *See, e.g., Southern California Edison Co.*, 131 FERC ¶ 61,020 at P 55 (2010).
[73] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 171 FERC ¶ 61,154 at P 152 (2020).
[74] Maryland Public Service Commission, Case No. 9670, *Direct Testimony and Exhibits of Drew M. McAuliffe* (Dec. 2, 2021) at 15-16. In December 2021, Baa utility bond yields averaged 3.27%, versus 5.22% in June 2022. Accordingly, the thresholds employed by the MPSC Staff are now understated.

Q76. DO YOU EXCLUDE ANY ESTIMATES AT THE LOW OR HIGH END OF THE RANGE OF RESULTS?

A76. Yes. As highlighted on page 3 of Attachment AMM-4, I eliminate one low-end DCF estimate of 6.8%. Based on my professional experience and the risk-return tradeoff principle that is fundamental to finance, it is inconceivable that investors are not requiring a substantially higher rate of return for holding common stock. As a result, this value provides little guidance as to the returns investors require from utility common stocks and should be excluded.

Also highlighted on page 3 of Attachment AMM-4, I eliminate one high-end DCF estimate of 18.3%. The upper end of the remaining DCF results for the Gas Group is set by a cost of equity estimate of 12.8%. While a 12.8% cost of equity estimate may exceed the majority of the remaining values, low-end DCF estimates in the 7.2% to 8.2% range are assuredly far below investors' required rate of return. Taken together and considered along with the balance of the results, the remaining values provide a reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q77. WHAT COE ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE GAS GROUP?

A77. As shown on page 3 of Attachment AMM-4 and summarized in Table AMM-4, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following COE estimates:

TABLE AMM-4
DCF RESULTS – GAS GROUP

Growth Rate	Average	Midpoint
Value Line	10.7%	12.8%
IBES	9.1%	11.2%
Zacks	8.9%	10.3%
br + sv	9.1%	11.1%

Q78. WHAT DO THE INTEREST RATE PROJECTIONS DISCUSSED EARLIER IN YOUR TESTIMONY IMPLY WITH RESPECT THESE DCF ESTIMATES?

A78. As documented earlier, interest rates on Baa utility bonds are projected to be approximately 1.0% higher over the 2023-2027 timeframe than they are currently. As will be discussed in more detail later in my testimony, the cost of equity moves in the same direction as interest rates, but by approximately one-half as much.[75] This suggests that the average 1.0% increase in Baa utility bond yields would imply an increase of about 50 basis points to account for higher capital costs when rates will be in effect.

D. Capital Asset Pricing Model

Q79. PLEASE DESCRIBE THE CAPM.

A79. The CAPM is a theory of market equilibrium that measures risk using the beta coefficient. Assuming investors are fully diversified, the relevant risk of an individual asset (e.g., common stock) is its volatility relative to the market as a whole, with beta reflecting the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.0, while stocks that tend to move more than the market have betas greater than 1.0. The CAPM is mathematically expressed as:

$$R_j = R_f + \beta_j(R_m - R_f)$$

where: R_j = required rate of return for stock j;
R_f = risk-free rate;
R_m = expected return on the market portfolio; and,
β_j = beta, or systematic risk, for stock j.

Under the CAPM formula above, a stock's required return is a function of the risk-free rate (R_f), plus a risk premium that is scaled to reflect the relative volatility of a

[75] *See,* Attachment AMM-8, page 6; Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 129 (noting that, "The gist of the empirical research on this subject is that the cost of equity has changed only half as much as interest rates have changed in the past.").

firm's stock price, as measured by beta (β). Like the DCF model, the CAPM is an *ex-ante,* or forward-looking model based on expectations of the future. As a result, to produce a meaningful estimate of investors' required rate of return, the CAPM must be applied using estimates that reflect the expectations of actual investors in the market, not with backward-looking, historical data.

Q80. WHY IS THE CAPM APPROACH A RELEVANT COMPONENT WHEN EVALUATING THE COST OF EQUITY FOR WESTFIELD?

A80. The CAPM approach (which also forms the foundation of the ECAPM) generally is considered to be the most widely referenced method for estimating the cost of equity among academicians and professional practitioners, with the pioneering researchers of this method receiving the Nobel Prize in 1990. Because this is the dominant model for estimating the cost of equity outside the regulatory sphere, the CAPM (and ECAPM) provides important insight into investors' required rate of return for utility stocks.

Q81. HOW DID YOU APPLY THE CAPM TO ESTIMATE THE COE?

A81. Application of the CAPM to the Gas Group is based on a forward-looking estimate for investors' required rate of return from common stocks presented in Attachment AMM-6. To capture the expectations of today's investors in current capital markets, the expected market rate of return was estimated by conducting a DCF analysis on the dividend paying firms in the S&P 500.

The dividend yield for each firm is obtained from Value Line, and the growth rate is equal to the average of the earnings growth projections for each firm published by IBES, Zacks, and Value Line, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. After removing companies with growth rates that were negative or greater than 20%, the weighted average of the projections for the individual firms implies an average growth rate over the next five years of 10.5%. Combining this average growth rate with a year-ahead dividend yield

of 2.0% results in a current cost of common equity estimate for the market as a whole (R_m) of 12.5%. Subtracting a 3.3% risk-free rate based on the average yield on 30 year Treasury bonds for June 2022 produced a market equity risk premium of 9.2%.

Q82. IN PREVIOUS TESTIMONY YOU HAVE CUSTOMARILY RELIED ON A SIX-MONTH AVERAGE YIELD ON TREASURY BONDS AS THE RISK-FREE RATE. WHY ARE YOU NOW REFERENCING THE JUNE 2022 AVERAGE?

A82. Coupled with the Federal Reserve's recent decision to adopt tighter monetary policies, increased concerns over rising inflation and geopolitical risks has led to a significant upward shift in bond yields. As a result, six-month average data does not reflect investors' current expectations and requirements. Accordingly, I relied on June 2022 yield averages to better reflect present economic realities. This is particularly important in light of even higher interest rates projected over the intermediate term.

Q83. WHAT WAS THE SOURCE OF THE BETA VALUES YOU USED TO APPLY THE CAPM?

A83. As indicated earlier in my discussion of risk measures for the proxy group, I relied on the beta values reported by Value Line, which in my experience is the most widely referenced source for beta in regulatory proceedings.

Q84. WHAT ELSE SHOULD BE CONSIDERED IN APPLYING THE CAPM?

A84. Financial research indicates that the CAPM does not fully account for observed differences in rates of return attributable to firm size. Accordingly, a modification is required to account for this size effect. As explained by Morningstar:

> One of the most remarkable discoveries of modern finance is that of a relationship between company size and return. … The relationship between company size and return cuts across the entire size spectrum; it is not restricted to the smallest stocks. … This size-rated phenomenon has prompted a revision to the CAPM, which includes a size premium.[76]

[76] Morningstar, *Ibbotson SBBI 2015 Classic Yearbook*, at pp. 99, 108.

According to the CAPM, the expected return on a security should consist of the riskless rate, plus a premium to compensate for the systematic risk of the particular security. The degree of systematic risk is represented by the beta coefficient. The need for the size adjustment arises because differences in investors' required rates of return that are related to firm size are not fully captured by beta. To account for this, researchers have developed size premiums that need to be added to account for the level of a firm's market capitalization in determining the CAPM cost of equity.[77] Accordingly, my CAPM analyses also incorporates an adjustment to recognize the impact of size distinctions, as measured by the market capitalization for the firms in the Gas Group.

Q85. WHAT IS THE BASIS FOR THE SIZE ADJUSTMENT?

A85. The size adjustment required in applying the CAPM is based on the finding that *after controlling for risk differences reflected in beta*, the CAPM overstates returns to companies with larger market capitalizations and understates returns for relatively smaller firms. The size adjustments utilized in my analysis are sourced from Kroll, who now publish the well-known compilation of capital market series originally developed by Professor Roger G. Ibbotson of the Yale School of Management, and latterly published by Duff & Phelps. Calculation of the size adjustments involve the following steps:

1. Divide all stocks traded on the NYSE, NYSE MKT, and NASDAQ indices into deciles based on their market capitalization.
2. Using the average beta value for each decile, calculate the implied excess return over the risk-free rate using the CAPM.
3. Compare the calculated excess returns based on the CAPM to the actual excess returns for each decile, with the difference being the increment of return that is related to firm

[77] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, *Stocks, Bonds, Bills and Inflation*, these size premia are now developed by Kroll and presented in its *2022 Supplementary CRSP Decile Size Study Data*.

size, or "size adjustment."

A publication available from the National Association of Certified Valuators and Analysts documented the relevance of the size adjustment in applying the CAPM:

> [A] beta-adjusted size premium is also an indication of the relative market performance of small-cap versus large-cap stocks, but is typically used for a very specific purpose: as a "size" adjustment within the context of the capital asset pricing model (CAPM) when developing cost of equity capital estimates. A size adjustment is typically applied to the CAPM to make up for the fact that the betas of smaller companies do not fully explain their observed returns. Because the CAPM already includes a beta input in its textbook specification, the size premium is then "beta adjusted" to remove the portion of realized excess return that is attributable to beta, thereby isolating the size effect's contribution to realized excess return and avoiding double counting the impact of each factor.
>
> * * *
>
> Another way of saying this is that within the context of the CAPM, the betas of small-cap companies do not fully account for (or explain) their actual returns. Because the amount of this difference (what actually happened versus what CAPM predicted) varies with "size" (in this case, as measured by market capitalization) we call it a "size premium". [78]

Similarly, *New Regulatory Finance* observed that "small market-cap stocks experience higher returns than large market-cap stocks with equivalent betas," and concluded that "the CAPM understates the risk of smaller utilities, and a cost of equity based purely on a CAPM beta will therefore produce too low an estimate."[79]

Q86. IS THE SIZE ADJUSTMENT INCORPORATED IN YOUR ANALYSIS CONSISTENT WITH HOW FERC APPLIES THE CAPM?

A86. Yes. FERC has observed that "[t]his type of size adjustment is a generally accepted approach to CAPM analyses,"[80] and includes the size adjustment in the CAPM under

[78] *Using a Non-Beta-Adjusted Size Premium in the Context of the CAPM Will Likely Overstate Risk and Understate Value* (Jan. 30, 2019), available at http://quickreadbuzz.com/2019/01/30/business-valuation-grabowski-harringtonsing-a-non-beta-adjusted-size-premium/.
[79] Roger A. Morin, *New Regulatory Finance* 187 (Pub. Utils. Reports, Inc., 2006).
[80] *Coakley v. Bangor-Hydro-Elec. Co.*, Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

its ROE methodology for electric utilities and natural gas and oil pipelines.[81] More recently, FERC affirmed its practice of including a size adjustment, concluding that "the size adjustment is necessary to correct for the CAPM's inability to fully account for the impact of firm size when determining the cost of equity."[82]

Q87. IS THIS SIZE ADJUSTMENT RELATED TO THE RELATIVE SIZE OF WESTFIELD AS COMPARED WITH THE PROXY GROUP?

A87. No. The size adjustments used in my application of the CAPM do not relate to Westfield; rather, they are based on the market capitalization of the firms in the Gas Group. The size adjustments are specific to the CAPM and merely correct for an observed inability of the beta measure to fully reflect the risks perceived by investors for the firms in the proxy group.

Q88. WHAT IS THE IMPLIED ROE FOR THE GAS GROUP USING THE CAPM APPROACH?

A88. As shown on page 1 of Attachment AMM-6, the CAPM approach implies an average ROE for the Gas Group of 11.1%, or 11.9% after adjusting for the impact of firm size.

Q89. DID YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?

A89. Yes. As discussed earlier, widely recognized economic forecasting services indicate that interest rates are expected to increase over the near-term. Accordingly, in addition to the use of current bond yields, I apply the CAPM based on the projected yields on 30-year Treasury bonds published by Blue Chip. As shown on page 2 of Attachment AMM-6, incorporating an average forecasted Treasury bond yield of 3.8% for 2023-2027 implies an average cost of equity estimate of 11.1% for the Gas Group, or 12.0% after incorporating the size adjustment.

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[81] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-A, 171 FERC ¶ 61,154 (2020); *Policy Statement on Determining Return on Equity for Natural Gas and Oil Pipelines*, 171 FERC ¶ 61,155 (2020).

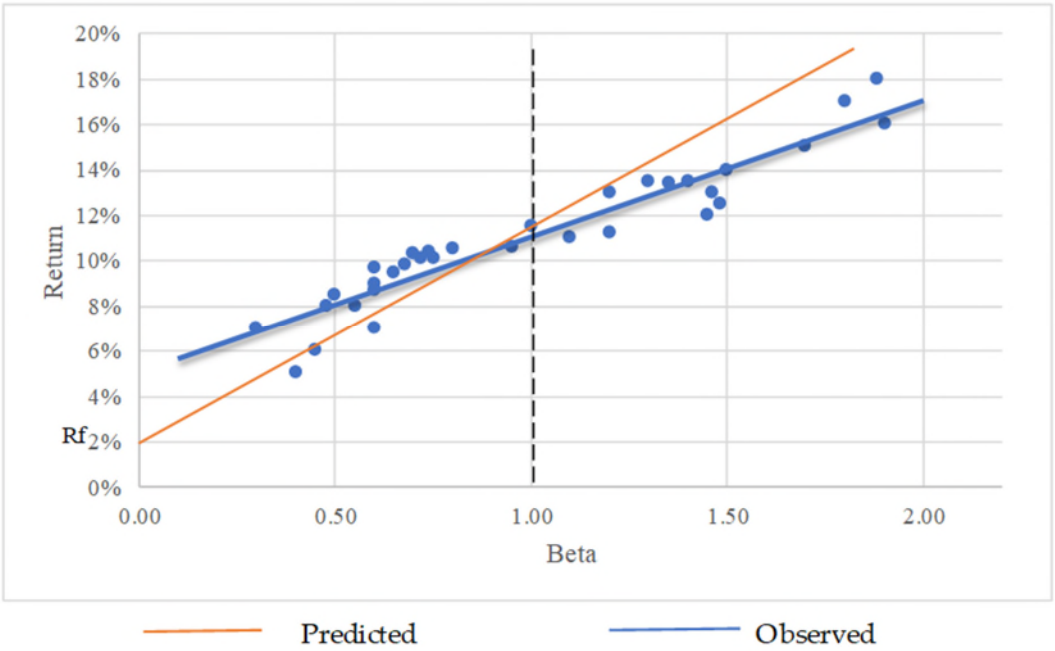
[82] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569-B, 173 FERC ¶ 61,159 at P 100 (2020).

E. Empirical Capital Asset Pricing Model

Q90. HOW DOES THE ECAPM APPROACH DIFFER FROM TRADITIONAL APPLICATIONS OF THE CAPM?

A90. Empirical tests of the CAPM have shown that low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. In other words, the CAPM tends to overstate the actual sensitivity of the cost of capital to beta, with low-beta stocks tending to have higher returns and high-beta stocks tending to have lower risk returns than predicted by the CAPM. This is illustrated graphically in Figure AMM-5:

FIGURE AMM-5
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the proxy group, are generally less than 1.0, this implies that cost of equity estimates based on the traditional CAPM would understate the cost of equity. This empirical finding is widely reported in the finance literature, as summarized in *New Regulatory Finance*:

> As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.[83]

As discussed in *New Regulatory Finance*,[84] based on a review of the empirical evidence, the expected return on a security is related to its risk by the ECAPM, which is represented by the following formula:

$$R_j = R_f + 0.25(R_m - R_f) + 0.75[\beta_j(R_m - R_f)]$$

Like the CAPM formula presented earlier, the ECAPM represents a stock's required return as a function of the risk-free rate (R_f), plus a risk premium. In the formula above, this risk premium is composed of two parts: (1) the market risk premium ($R_m - R_f$) weighted by a factor of 25%, and (2) a company-specific risk premium based on the stock's relative volatility [$\beta_j(R_m - R_f)$] weighted by 75%. This ECAPM equation, and its associated weighting factors, recognizes the observed relationship between standard CAPM estimates and the cost of capital documented in the financial research, and corrects for the understated returns that would otherwise be produced for low beta stocks.

Q91. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF VALUE LINE BETAS?

A91. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge toward the mean value of 1.00 over time.[85] The purpose of this adjustment is to refine beta values determined using historical data to better match forward-looking estimates of beta, which are the relevant parameter in applying the CAPM or ECAPM models.

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[83] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports (2006) at 189.
[84] *Id.* at 190.
[85] *See, e.g.*, Marshall E. Blume, *Betas and Their Regression Tendencies*, Journal of Finance (Jun. 1975), pp. 785-795.

Meanwhile, the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a formal recognition of findings in the financial literature that the observed risk-return tradeoff illustrated in Figure AMM-5 is flatter than predicted by the CAPM. In other words, even if a firm's beta value were estimated with perfect precision, the CAPM would still understate the return for low-beta stocks and overstate the return for high-beta stocks. The ECAPM and the use of adjusted betas represent two separate and distinct issues in estimating returns.

Q92. HAVE OTHER REGULATORS RELIED ON THE ECAPM?

A92. Yes. The ECAPM approach has been relied on by the Staff of the MDPSC. For example, MDPSC Witness Julie McKenna noted that "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns for low Beta stocks," and concluded that, "the ECAPM gives a more realistic measure of the ROE than the CAPM model does."[86] The staff of the Colorado Public Utilities Commission has recognized that, "The ECAPM is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-return relationship,"[87] and relied on the exact same standard ECAPM equation presented above.[88]

The New York Department of Public Service also routinely incorporates the results of the ECAPM approach, which it refers to as the "zero-beta CAPM."[89] The RCA has also relied on the ECAPM approach, noting that:

> Tesoro averaged the results it obtained from CAPM and ECAPM while at the same time providing empirical testimony that the ECAPM results are more accurate then [sic] traditional CAPM results. The reasonable investor would be aware of these empirical results. Therefore, we adjust Tesoro's recommendation to reflect only the ECAPM result.[90]

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[86] *Direct Testimony and Exhibits of Julie McKenna,* Maryland PSC Case No. 9299 (Oct. 12, 2012) at 9.
[87] Proceeding No. 13AL-0067G, *Answer Testimony and Attachments of Scott England* (July 31, 2013) at 47.
[88] *Id.* at 48.
[89] *See, e.g..,* New York Department of Public Service, Cases 19-E-0065 19-G-0066, *Prepared Fully Redacted Testimony of Staff Finance Panel* (May 2019) at 94-95.
[90] Regulatory Commission of Alaska, Order No. P-97-004(151) (Nov. 27, 2002) at 145.

Similarly, the Montana Public Service Commission more recently concluded that:

> [T]he evidence in this proceeding has convinced the Commission that the Empirical Capital Asset Pricing Model ("ECAPM") should be the primary method for estimating the [utility's] cost of equity."[91]

The Wyoming Office of Consumer Advocate, an independent division of the Wyoming Public Service Commission, has also relied on this ECAPM formula in estimating the cost of equity for a regulated utility,[92] as has a witness for the Office of Arkansas Attorney General.[93]

Q93. WHAT COST OF EQUITY IS INDICATED BY THE ECAPM?

A93. My application of the ECAPM is based on the same forward-looking market rate of return, risk-free rates, and beta values discussed earlier in connections with the CAPM. As shown on page 1 of Attachment AMM-7, applying the forward-looking ECAPM based on the average yield on 30-year Treasury bonds for April 2022 results in an average cost of equity estimate of 11.4% for the Gas Group, or 12.3% after incorporating the size adjustment.

As shown on page 2 of Attachment AMM-7, incorporating a forecasted Treasury bond yield for 2023-2026 implies an average cost of equity for the Gas Group of 11.5%, or 12.4% once adjusted for the impact of firm size.

F. Utility Risk Premium

Q94. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

A94. The risk premium method extends the risk-return tradeoff observed with bonds to estimate investors' required rate of return on common stocks. The cost of equity is estimated by first determining the additional return investors require to forgo the relative safety of bonds and to bear the greater risks associated with common stock, and by then

[91] *Mont. Pub. Serv. Comm'n*, Order No. 7575c at P114 (Sept. 26, 2018).
[92] *Pre-Filed Direct Testimony of Anthony J. Ornelas*, Docket No. 30011-97-GR-17, (May 1, 2018) at 52-53.
[93] *Direct Testimony of Marlon F. Griffing, PH.D.*, Docket No. 17-071-U, (May 29, 2018) at 33-35.

adding this equity risk premium to the current yield on bonds. Like the DCF model, the risk premium method is capital market oriented. However, unlike DCF models, which indirectly impute the cost of equity, risk premium methods directly estimate investors' required rate of return by adding an equity risk premium to observable bond yields.

Q95. IS THE RISK PREMIUM APPROACH A WIDELY ACCEPTED METHOD FOR ESTIMATING THE COST OF EQUITY?

A95. Yes. The risk premium approach is based on the fundamental risk-return principle that is central to finance, which holds that investors will require a premium in the form of a higher return in order to assume additional risk. This method is routinely referenced by the investment community and in academia and regulatory proceedings, and provides an important tool in estimating a fair ROE for Westfield.

Q96. HOW DID YOU IMPLEMENT THE RISK PREMIUM METHOD?

A96. Estimates of equity risk premiums for utilities were based on surveys of previously authorized ROEs. Authorized ROEs presumably reflect regulatory commissions' best estimates of the cost of equity, however determined, at the time they issued their final order. Such ROEs should represent a balanced and impartial outcome that considers the need to maintain a utility's financial integrity and ability to attract capital. Moreover, allowed returns are an important consideration for investors and have the potential to influence other observable investment parameters, including credit ratings and borrowing costs. Thus, these data provide a logical and frequently referenced basis for estimating equity risk premiums for regulated utilities.

Q97. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED RETURNS IN ASSESSING A FAIR ROE FOR WESTFIELD?

A97. No. In establishing authorized ROEs, regulators typically consider the results of alternative market-based approaches, including the DCF model. Because allowed risk premiums consider objective market data (*e.g.*, stock prices, dividends, beta, and interest

rates), and are not based strictly on past actions of other regulators, this mitigates concerns over any potential for circularity.

Q98. HOW DID YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON ALLOWED ROES?

A98. The ROEs authorized for electric utilities by regulatory commissions across the U.S. are compiled by S&P Global Market Intelligence and published in its *RRA Regulatory Focus* report. On pages 3 through 5 of Attachment AMM-8, the average yield on single-A rated public utility bonds is subtracted from the average allowed ROE for gas utilities to calculate equity risk premiums for each quarter of each year between 1980 and Q1-2022.[94] As shown there, over this period these equity risk premiums for gas utilities average 3.78%, and the yields on single-A public utility bonds average 7.66%.

Q99. IS THERE ANY CAPITAL MARKET RELATIONSHIP THAT MUST BE CONSIDERED WHEN IMPLEMENTING THE RISK PREMIUM METHOD?

A99. Yes. The magnitude of equity risk premiums is not constant and equity risk premiums tend to move inversely with interest rates. In other words, when interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums widen. The implication of this inverse relationship is that the cost of equity does not move as much as, or in lockstep with, interest rates. Accordingly, for a 1% increase or decrease in interest rates, the cost of equity may only rise or fall some fraction of 1%. Therefore, when implementing the risk premium method, adjustments may be required to incorporate this inverse relationship if current interest rate levels have diverged from the average interest rate level represented in the data set.

Current bond yields are lower than those prevailing over the risk premium study periods. Given that equity risk premiums move inversely with interest rates, these lower bond yields also imply an increase in the equity risk premium that investors require to

[94] My analysis encompasses the entire period for which published data is available.

accept the higher uncertainties associated with an investment in utility common stocks versus bonds. In other words, higher required equity risk premiums offset the impact of declining interest rates on the ROE.

Q100. HAS THIS INVERSE RELATIONSHIP BEEN DOCUMENTED IN THE FINANCIAL RESEARCH?

A100. Yes. There is considerable empirical evidence that when interest rates are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums are greater. This inverse relationship between equity risk premiums and interest rates has been widely reported in the financial literature. As summarized by *New Regulatory Finance*:

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carleton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates – rising when rates fell and declining when rates rose.[95]

Other regulators have also recognized that, while the cost of equity trends in the same direction as interest rates, these variables do not move in lockstep.[96] This relationship is illustrated in the figure on page 6 of Attachment AMM-8. As shown there, the "R-squared" value[97] for the equity risk premium-utility bond interest rate relationship is over 0.90. This regression analysis evidences a high degree of fit and indicates a strong inverse relationship between equity risk premiums and utility bond interest rates.

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[95] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports (2006) at 128.

[96] *See, e.g.*, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-7, https://cdn.entergy-mississippi.com/userfiles/content/price/tariffs/eml_frp.pdf (last visited Mar. 8, 2022); *Martha Coakley et al.*, 147 FERC ¶ 61,234 at P 147 (2014).

[97] R-squared (R^2) is a statistical measure that represents the proportion of the variance for a dependent variable (in this case, the equity risk premium level) that is explained by an independent variable (utility bond yields) in a regression model.

Q101. WHAT COST OF EQUITY IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED ROES?

A101. Based on the regression output between the interest rates and equity risk premiums displayed on page 6 of Attachment AMM-8, the equity risk premium for gas utilities increases by approximately 48 basis points for each percentage point drop in the yield on average public utility bonds. As illustrated on page 1 of Attachment AMM-8 with an average yield on single-A public utility bonds for June 2022 of 4.86%, this implies a current equity risk premium of 5.13% for gas utilities. Adding this equity risk premium to the average yield on Baa utility bonds for June 2022 of 5.22% implies a current COE of 10.35%.

Q102. WHAT RISK PREMIUM COST OF EQUITY ESTIMATE IS PRODUCED AFTER INCORPORATING PROJECTED BOND YIELDS?

A102. As shown on page 2 of Attachment AMM-8, incorporating an average projected single-A utility yield for 2023-2027 and adjusting for changes in interest rates since the study period implies an equity risk premium of 4.79% for gas utilities, which is less than the current equity risk premium. This lower equity risk premium is consistent with the inverse relationship I described above. Adding this equity risk premium to the implied average yield on Baa utility bonds for 2023-2027 of 5.87% results in an implied cost of equity of 10.66%.

G. Expected Earnings Approach

Q103. WHAT OTHER ANALYSES DO YOU CONDUCT TO ESTIMATE THE COE?

A103. I also evaluate the COE using the expected earnings method. Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a just and reasonable rate

of return established by the U.S. Supreme Court in *Bluefield* and *Hope*.[98] Moreover, it avoids the complexities and limitations of capital market methods and instead focuses on the returns earned on book equity, which are readily available to investors.

Q104. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A104. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the utility is unable to offer a return similar to that available from other opportunities of comparable risk, investors will become unwilling to supply the capital on reasonable terms. For existing investors, denying the utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. While I am not a lawyer and do not offer a legal opinion, from my position as a financial economist such an outcome would violate the *Hope* and *Bluefield* standards and undermine the utility's access to capital on reasonable terms.

Q105. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

A105. The traditional comparable earnings test identifies a group of companies that are believed to be comparable in risk to the utility. The actual earnings of those companies on the book value of their investment are then compared to the allowed return of the utility. While the traditional comparable earnings test is implemented using historical data taken from the accounting records, it is also common to use projections of returns on book investment, such as those published by recognized investment advisory publications (e.g., Value Line). Because these returns on book value equity are

[98] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923); *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

analogous to the allowed return on a utility's rate base, this measure of opportunity costs results in a direct, "apples to apples" comparison.

Moreover, regulators do not set the returns that investors earn in the capital markets, which are a function of dividend payments and fluctuations in common stock prices—both of which are outside their control. Regulators can only establish the allowed ROE, which is applied to the value of a utility's investment in rate base, as determined from its accounting records. This is analogous to the expected earnings approach, which measures the return that investors expect the utility to earn on book value. As a result, the expected earnings approach provides a meaningful guide to ensure that the allowed ROE is similar to what other utilities of comparable risk will earn on invested capital.

This expected earnings test does not require theoretical models to indirectly infer investors' perceptions from stock prices or other market data. As long as the proxy companies are similar in risk, their expected earned returns on invested capital provide a direct benchmark for investors' opportunity costs that is independent of fluctuating stock prices, market-to-book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical model of investor behavior.

Q106. WHAT COE IS INDICATED FOR THE GAS GROUP BASED ON THE EXPECTED EARNINGS APPROACH?

A106. For the firms in the Gas Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown on Attachment AMM-9. As I explained earlier in my discussion of the br+sv growth rates used in applying the DCF model, Value Line's returns on common equity are calculated using year-end equity balances, which understates the average return earned over the year.[99] Accordingly, these

[99] For example, to compute the annual return on a passbook savings account with a beginning balance of $1,000 and an ending balance of $5,000, the interest income would be divided by the average balance of $3,000. Using the $5,000 balance at the end of the year would understate the actual return.

year-end values were converted to average returns using the same adjustment factor discussed earlier and developed on Attachment AMM-5. As shown on Attachment AMM-9, Value Line's projections suggest an average ROE of 10.2% for the Gas Group.

H. Non-Utility Benchmark

Q107. WHAT OTHER PROXY GROUP DO YOU CONSIDER IN EVALUATING A COE FOR WESTFIELD?

A107. Consistent with underlying economic and regulatory standards, I also apply the DCF model to a reference group of low-risk companies in the non-utility sectors of the economy. I refer to this group as the "Non-Utility Group". This analysis is not relied on to arrive at my recommended COE range of reasonableness; however, it is my opinion that this is a relevant consideration in evaluating a just and reasonable COE for Westfield's gas utility operations.

Q108. DO UTILITIES HAVE TO COMPETE WITH NON-REGULATED FIRMS FOR CAPITAL?

A108. Yes. The cost of capital is an opportunity cost based on the returns that investors could realize by putting their money in other alternatives. Clearly, the total capital invested in utility stocks is only the tip of the iceberg of total common stock investment, and there are a plethora of other enterprises available to investors beyond those in the utility industry. Utilities must compete for capital, not just against firms in their own industry, but with other investment opportunities of comparable risk. Indeed, modern portfolio theory is built on the assumption that rational investors will hold a diverse portfolio of stocks, not just companies in a single industry.

Q109. IS IT CONSISTENT WITH THE *BLUEFIELD* AND *HOPE* CASES TO CONSIDER INVESTORS' REQUIRED ROE FOR NON-UTILITY COMPANIES?

A109. Yes. The cost of equity capital in the competitive sector of the economy form the very underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets. The Supreme Court has recognized that it is the degree of risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a utility. The *Bluefield* case refers to "business undertakings attended with comparable risks and uncertainties." It does not restrict consideration to other utilities. Similarly, the *Hope* case states:

> By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[100]

As in the *Bluefield* decision, there is nothing to restrict "other enterprises" solely to the utility industry.

Q110. DOES CONSIDERATION OF THE RESULTS FOR THE NON-UTILITY GROUP IMPROVE THE RELIABILITY OF DCF RESULTS?

A110. Yes. The estimates of growth from the DCF model depend on analysts' forecasts. It is possible for utility growth rates to be distorted by short-term trends in the industry, or by the industry falling into favor or disfavor by analysts. Such distortions could result in biased DCF estimates for utilities. Because the Non-Utility Group includes low risk companies from more than one industry, it helps to insulate against any possible distortion that may be present in results for a particular sector.

[100] *Federal Power Comm'n v. Hope Natural Gas Co.* 320 U.S. 391, (1944).

Q111. WHAT CRITERIA DO YOU APPLY TO DEVELOP THE NON-UTILITY GROUP?

A111. My comparable risk proxy group was composed of those United States companies followed by Value Line that:

1) pay common dividends;
2) have a Safety Rank of "1";
3) have a Financial Strength Rating of "A" or greater;
4) have a beta value less than 1.00; and
5) have investment-grade credit ratings from S&P and Moody's.

Q112. HOW DO THE OVERALL RISKS OF THIS NON-UTILITY GROUP COMPARE WITH THE GAS GROUP?

A112. Table AMM-5 compares the Non-Utility Group with the Gas Group across the measures of investment risk discussed earlier:

TABLE AMM-5
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Non-Utility Group	A	A3	1	A+	0.79
Gas Group	A-	A3	2	A	0.83

As shown above, the average credit ratings, Safety Rank, Financial Strength Rating, and beta for the Non-Utility Group suggest less risk than for the proxy group of gas utilities. When considered together, a comparison of these objective measures, which consider a broad spectrum of risks, including financial and business position, relative size, and exposure to company-specific factors, indicates that investors would likely conclude that the overall investment risks for the Gas Group is greater than those of the firms in the Non-Utility Group.

The companies that make up the Non-Utility Group, which are shown in Attachment AMM-10, are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Kellogg, Procter & Gamble, and Walmart, have long corporate histories, well-established track records, and conservative risk profiles. Many of these companies pay dividends on a par with utilities, with the average dividend yield for the group at 2.2%. Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

Q113. WHAT ARE THE RESULTS OF YOUR DCF ANALYSIS FOR THE NON-UTILITY GROUP?

A113. I apply the DCF model to the Non-Utility Group using the same analysts' EPS growth projections described earlier for the Gas Group. The results of my DCF analysis for the Non-Utility Group are presented in Attachment AMM-10. As summarized in Table AMM-6, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following cost of equity estimates:

TABLE AMM-6
DCF RESULTS – NON-UTILITY GROUP

Growth Rate	Average	Midpoint
Value Line	10.2%	10.9%
IBES	10.7%	11.0%
Zacks	10.3%	10.7%

As discussed earlier, reference to the Non-Utility Group is consistent with established regulatory principles. Required returns for utilities should be in line with those of non-utility firms of comparable risk operating under the constraints of free competition. Because the actual cost of equity is unobservable, and DCF results inherently incorporate a degree of error, the COE estimates for the Non-Utility Group

provide an important benchmark in evaluating a COE for Westfield. Considering that the investment risks of the Non-Utility Group are lower than those of the proxy group of gas utilities, these results understate investors' required rate of return for Westfield.

V. FAIR RETURN ON FAIR VALUE

Q114. WHAT IS THE PURPOSE OF THIS SECTION?

A114. This section briefly reviews the history and underlying principles of fair value ratemaking and discusses its application to achieve regulatory goals while being fair to both utilities and customers. This section also discusses the implications of future inflation expectations and the impact of original cost depreciation in evaluating a fair RFV for Westfield.

A. Fair Value Ratemaking

Q115. PLEASE EXPLAIN WHAT YOU MEAN BY "FAIR RETURN ON FAIR VALUE" OF A UTILITY'S PROPERTY.

A115. There are three primary approaches to measuring rate base rooted in the history of utility ratemaking: 1) reproduction cost method; 2) the fair value standard; and 3) the original cost standard. Generally, the reproduction cost method seeks to estimate the cost of reproducing the existing utility plant at current prices of material and labor.[101] This could more simply be referred to as current cost or current value. Under the fair value standard, all bases of valuation, including the original cost and reproduction cost (both net of depreciation) can be used to determine the fair value of the utility property to which the percentage rate of return is applied. Both the reproduction cost and fair value

[101] A variation of the reproduction cost method considers the cost of replacing utility property with new technology that was not available when the utility property was originally placed in service. This approach was applied by the Federal Communications Commission ("FCC") in implementing the *Telecommunications Act of 1996.*

methodologies are aimed at recognizing the impact on the economic value of utility property from factors such as inflation, efficiency, and attrition.[102]

The original cost standard uses the historical accounting cost of the utility property at the time it was first dedicated to public use, net of depreciation (also referred to as "net book value"), to determine the rate base to which the fair rate of return is applied. In its pure form (where the weighted average cost of capital is multiplied by the net book value), the original cost ratemaking standard fails to make an allowance for price inflation, attrition, or efficiency. Put another way, the pure original cost approach may not produce the economically rational and efficient results of competitive markets.

As a matter of public utility policy, the Indiana General Assembly has chosen to require use of the fair value standard to ensure that the shortcomings of the original cost approach are addressed in establishing utility rates. The "fair value" is reached through the exercise of reasoned judgment, and "giving such consideration as it deems appropriate in each case to all bases of valuation which may be presented or which the IURC is authorized to consider" and giving "weight to the reasonable cost of bringing the utility property to its then state of efficiency."[103] The Court of Appeals has clarified that, "Fair value is a conclusion or final figure drawn from all the various 'values' or factors to be weighted in accordance with the statute by the Commission," and concluded that under the fair value standard "the Commission may not ignore the commonly known and recognized fact of inflation."[104]

In its decision regarding Westfield Gas Corporation in Cause No. 43624, the IURC found that inflation must be treated consistently and not be double-counted in

[102] Attrition is the systemic inability of a utility to earn its allowed rate of return.
[103] Ind. Code § 8-1-2-6. My discussion of this statute and other court cases and Commission orders cited in this section is as a regulatory financial analyst, not as an attorney.
[104] *Indianapolis Water Co. v. Public Serv. Comm'n*, 484 N.E.2d 635, 640 (Ind. Ct. App. 1985).

determining the fair value return to FVRB.[105] The Westfield Gas Order referenced back to the IURC's 1993 decision in an Indiana & Michigan Power Company ("I&M") rate case, where the IURC found that the rate of return formula must be consistent with the rate base.[106] In the I&M Order, the IURC also observed that despite the extensive presentation regarding the fair value return, "Petitioner has suggested no methodology which the Commission may use in properly determining and quantifying an appropriate fair return."[107] Consistent with the foregoing, including the IURC's direction spelled out in the I&M Order, a specific methodology to quantify a fair rate of return to FVRB that balances the interest of Westfield's investors and customers is presented in the testimony of Company witness Craig Jackson.

Q116. WHAT IS THE PRIMARY DIFFERENCE BETWEEN ORIGINAL AND FAIR VALUE RATEMAKING?

A116. In its simplest terms, the difference between original cost and fair value ratemaking is a matter of where inflationary effects are accounted for—in the percentage rate of return figure or in the rate base. Under an original cost framework, implicit in the nominal cost of equity is compensation for expected inflation. In other words, a part of investors' required return (an inflation premium) is intended to maintain the principal of the investment so that total investment in real terms is the same at the beginning and end of the period. Meanwhile, the remainder of the nominal required return represents the real rent for the use of the capital. In contrast, with the current cost rate (*i.e.*, fair value) base there is no loss of purchasing power in the original investment as it is presumably kept whole by price level adjustments to the rate base. As a result, the current required return does not include a component for principal maintenance but is simply the real required

[105] Westfield Gas Corporation D/B/A Citizens Gas of Westfield, Cause No. 43624, Order Approved Mar. 10, 2010, at pp. 29-30 ("Westfield Gas Order").
[106] *Id.* at p.29 citing *Indiana Michigan Power Co.,* Cause No. 39314, Order Approved Nov. 12, 1993, at p. 42 ("I&M Order").
[107] I&M Order at p. 87.

rate of return (pure risk-free rate plus risk premium). Thus, under original cost ratemaking, the rate of return is adjusted to account for expected inflation with the investment base held constant; while with current cost ratemaking, the rate of return is fixed (except for changes in risk) and the rate base is adjusted to reflect changing price levels. Using this logic, it is generally agreed that, at least in principle, both an original cost and current cost approach to regulation should produce essentially identical results.

Q117. APART FROM RECOGNIZING INFLATION, ARE THERE OTHER BENEFITS ASSOCIATED WITH A CURRENT COST APPROACH?

A117. Yes. The fair value ratemaking standard also provides flexibility to support regulatory policy objectives, such as greater efficiency.[108] This can be illustrated by way of a simple example. Assume two regulated companies manufacture a hypothetical product called a widget. Both companies sell 100 widgets annually and their product is identical. Assume further that Company A acquired its widget manufacturing property for $100 and Company B acquired its widget manufacturing property for $300. For simplicity (ignoring taxes and all other costs of production), also assume the fair return on the original cost of the property is 12%. The resulting revenue requirement and rate per unit would be as set forth in Table AMM-7 below:

TABLE AMM-7
ILLUSTRATIVE RATES – ORIGINAL COST

	Utility Property Original Cost	Return @ 12%	Rate per Unit	Return on Book Cost
Company A	$ 100	$ 12	$ 0.12	12%
Company B	$ 300	$ 36	$ 0.36	12%

Under the original cost ratemaking standard, in this example both companies would be earning exactly the same rate of return on the book value of their investment (12%). However, the higher cost provider of service (Company B) would have rates

[108] Similarly, Ind. Code § 8-1-2-6 specifically notes that, "As one of the elements in such valuation the commission shall give weight to the reasonable cost of bringing the property to its then state of efficiency."

that are three times the retail rates of Company A. The lower cost provider of service (Company A) is not recognized for its efficiency in providing the identical product at a lower cost. Put another way, the return on book value for the efficient provider (Company A) is the same as the return on book value of the inefficient provider (Company B). In an unregulated market where consumers have a choice between suppliers, customers would purchase the lower priced widgets from Company A. But when customers have no choice of providers (as with regulated utilities), original cost ratemaking disadvantages customers of Company B. In this example, regulation does not serve as a substitute for competition since it forces the customers of Company B to pay more for widgets than they would choose in a competitive market.

Alternatively, assume a current reproduction cost of the property is $200 and a RFV of 10%. Under the reproduction cost ratemaking standard, the revenue requirement, retail rate, and return on book cost would be as set forth in Table AMM-8 below:

TABLE AMM-8
ILLUSTRATIVE RATES – FAIR VALUE

	Utility Property Reproduction Cost	RFV @ 10%	Rate per Unit	Return on Book Cost
Company A	$ 200	$ 20	$ 0.20	20%
Company B	$ 200	$ 20	$ 0.20	7%

While both companies would charge the same rates for an identical product, Company A earns more on the book value of its investment than Company B. This form of regulation is better aligned with a free market where prices charged by participants are similar while efficiency is encouraged and rewarded through higher earned returns on book value.[109]

[109] In real world markets the most efficient providers of the products and services demanded by consumers generally earn higher returns on book value than those that are less competitive.

B. Inflation and Fair Return on Fair Value

Q118. HOW IS THE RETURN UNDER CURRENT COST REGULATION CUSTOMARILY DERIVED?

A118. As noted earlier, under current cost regulation the rate base is adjusted to reflect changes in price level. Accordingly, while the authorized return under an original cost scheme would be expressed in nominal terms, in current cost ratemaking it is necessary to reflect a real rate of return in recognition of the expectation that changes in price levels will be reflected in adjustments to rate base. This real rate of return is generally approximated by subtracting the expected inflation rate from the nominal COE. Similarly, the Commission has consistently applied the utility's weighted average cost of capital, adjusted for inflation, to the fair value rate base.

Q119. WHAT ARE INVESTORS' FORWARD-LOOKING EXPECTATIONS WITH RESPECT TO INFLATION?

A119. While there is no single expected inflation rate attributable to all assets or investors, the projections of economic forecasting and investment advisory services and governmental agencies provide one meaningful benchmark regarding the inflation expectations incorporated into the COE estimates discussed earlier in my testimony. Table AMM-9, below, presents a compilation of inflation projections from widely referenced independent sources:

TABLE AMM-9
INFLATION FORECASTS

Source	Horizon	Measure	Inflation
(a) EIA	2021-2050	GDP Deflator	2.28%
(b) Social Security Administration	2021-2100	CPI	2.37%
(c) Blue Chip	2021-2028	GDP Deflator	2.47%
(d) Survey of Professional Forecasters	2022-2031	CPI	2.80%
Average			2.48%

(a) Energy Information Administration, *Annual Energy Outlook 2022* (March 3, 2022).
(b) Social Security Administration, 2022 OASDI Trustees Report, Table VI.G6
(c) Blue Chip Financial Forecasts, Vol. 40, No. 12 (Jun. 1, 2022).
(d) Survey of Professional Forecasters, Second Quarter 2022 (May 13, 2022).

In addition to these projections, investors' inflation expectations can be inferred from the published yields on U.S. Treasury Inflation Protected Securities ("TIPS"). Whereas yields on conventional Treasury bonds must compensate investors for any expected erosion in purchasing power due to inflation, buyers of TIPS need not worry about future inflation because the principal and interest payments are both indexed to inflation. As a result, the yield difference between conventional and inflation protected Treasuries of a given maturity should reveal the rate of future inflation expected by market participants. Over the six months January through June 2022, nominal yields on 30-year Treasury bonds averaged 2.65% and the yield on TIPS averaged 0.25%, which implies an expected inflation rate of 2.41%. For June 2022, the yield differential between conventional 30-year Treasury bonds and TIPS implies an expected inflation rate of 2.46%.

Q120. IS IT WELL UNDERSTOOD THAT THE INFLATION RATE CONSIDERED BY INVESTORS WHEN DETERMINING THEIR REQUIRED COE IS PROSPECTIVE, AND NOT HISTORICAL?

A120. Yes. The concept that required returns (be they debt returns or equity returns) contain a factor for expected inflation is a basic principle taught in every financial theory

textbook. For example, in the textbook, *Financial Management, Theory and Practice*, the authors state:

> The four most fundamental factors affecting the cost of money are (1) production opportunities, (2) time preferences for consumption, (3) risk, and (4) inflation.[110]
>
> It is important to note that the inflation rate built into interest rates is the *inflation rate expected in the future*, not the rate experienced in the past.[111]

Historical inflation actually experienced over some past period is not part of the analyses of investors' required returns, which are forward-looking estimates of the cost of equity.

Q121. WOULD IT BE REASONABLE OR APPROPRIATE TO REFERENCE HISTORICAL INFLATION RATES IN THIS PROCEEDING?

A121. No. There is no economic justification for referencing historical inflation when determining the fair RFV. Deducting historical inflation—however measured—from the COE would result in a mismatch because the only inflation rate incorporated into the cost of equity is based on forward-looking expectations. Nor is there any basis to adjust the debt cost for historical inflation, since interest expense is a fixed cost of the utility that is unaffected by adjustments to original cost rate base to account for price level changes. Adjusting the COE by subtracting a measure of *historical* inflation to arrive at a fair RFV is inconsistent with economic and financial principles, as well as the logic underlying fair value ratemaking.

Q122. IS THERE ANY ECONOMIC BASIS THAT WOULD SUPPORT DEDUCTING INVESTORS' EXPECTED INFLATION RATE FROM THE WEIGHTED

[110] Brigham, Eugene F., Gapenski Louis C., and Ehrhardt, Michael C., "Financial Management, Theory and Practice," Ninth Edition (1999) at 126 (emphasis in original).
[111] *Id.* at 133.

AVERAGE COST OF CAPITAL ("WACC") UNDER FAIR VALUE RATEMAKING?

A122. No. Common equity investors are the only beneficiaries of the inflation protections offered by fair value ratemaking. The Company is contractually obligated to pay debtholders interest expense pursuant to the related bond indentures, and these payments are fixed and independent of any change in rate base related to consideration of historical prices changes on the value of Westfield's investment in utility property. Removing investors' expected inflation rate from the WACC, rather than from the COE, would amount to a "double-dip." The only cost component of the WACC that includes compensation for the risks of future inflation addressed by fair value ratemaking is the COE. Subtracting an inflation adjustment from the WACC, rather than from the COE component cost, ignores this economic reality.

C. Implications of Depreciation Expense Under Fair Value Regulation

Q123. IS INFLATION THE ONLY FACTOR THAT SHOULD BE CONSIDERED IN ESTABLISHING THE RFV?

A123. No. The Commission should consider how depreciation expense based on original cost impacts investors' opportunity to earn a fair return.

Q124. PLEASE EXPLAIN.

A124. The ratemaking process provides the utility a return "of" and "on" its used and useful utility property. The return "on" investment is provided in the authorized rate of return. The return "of" investment is provided in the Commission authorized depreciation rates. The depreciation rates are applied to the original cost of the used and useful property. In other words, the return "of" the investment does not recognize the impact of inflation.

While investors and customers should be indifferent between original cost and current value ratemaking in a perfect world, actual implementation can differ from these tenets and lead to attrition, which violates regulatory principles. In particular, the use

of depreciation expense based on original cost within a current value regulatory scheme will deny investors the opportunity to earn a fair return. This failing is illustrated on Attachment AMM-11.

Consider a utility with an initial investment in plant of $100,000. The plant has a service life of 10 years and investors' cost of equity capital is 10.0%. As shown on page 1 of Attachment AMM-11, discounting the annual stream of cash flows provided from depreciation and return over the life of the asset at investors' 10.0% cost of equity yields a net present value ("NPV") equal to the original investment.

Page 2 of Attachment AMM-11 presents the same example under current cost regulation. Here, the value of the plant is increased annually at the assumed 2.0% inflation rate. Given that price changes are accounted for in rate base, the rate of return is computed by subtracting the 2.0% inflation rate from the nominal cost of equity of 10.0%, resulting in a RFV of 8.0%. Meanwhile, annual depreciation expense is computed by dividing the *current value plant balance in each year* by the ten-year life of the facility. As shown on page 2 of Attachment AMM-12, discounting this series of annual revenue requirements under current value ratemaking at investors' nominal 10.0% cost of equity yields an identical NPV of $100,000.

Page 3 of Attachment AMM-11 illustrates the attrition that occurs as a result of combining original cost depreciation expense with a current cost regulatory scheme. Plant investment is adjusted for inflation and combined with an 8.0% real cost of capital to compute the return component of revenue requirements, as was done on page 2. However, this current cost return is then combined with original cost depreciation expense that ignores the impact of price changes, as developed on page 1. As shown on page 3, discounting the resulting series of cash flows at the nominal return produces a NPV of $93,867, which falls below the $100,000 initial investment. In other words, the combination of a current cost return with historical cost depreciation expense produces

revenue requirements that are insufficient to allow investors the opportunity to earn their required return. This outcome violates the *Hope* and *Bluefield* regulatory standards.

As shown on page 4 of Attachment AMM-11, in order to overcome this attrition shortfall associated with the use of original cost depreciation expense, the allowed RFV must be increased above the real return to produce revenues that are sufficient to return the original $100,000 capital to investors. In the hypothetical example illustrated on page 4 of Attachment AMM-11, the required return must be set 150 basis points higher than the real return, or 9.5%, in order to offset the impact of using original cost depreciation expense in current value ratemaking.

Q125. HAS THE COMMISSION PREVIOUSLY RECOGNIZED THE IMPACT OF INFLATION ON DEPRECIATION EXPENSE IN CURRENT VALUE RATEMAKING?

A125. Yes. In a 1957 decision in *Indiana Telephone Corporation* the Commission noted the importance of changing price levels and its implication for depreciation expense, finding that "the cost of plant capacity consumed, depreciation, is a major factor in this area," observing that "one 1956 dollar received from a customer is not the equivalent of, and does not represent the recovery of, one 1940 dollar of plant consumed."[112] The Commission found:

> Depreciation, or the cost of plant consumed, measured in current dollars, and related to other factors as was done in the evidence presented herein tends to reflect a realistic picture of profits in which there is no understatement of cost or overstatement of profits . . .[113]

The Commission then ordered:

> Indiana Telephone Corporation be and it hereby is…authorized to accrue depreciation upon the basis of the cost of its property, repriced in current dollars; and file its annual report with this commission showing

[112] *Indiana Telephone Corporation*, 16 PUR 3d 490, (Ind. PSC 1957).
[113] *Id.* at 497.

depreciation expense accrued on the basis of original cost and on the basis of cost repriced in current dollars.[114]

Q126. IS WESTFIELD PROPOSING ANY CHANGE IN THE COMMISSION'S PRACTICE OF CALCULATING DEPRECIATION EXPENSE BASED ON THE HISTORICAL, BOOK COST OF PLANT AND EQUIPMENT?

A126. No. The Company recognizes that the depreciation expense component of a utility's revenue requirements is customarily calculated based on historical, book cost. Westfield has employed this same methodology here and is not proposing any adjustment to book depreciation expense in determining revenue requirements under fair value.

Similarly, my examination of the ramifications of inflation on depreciation expense under fair value does not imply any deviation from the Commission's standard practices. Nor does it suggest any form of a "double-dip" in recognizing the impact of inflation, since the Company continues to account for depreciation expense on the basis of historical cost. Rather, this discussion serves to illustrate that deducting expected inflation from the COE will produce an understated measure of RFV exactly *because* the Company continues to base depreciation expense on historical cost accounting.

As the Commission has previously recognized, "simply subtracting an inflation rate from the cost of capital and multiplying that result by the fair value rate base amount results in an understated return amount that is not methodically consistent with and does not give actual effect to the rate base amount."[115] The Commission concluded that the outcome would be "an impermissible result under Indiana's fair value statute."[116] In order to mitigate these concerns, I propose to refine the approach used to arrive at the RFV by subtracting an inflation rate from the bottom end of the reasonable range. While this would partially offset the resulting attrition penalty shouldered by investors, it

[114] *Id.* at 498.
[115] *Verified Petition of Westfield Gas Corp.*, Cause No. 43624, Order at 30 (Mar. 10, 2010).
[116] *Id.*

would not serve to double-count the impact of inflation or otherwise alter the determination of depreciation expense or the test year balance of fair value rate base.

Q127. WHAT OTHER FACTORS WARRANT CONSIDERATION IN EVALUATING THE IMPACT OF INFLATION WHEN DETERMINING THE RFV?

A127. As I indicated earlier, there is no single measure of inflation that applies across sectors of the economy or to all classes of investors. For example, inflation premiums incorporated into observable bond yields reflect the static nature of interest and principal payments under the terms of bond indentures. Meanwhile, equity investors recognize that the ability to adjust future prices to offset higher costs provides common stocks with a hedge against inflation that is not available to bondholders. Accordingly, this suggests that a generalized inflation rate based on economy-wide expectations or imputed from required bond yields would overstate any inflation premium built into investors' required return on common stocks.

Q128. IF INFLATION IS TO BE CONSIDERED IN EVALUATING THE RFV, WHAT RATE DO YOU RECOMMEND?

A128. Based on the forecasts and observable Treasury yields referenced above, investors' long-term expectations of inflation are likely to fall in the range of approximately 2.3% to 3.0%. Considering the implications for common equity investors and fact that the use of historical cost depreciation expense will produce a return that falls short of investors' requirements under current value ratemaking, I recommend that the RFV be calculated using the lower end of my inflation range, or 2.3%.

Q129. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY IN THIS CASE?

A129. Yes, it does.

VERIFICATION

The undersigned affirms under the penalties for perjury that the foregoing testimony is true to the best of his knowledge, information and belief.

Adrien McKenzie

ATTACHMENT AMM-1

QUALIFICATIONS OF ADRIEN M. MCKENZIE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Adrien M. McKenzie. My business address is 3907 Red River Street, Austin, Texas 78751.

Q. PLEASE STATE YOUR OCCUPATION.

A. I am a principal in FINCAP, Inc., a firm engaged primarily in financial, economic, and policy consulting in the field of public utility regulation.

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I received B.A. and M.B.A. degrees with a major in finance from The University of Texas at Austin and hold the Chartered Financial Analyst (CFA®) designation. Since joining FINCAP in 1984, I have participated in consulting assignments involving a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation. I have extensive experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. I have personally sponsored direct and rebuttal testimony in over 150 proceedings filed with the Federal Energy Regulatory Commission ("FERC") and regulatory agencies in Alaska, Arkansas, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming. My testimony addressed the establishment of risk-comparable proxy groups, the application of alternative quantitative methods, and the consideration of regulatory standards and

policy objectives in establishing a fair rate of return on equity for regulated electric, gas, and water utility operations. In connection with these assignments, my responsibilities have included critically evaluating the positions of other parties and preparation of rebuttal testimony, representing clients in settlement negotiations and hearings, and assisting in the preparation of legal briefs.

FINCAP was formed in 1979 as an economic and financial consulting firm serving clients in both the regulated and competitive sectors. FINCAP conducts assignments ranging from broad qualitative analyses and policy consulting to technical analyses and research. The firm's experience is in the areas of public utilities, valuation of closely-held businesses, and economic evaluations (e.g., damage and cost/benefit analyses). Prior to joining FINCAP, I was employed by an oil and gas firm and was responsible for operations and accounting. I am a member of the CFA Institute. A resume containing the details of my qualifications and experience is attached below.

ADRIEN M. McKENZIE

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Summary of Qualifications

Adrien McKenzie has an MBA in finance from the University of Texas at Austin and holds the Chartered Financial Analyst (CFA®) designation. He has over 30 years of experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before courts, regulatory agencies, and legislative committees throughout the U.S. and Canada. Assignments have included a broad range of economic and financial issues, including cost of capital, cost of service, rate design, economic damages, and business valuation.

Employment

President FINCAP, Inc. (June 1984 to June 1987) (April 1988 to present)	Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included rate of return, revenue requirements, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Develop cost of capital analyses using alternative market models for electric, gas, and telephone utilities. Prepare pre-filed direct and rebuttal testimony, participate in settlement negotiations, respond to interrogatories, evaluate opposition testimony, and assist in the areas of cross-examination and the preparations of legal briefs. Other assignments have involved preparation of technical reports, valuations, estimation of damages, industry studies, and various economic analyses in support of litigation.
Manager, McKenzie Energy Company (Jan. 1981 to May. 1984)	Responsible for operations and accounting for firm engaged in the management of working interests in oil and gas properties.

Education

M.B.A., Finance, University of Texas at Austin (Sep. 1982 to May. 1984)	Program included coursework in corporate finance, accounting, financial modeling, and statistics. Received Dean's Award for Academic Excellence and Good Neighbor Scholarship. Professional Report: *The Impact of Construction Expenditures on Investor-Owned Electric Utilities*
B.B.A., Finance, University of Texas at Austin (Jan. 1981 to May 1982)	Electives included capital market theory, portfolio management, and international economics and finance. Elected to Beta Gamma Sigma business honor society. Dean's List 1981-1982.
Simon Fraser University, Vancouver, Canada and University of Hawaii at Manoa, Honolulu, Hawaii (Jan. 1979 to Dec 1980)	Coursework in accounting, finance, economics, and liberal arts.

Professional Associations

Received Chartered Financial Analyst (CFA®) designation in 1990.

Member – CFA Institute.

Bibliography

"A Profile of State Regulatory Commissions," A Special Report by the Electricity Consumers Resource Council (ELCON), Summer 1991.

"The Impact of Regulatory Climate on Utility Capital Costs: An Alternative Test," with Bruce H. Fairchild, *Public Utilities Fortnightly* (May 25, 1989).

Presentations

"ROE at FERC: Issues and Methods," *Expert Briefing on Parallels in ROE Issues between AER, ERA, and FERC,* Jones Day (Sydney, Melbourne, and Perth, Australia) (April 15, 2014).

Cost of Capital Working Group eforum, Edison Electric Institute (April 24, 2012).

"Cost-of-Service Studies and Rate Design," General Management of Electric Utilities (A Training Program for Electric Utility Managers from Developing Countries), Austin, Texas (October 1989 and November 1990 and 1991).

Representative Assignments

Mr. McKenzie has prepared and sponsored prefiled testimony submitted in over 150 regulatory proceedings. In addition to filings before regulatory agencies in Alaska, Arkansas, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming, Mr. McKenzie has considerable expertise in preparing expert analyses and testimony before the Federal Energy Regulatory Commission ("FERC") on the issue of rate of return on equity ("ROE"), and has broad experience in applying and evaluating the results of quantitative methods to estimate a fair ROE. Other representative assignments have included developing cost of service and cost allocation studies, the application of econometric models to analyze the impact of anti-competitive behavior and estimate lost profits; development of explanatory models for nuclear plant capital costs in connection with prudency reviews; and the analysis of avoided cost pricing for cogenerated power.

ROE ANALYSES **Attachment AMM-2**

SUMMARY OF RESULTS

Method	Average
DCF	
Value Line	10.7%
IBES	9.1%
Zacks	8.9%
Internal br + sv	9.1%
CAPM	
Current Bond Yield	11.9%
Projected Bond Yield	12.0%
Empirical CAPM	
Current Bond Yield	12.3%
Projected Bond Yield	12.4%
Utility Risk Premium	
Current Bond Yields	10.4%
Projected Bond Yields	10.7%
Expected Earnings	10.2%

COE Recommendation			
Cost of Equity Range	9.6%	--	10.9%

REGULATORY MECHANISMS

GAS GROUP

Company	State	Type of adjustment clause (a)								(b)
				Decoupling						
		Gas Cost	Conserv.			*Including	Environ-mental	Capital Investment		Future Test
		Adjustment	Program	Full	Partial*	WNA	Compliance	Tracker	Other†	Year
ATMOS ENERGY										
Atmos Energy	CO	✓	--	--	--	--	--	✓	--	--
Atmos Energy	KS	✓	--	--	✓	WNA	--	✓	✓	--
Atmos Energy	KY	✓	✓	--	✓	WNA	--	✓	✓	O
Atmos Energy	LA	✓	--	--	✓	WNA	--	✓	--	O
Atmos Energy	MS	✓	✓	--	✓	WNA	--	✓	--	O
Atmos Energy	TN	✓	--	--	✓	WNA	--	--	✓	C
Atmos Energy	TX	✓	--	--	✓	WNA	--	✓	✓	--
CHESAPEAKE UTILITES										
Chesapeake Utilities	DE	✓	--	--	--	--	✓	✓	✓	P
Florida Public Utilities	FL	✓	✓	--	--	--	✓	✓	✓	C
NEW JERSEY RESOURCES										
New Jersey Natural Gas	NJ	✓	✓	✓	--	--	✓	✓	✓	P
NISOURCE INC.										
Northern Indiana Public Service	IN	✓	✓	--	--	--	--	✓	✓	--
Columbia Gas of Kentucky	KY	✓	✓	--	✓	WNA	--	✓	✓	O
Columbia Gas of Maryland	MD	✓	✓	--	✓	WNA	--	✓	✓	P
Bay State Gas	MA	✓	✓	✓	--	--	✓	✓	✓	--
Columbia Gas of Ohio	OH	D	✓	--	--	--	--	✓	✓	P
Columbia Gas of Pennsylvania	PA	✓	--	--	✓	WNA	--	✓	✓	O
Columbia Gas of Virginia	VA	✓	✓	--	✓	WNA	--	✓	✓	--
NORTHWEST NATURAL										
Northwest Natural Gas	OR	✓	✓	--	✓	WNA	✓	--	--	C
Northwest Natural Gas	WA	✓	✓	--	--	--	--	--	--	--
ONE GAS, INC.										
Kansas Gas Service	KS	✓	--	--	✓	WNA	--	✓	✓	--
Oklahoma Natural Gas	OK	✓	✓	--	✓	WNA	--	--	✓	--
Texas Gas Service	TX	✓	--	--	✓	WNA	--	✓	--	--
SOUTHWEST GAS										
Southwest Gas	AZ	✓	✓	✓	--	--	--	✓	✓	--
Southwest Gas	CA	✓	--	✓	--	--	--	--	--	C
Southwest Gas	NV	✓	--	✓	--	--	--	✓	✓	--
SPIRE INC.										
Spire Alabama	AL	✓	--	--	✓	--	--	--	✓	C
Spire Gulf	AL	✓	--	--	✓	WNA	--	--	✓	C
Spire Missouri Inc. - East	MO	✓	--	--	✓	WNA	--	✓	✓	P
Spire Missouri Inc. - West	MO	✓	--	--	--	WNA	--	✓	✓	P

(a) S&P Global Market Intelligence, *Adjustment Clauses* , RRA Regulatory Focus (Nov. 12, 2019).
(b) Edison Electric Institute, *Alternative Regulation for Emerging Utility Challenges: 2015 Update* (Nov. 11, 2015).
† Recover mechanisms for other expenses, such as taxes, franchise fees, pensions, and bad debts.

Notes:
D - Delivery-only utility.
C - Fully-forecasted test years commonly used in the state listed for this operating company.
O - Fully-forecasted test years occasionally used in the state listed for this operating company.
P - Partially-forecasted test years commonly or occasionally used in the state listed for this operating company.

DIVIDEND YIELD

	Company	(a) Price	(b) Dividends	Yield
1	Atmos Energy Corp.	$ 112.03	$ 2.87	2.6%
2	Chesapeake Utilities	$ 128.35	$ 2.18	1.7%
3	New Jersey Resources	$ 44.83	$ 1.45	3.2%
4	NiSource Inc.	$ 29.93	$ 0.94	3.1%
5	Northwest Natural	$ 52.83	$ 1.93	3.7%
6	ONE Gas, Inc.	$ 84.32	$ 2.56	3.0%
7	Southwest Gas	$ 90.75	$ 2.51	2.8%
8	Spire Inc.	$ 75.61	$ 2.80	3.7%
	Average			**3.0%**

(a) Average of closing prices for 30 trading days ended Jun. 24, 2022.
(b) The Value Line Investment Survey, ***Summary & Index*** (Jun. 24, 2022).

GROWTH RATES

		(a)	(b)	(c)	(d)
		Earnings Growth			**br+sv**
	Company	**V Line**	**IBES**	**Zacks**	**Growth**
1	Atmos Energy Corp.	7.5%	8.6%	7.3%	7.2%
2	Chesapeake Utilities	7.5%	7.0%	n/a	16.6%
3	New Jersey Resources	5.0%	6.0%	6.0%	6.0%
4	NiSource Inc.	9.5%	7.2%	7.2%	7.9%
5	Northwest Natural	6.5%	4.6%	4.7%	4.6%
6	ONE Gas, Inc.	6.5%	5.0%	5.0%	4.1%
7	Southwest Gas	10.0%	4.0%	5.0%	7.6%
8	Spire Inc.	9.0%	4.3%	5.0%	4.3%

(a) The Value Line Investment Survey (May 27, 2022).
(b) www.finance.yahoo.com (retrieved Jun. 28, 2022).
(c) www.zacks.com (retrieved Jun. 28, 2022).
(d) See Exhibit AMM-5.

DCF COST OF EQUITY ESTIMATES

	Company	(a) V Line	(a) IBES	(a) Zacks	(a) br+sv Growth
1	Atmos Energy Corp.	10.1%	11.2%	9.8%	9.8%
2	Chesapeake Utilities	9.2%	8.7%	n/a	18.3%
3	New Jersey Resources	8.2%	9.2%	9.2%	9.2%
4	NiSource Inc.	12.6%	10.3%	10.3%	11.1%
5	Northwest Natural	10.2%	8.3%	8.3%	8.2%
6	ONE Gas, Inc.	9.5%	8.0%	8.0%	7.2%
7	Southwest Gas	12.8%	6.8%	7.8%	10.3%
8	Spire Inc.	12.7%	8.0%	8.7%	8.0%
	Average (b)	**10.7%**	**9.1%**	**8.9%**	**9.1%**

(a) Sum of dividend yield (p. 1) and respective growth rate (p. 2).
(b) Excludes highlighted figures.

CONSTANT GROWTH DCF MODEL - GAS GROUP

SUSTAINABLE GROWTH RATE

		(a)	(a)	(a)			(b)	(c)		(d)	(e)		
		2026					**Adjustment**			**"sv" Factor**			
	Company	**EPS**	**DPS**	**BVPS**	**b**	**r**	**Factor**	**Adjusted r**	**br**	**s**	**v**	**sv**	**br + sv**
1	Atmos Energy Corp.	$7.30	$3.50	$82.85	52.1%	8.8%	1.0484	9.2%	4.8%	0.0560	0.4286	2.40%	**7.2%**
2	Chesapeake Utilities	$6.50	$2.75	$56.15	57.7%	11.6%	1.0533	12.2%	7.0%	0.1545	0.6193	9.57%	**16.6%**
3	New Jersey Resources	$2.80	$1.70	$23.15	39.3%	12.1%	1.0348	12.5%	4.9%	0.0214	0.5126	1.10%	**6.0%**
4	NiSource Inc.	$2.30	$1.08	$17.40	53.0%	13.2%	1.0253	13.6%	7.2%	0.0128	0.5906	0.76%	**7.9%**
5	Northwest Natural	$3.45	$1.96	$37.20	43.2%	9.3%	1.0242	9.5%	4.1%	0.0104	0.4686	0.49%	**4.6%**
6	ONE Gas, Inc.	$5.30	$3.12	$71.60	41.1%	7.4%	1.0550	7.8%	3.2%	0.0214	0.4272	0.91%	**4.1%**
7	Southwest Gas	$6.75	$3.10	$72.00	54.1%	9.4%	1.0605	9.9%	5.4%	0.0660	0.3302	2.18%	**7.6%**
8	Spire Inc.	$5.50	$3.30	$67.10	40.0%	8.2%	1.0422	8.5%	3.4%	0.0209	0.4036	0.84%	**4.3%**

SUSTAINABLE GROWTH RATE

		(a)	(a)	(f)	(a)	(a)	(f)	(g)	(a)	(a)		(h)	(a)	(a)	(g)
		2021			**2026**			**Chg**	**2026 Price**				**Common Shares**		
	Company	**Eq Ratio**	**Tot Cap**	**Com Eq**	**Eq Ratio**	**Tot Cap**	**Com Eq**	**Equity**	**High**	**Low**	**Avg.**	**M/B**	**2021**	**2026**	**Growth**
1	Atmos Energy Corp.	61.6%	$12,837	$7,908	60.0%	$21,400	$12,840	10.2%	$160.00	$130.00	$145.00	1.750	132.42	155.00	3.20%
2	Chesapeake Utilities	58.5%	$1,324	$775	60.0%	$2,200	$1,320	11.3%	$170.00	$125.00	$147.50	2.627	17.66	23.50	5.88%
3	New Jersey Resources	43.0%	$3,793	$1,631	43.5%	$5,310	$2,310	7.2%	$55.00	$40.00	$47.50	2.052	94.95	100.00	1.04%
4	NiSource Inc.	34.0%	$16,435	$5,588	39.5%	$18,225	$7,199	5.2%	$50.00	$35.00	$42.50	2.443	404.30	415.00	0.52%
5	Northwest Natural	47.2%	$1,980	$934	52.0%	$2,290	$1,191	5.0%	$85.00	$55.00	$70.00	1.882	31.13	32.00	0.55%
6	ONE Gas, Inc.	39.0%	$6,033	$2,353	48.0%	$8,500	$4,080	11.6%	$145.00	$105.00	$125.00	1.746	53.63	57.00	1.23%
7	Southwest Gas	41.8%	$7,070	$2,955	47.5%	$11,400	$5,415	12.9%	$130.00	$85.00	$107.50	1.493	60.42	75.00	4.42%
8	Spire Inc.	43.2%	$5,597	$2,418	45.0%	$8,200	$3,690	8.8%	$130.00	$95.00	$112.50	1.677	51.70	55.00	1.25%

(a) The Value Line Investment Survey (May 27, 2022).
(b) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(c) Product of average year-end "r" for 2024 and Adjustment Factor.
(d) Product of change in common shares outstanding and M/B Ratio.
(e) Computed as 1 - B/M Ratio.
(f) Product of total capital and equity ratio.
(g) Five-year rate of change.
(h) Average of High and Low expected market prices divided by 2025 BVPS.

CURRENT BOND YIELDS

		(a)	(b)		(c)		(d)		(e)	(f)	
		Market Return (R_m)									
	Company	**Div Yield**	**Proj. Growth**	**Cost of Equity**	**Risk-Free Rate**	**Risk Premium**	**Beta**	**Unadjusted K_e**	**Market Cap**	**Size Adjustment**	**CAPM Result**
1	Atmos Energy Corp.	2.0%	10.5%	12.5%	3.3%	9.2%	0.80	10.7%	$15,700	0.57%	11.2%
2	Chesapeake Utilities	2.0%	10.5%	12.5%	3.3%	9.2%	0.75	10.2%	$2,300	1.20%	11.4%
3	New Jersey Resources	2.0%	10.5%	12.5%	3.3%	9.2%	1.00	12.5%	$4,300	0.91%	13.4%
4	NiSource Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	0.85	11.1%	$12,400	0.57%	11.7%
5	Northwest Natural	2.0%	10.5%	12.5%	3.3%	9.2%	0.85	11.1%	$1,600	1.36%	12.5%
6	ONE Gas, Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	0.80	10.7%	$4,600	0.91%	11.6%
7	Southwest Gas	2.0%	10.5%	12.5%	3.3%	9.2%	0.90	11.6%	$6,100	0.56%	12.1%
8	Spire Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	0.80	10.7%	$3,900	0.91%	11.6%
	Average							**11.1%**			**11.9%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved June 5, 2022).
(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Jun. 5, 2022), www.valueline.com (retrieved June 5, 2022), and www.zacks.com (retrieved Jun. 5, 2022).
(c) Average yield on 30-year Treasury bonds for Jun. 2022 based on data from https://fred.stlouisfed.org/.
(d) The Value Line Investment Survey, Summary & Index (Jun. 24, 2022).
(e) The Value Line Investment Survey (May 27, 2022).
(f) Kroll Cost of Capital Navigator, www.costofcapital.kroll.com.

PROJECTED BOND YIELDS

		(a)	(b)		(c)		(d)		(e)	(f)	
		Market Return (R_m)									
	Company	**Div Yield**	**Proj. Growth**	**Cost of Equity**	**Risk-Free Rate**	**Risk Premium**	**Beta**	**Unadjusted K_e**	**Market Cap**	**Size Adjustment**	**CAPM Result**
1	Atmos Energy Corp.	2.0%	10.5%	12.5%	3.8%	8.7%	0.80	10.8%	$15,700	0.57%	11.3%
2	Chesapeake Utilities	2.0%	10.5%	12.5%	3.8%	8.7%	0.75	10.3%	$2,300	1.20%	11.5%
3	New Jersey Resources	2.0%	10.5%	12.5%	3.8%	8.7%	1.00	12.5%	$4,300	0.91%	13.4%
4	NiSource Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	0.85	11.2%	$12,400	0.57%	11.8%
5	Northwest Natural	2.0%	10.5%	12.5%	3.8%	8.7%	0.85	11.2%	$1,600	1.36%	12.6%
6	ONE Gas, Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	0.80	10.8%	$4,600	0.91%	11.7%
7	Southwest Gas	2.0%	10.5%	12.5%	3.8%	8.7%	0.90	11.6%	$6,100	0.56%	12.2%
8	Spire Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	0.80	10.8%	$3,900	0.91%	11.7%
	Average							**11.1%**			**12.0%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved June 5, 2022).
(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Jun. 5, 2022), www.valueline.com (retrieved June 5, 2022), and www.zacks.com (retrieved Jun. 5, 2022).
(c) Projected yield on 30-year Treasury bonds for 2023-27 based on data from Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2022).
(d) The Value Line Investment Survey (May 27, 2022).
(e) The Value Line Investment Survey, Summary & Index (Jun. 24, 2022).
(f) Kroll Cost of Capital Navigator, www.costofcapital.kroll.com.

CURRENT BOND YIELDS

		(a)	(b)		(c)		(d)		(e)	(d)				(f)	(g)	
		Market Return (R_m)				**Market**										
	Company	**Div Yield**	**Proj. Growth**	**Cost of Equity**	**Risk-Free Rate**	**Risk Premium**	**Unadjusted RP Weight**	***RP*** [1]	**Beta**	**Beta Adjusted RP Weight**	***RP*** [2]	**Total RP**	**Unadjusted K_e**	**Market Cap**	**Size Adjustment**	**ECAPM Result**
1	Atmos Energy Corp.	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	11.1%	$15,700	0.57%	11.7%
2	Chesapeake Utilities	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.75	75%	5.2%	7.5%	10.8%	$2,300	1.20%	12.0%
3	New Jersey Resources	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	1.00	75%	6.9%	9.2%	12.5%	$4,300	0.91%	13.4%
4	NiSource Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.85	75%	5.9%	8.2%	11.5%	$12,400	0.57%	12.0%
5	Northwest Natural	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.85	75%	5.9%	8.2%	11.5%	$1,600	1.36%	12.8%
6	ONE Gas, Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	11.1%	$4,600	0.91%	12.0%
7	Southwest Gas	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.90	75%	6.2%	8.5%	11.8%	$6,100	0.56%	12.4%
8	Spire Inc.	2.0%	10.5%	12.5%	3.3%	9.2%	25%	2.3%	0.80	75%	5.5%	7.8%	11.1%	$3,900	0.91%	12.0%
	Average												**11.4%**			**12.3%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved June 5, 2022).
(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Jun. 5, 2022), www.valueline.com (retrieved June 5, 2022), and www.zacks.com (retrieved Jun. 5, 2022).
(c) Average yield on 30-year Treasury bonds for Jun. 2022 based on data from https://fred.stlouisfed.org/.
(d) Roger A. Morin, *New Regulatory Finance* , Pub. Util. Reports, Inc. (2006) at 190.
(e) The Value Line Investment Survey, Summary & Index (Jun. 24, 2022).
(f) The Value Line Investment Survey (May 27, 2022).
(g) Kroll Cost of Capital Navigator, www.costofcapital.kroll.com.

PROJECTED BOND YIELDS

		(a)	(b)		(c)		(d)		(e)	(d)				(f)	(g)	
		Market Return (R_m)				Market										
	Company	Div Yield	Proj. Growth	Cost of Equity	Risk-Free Rate	Risk Premium	Unadjusted RP Weight	Unadjusted RP RP_1	Beta	Beta Adjusted RP Weight	Beta Adjusted RP RP_2	Total RP	Unadjusted K_e	Market Cap	Size Adjustment	ECAPM Result
1	Atmos Energy Corp.	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.80	75%	5.2%	7.4%	11.2%	$15,700	0.57%	11.8%
2	Chesapeake Utilities	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.75	75%	4.9%	7.1%	10.9%	$2,300	1.20%	12.1%
3	New Jersey Resources	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	1.00	75%	6.5%	8.7%	12.5%	$4,300	0.91%	13.4%
4	NiSource Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.85	75%	5.5%	7.7%	11.5%	$12,400	0.57%	12.1%
5	Northwest Natural	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.85	75%	5.5%	7.7%	11.5%	$1,600	1.36%	12.9%
6	ONE Gas, Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.80	75%	5.2%	7.4%	11.2%	$4,600	0.91%	12.1%
7	Southwest Gas	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.90	75%	5.9%	8.0%	11.8%	$6,100	0.56%	12.4%
8	Spire Inc.	2.0%	10.5%	12.5%	3.8%	8.7%	25%	2.2%	0.80	75%	5.2%	7.4%	11.2%	$3,900	0.91%	12.1%
	Average												**11.5%**			**12.4%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved June 5, 2022).
(b) Average of weighted average earnings growth rates from IBES, Value Line, and Zacks for dividend-paying stocks in the S&P 500 based on data from Refinitiv, as provided by fidelity.com (retrieved Jun. 5, 2022), www.valueline.com (retrieved June 5, 2022), and www.zacks.com (retrieved Jun. 5, 2022).
(c) Projected yield on 30-year Treasury bonds for 2023-27 based on data from Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2022).
(d) Roger A. Morin, *New Regulatory Finance,* Pub. Util. Reports, Inc. (2006) at 190.
(e) The Value Line Investment Survey, Summary & Index (Jun. 24, 2022).
(f) The Value Line Investment Survey (May 27, 2022).
(g) Kroll Cost of Capital Navigator, www.costofcapital.kroll.com.

GAS UTILITY RISK PREMIUM

CURRENT BOND YIELDS

Current Equity Risk Premium	
(a) Average Yield over Study Period	7.66%
(b) Average Single-A Utility Bond Yield	4.86%
Change in Bond Yield	-2.80%
(c) Risk Premium/Interest Rate Relationship	-0.4815
Adjustment to Average Risk Premium	1.35%
(a) Average Risk Premium over Study Period	3.78%
Adjusted Risk Premium	**5.13%**
Implied Cost of Equity	
(b) Baa Utility Bond Yield	5.22%
Adjusted Equity Risk Premium	5.13%
Risk Premium Cost of Equity	**10.35%**

(a) Exhibit AMM-8, page 4.
(b) Yields on 'A' and 'Baa' utility bonds for Jun. 2022 based on data from Moody's Investors Service at www.credittrends.com.
(c) Exhibit AMM-8, page 5.

PROJECTED BOND YIELD

Current Equity Risk Premium	
(a) Average Yield over Study Period	7.66%
(b) Average Single-A Utility Bond Yield 2023-27	5.57%
Change in Bond Yield	-2.09%
(c) Risk Premium/Interest Rate Relationship	-0.4815
Adjustment to Average Risk Premium	1.01%
(a) Average Risk Premium over Study Period	3.78%
Adjusted Risk Premium	**4.79%**
Implied Cost of Equity	
(b) Baa Utility Bond Yield 2023-27	5.87%
Adjusted Equity Risk Premium	4.79%
Risk Premium Cost of Equity	**10.66%**

(a) Exhibit AMM-8, page 3.
(b) Yields on 'A' and 'Baa' utility bonds based on data from Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 1, 2022) and Moody's Investors Service at www.credittrends.com.
(c) Exhibit AMM-8, page 4.

AUTHORIZED RETURNS

		(a)	(b)	
Year	**Qtr.**	**Allowed ROE**	**Single-A Utility Bond Yield**	**Risk Premium**
1980	1	13.45%	13.49%	-0.04%
	2	14.38%	12.87%	1.51%
	3	13.87%	12.88%	0.99%
	4	14.35%	14.11%	0.24%
1981	1	14.69%	14.77%	-0.08%
	2	14.61%	15.82%	-1.21%
	3	14.86%	16.65%	-1.79%
	4	15.70%	16.57%	-0.87%
1982	1	15.55%	16.72%	-1.17%
	2	15.62%	16.26%	-0.64%
	3	15.72%	15.88%	-0.16%
	4	15.62%	14.56%	1.06%
1983	1	15.41%	14.15%	1.26%
	2	14.84%	13.58%	1.26%
	3	15.24%	13.52%	1.72%
	4	15.41%	13.38%	2.03%
1984	1	15.39%	13.56%	1.83%
	2	15.07%	14.72%	0.35%
	3	15.37%	14.47%	0.90%
	4	15.33%	13.38%	1.95%
1985	1	15.03%	13.31%	1.72%
	2	15.44%	12.95%	2.49%
	3	14.64%	12.11%	2.53%
	4	14.44%	11.49%	2.95%
1986	1	14.05%	10.18%	3.87%
	2	13.28%	9.41%	3.87%
	3	13.09%	9.39%	3.70%
	4	13.62%	9.31%	4.31%
1987	1	12.61%	8.96%	3.65%
	2	13.13%	9.77%	3.36%
	3	12.56%	10.61%	1.95%
	4	12.73%	11.05%	1.68%
1988	1	12.94%	10.32%	2.62%
	2	12.48%	10.71%	1.77%
	3	12.79%	10.94%	1.85%
	4	12.98%	9.98%	3.00%
1989	1	12.99%	10.13%	2.86%
	2	13.25%	9.94%	3.31%
	3	12.56%	9.53%	3.03%
	4	12.94%	9.50%	3.44%

		(a)	(b)	
Year	**Qtr.**	**Allowed ROE**	**Single-A Utility Bond Yield**	**Risk Premium**
1990	1	12.60%	9.72%	2.88%
	2	12.81%	9.91%	2.90%
	3	12.34%	9.93%	2.41%
	4	12.77%	9.89%	2.88%
1991	1	12.69%	9.58%	3.11%
	2	12.53%	9.50%	3.03%
	3	12.43%	9.33%	3.10%
	4	12.38%	9.02%	3.36%
1992	1	12.42%	8.91%	3.51%
	2	11.98%	8.86%	3.12%
	3	11.87%	8.47%	3.40%
	4	11.94%	8.53%	3.41%
1993	1	11.75%	8.07%	3.68%
	2	11.71%	7.81%	3.90%
	3	11.39%	7.28%	4.11%
	4	11.15%	7.22%	3.93%
1994	1	11.12%	7.55%	3.57%
	2	10.81%	8.29%	2.52%
	3	10.95%	8.51%	2.44%
	4	11.64%	8.87%	2.77%
1995	1	(c)	--	--
	2	11.00%	7.93%	3.07%
	3	11.07%	7.72%	3.35%
1996	4	11.56%	7.37%	4.19%
	1	11.45%	7.44%	4.01%
	2	10.88%	7.98%	2.90%
	3	11.25%	7.96%	3.29%
1997	4	11.32%	7.62%	3.70%
	1	11.31%	7.76%	3.55%
	2	11.70%	7.88%	3.82%
	3	12.00%	7.49%	4.51%
	4	11.01%	7.25%	3.76%
1998	1	(c)	--	--
	2	11.37%	7.12%	4.25%
	3	11.41%	6.99%	4.42%
	4	11.69%	6.97%	4.72%
1999	1	10.82%	7.11%	3.71%
	2	10.82%	7.48%	3.34%
	3	(c)	--	--
	4	10.33%	8.05%	2.28%

AUTHORIZED RETURNS

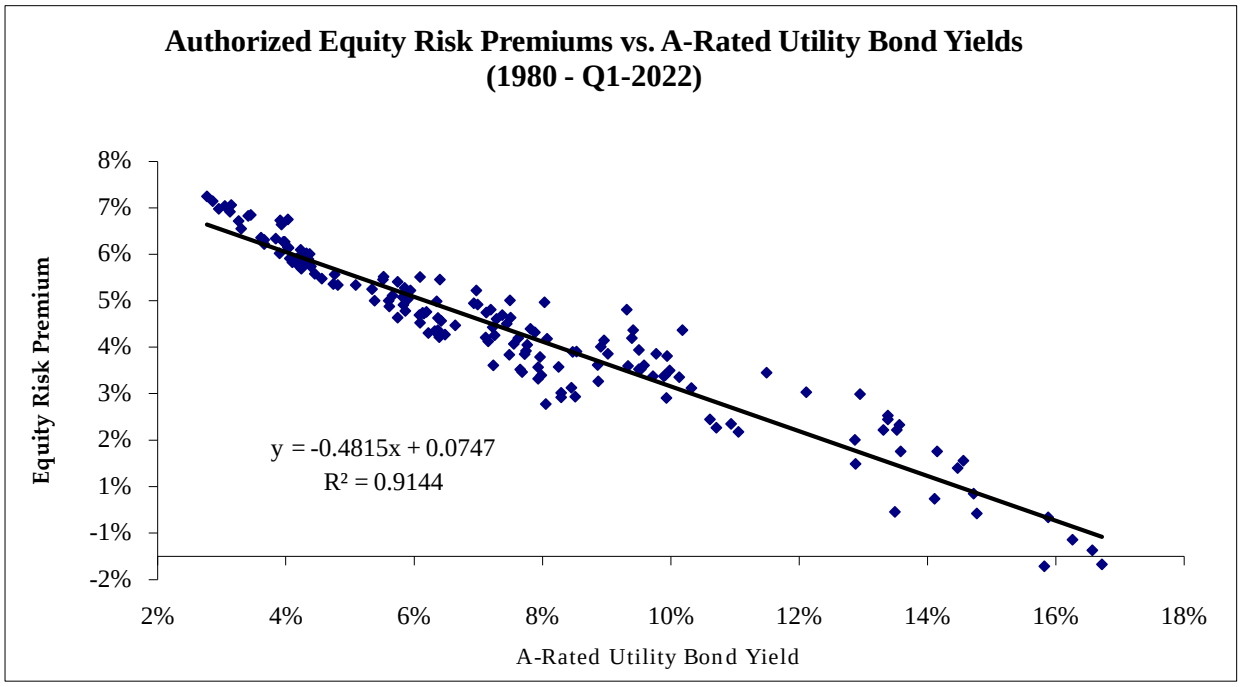
		(a)	(b)	
Year	**Qtr.**	**Allowed ROE**	**Single-A Utility Bond Yield**	**Risk Premium**
2000	1	10.71%	8.29%	2.42%
	2	11.08%	8.45%	2.63%
	3	11.33%	8.25%	3.08%
	4	12.50%	8.03%	4.47%
2001	1	11.16%	7.74%	3.42%
	2	10.75%	7.93%	2.82%
	3	(c)	--	--
	4	10.65%	7.68%	2.97%
2002	1	10.67%	7.65%	3.02%
	2	11.64%	7.50%	4.14%
	3	11.50%	7.19%	4.31%
	4	10.78%	7.15%	3.63%
2003	1	11.38%	6.93%	4.45%
	2	11.36%	6.40%	4.96%
	3	10.61%	6.64%	3.97%
	4	10.84%	6.35%	4.49%
2004	1	11.10%	6.09%	5.01%
	2	10.25%	6.48%	3.77%
	3	10.37%	6.13%	4.24%
	4	10.66%	5.94%	4.72%
2005	1	10.65%	5.74%	4.91%
	2	10.54%	5.52%	5.02%
	3	10.47%	5.51%	4.96%
	4	10.40%	5.82%	4.58%
2006	1	10.63%	5.85%	4.78%
	2	10.50%	6.37%	4.13%
	3	10.45%	6.19%	4.26%
	4	10.14%	5.86%	4.28%
2007	1	10.44%	5.90%	4.54%
	2	10.12%	6.09%	4.03%
	3	10.03%	6.22%	3.81%
	4	10.27%	6.08%	4.19%
2008	1	10.38%	6.15%	4.23%
	2	10.17%	6.32%	3.85%
	3	10.49%	6.42%	4.07%
	4	10.34%	7.23%	3.11%
2009	1	10.24%	6.37%	3.87%
	2	10.11%	6.39%	3.72%
	3	9.88%	5.74%	4.14%
	4	10.27%	5.66%	4.61%
2010	1	10.24%	5.83%	4.41%
	2	9.99%	5.61%	4.38%
	3	9.93%	5.09%	4.84%
	4	10.09%	5.34%	4.75%
2011	1	10.10%	5.60%	4.50%
	2	9.88%	5.38%	4.50%
	3	9.65%	4.81%	4.84%
	4	9.88%	4.37%	5.51%
2012	1	9.63%	4.39%	5.24%
	2	9.83%	4.23%	5.60%
	3	9.75%	3.98%	5.77%
	4	10.07%	3.93%	6.14%
2013	1	9.57%	4.18%	5.39%
	2	9.47%	4.23%	5.24%
	3	9.60%	4.74%	4.86%
	4	9.83%	4.76%	5.07%
2014	1	9.54%	4.56%	4.98%
	2	9.84%	4.32%	5.52%
	3	9.45%	4.20%	5.25%
	4	10.28%	4.03%	6.25%
2015	1	9.47%	3.66%	5.81%
	2	9.43%	4.10%	5.33%
	3	9.75%	4.35%	5.40%
	4	9.68%	4.35%	5.33%
2016	1	9.48%	4.18%	5.30%
	2	9.42%	3.90%	5.52%
	3	9.47%	3.61%	5.86%
	4	9.68%	4.04%	5.64%
2017	1	9.60%	4.18%	5.42%
	2	9.47%	4.06%	5.41%
	3	10.14%	3.91%	6.23%
	4	9.68%	3.84%	5.84%
2018	1	9.68%	4.03%	5.65%
	2	9.43%	4.24%	5.19%
	3	9.69%	4.28%	5.41%
	4	9.53%	4.45%	5.08%
2019	1	9.55%	4.25%	5.30%
	2	9.73%	3.96%	5.77%
	3	9.80%	3.45%	6.35%
	4	9.74%	3.41%	6.33%

AUTHORIZED RETURNS

		(a)	(b)	
Year	**Qtr.**	**Allowed ROE**	**Single-A Utility Bond Yield**	**Risk Premium**
2020	1	9.35%	3.30%	6.05%
	2	9.55%	3.13%	6.42%
	3	9.52%	2.77%	6.75%
	4	9.50%	2.86%	6.64%
2021	1	9.71%	3.15%	6.56%
	2	9.48%	3.26%	6.22%
	3	9.43%	2.95%	6.48%
	4	9.59%	3.05%	6.54%
2022	1	9.38%	3.66%	5.72%
Average		**11.45%**	**7.66%**	**3.78%**

(a) S&P Global Market Intelligence, *Major Rate Case Decisions* , (May 2, 2022; Jan. 31, 2020; Jan. 14, 2016; Jan. 7, 2011; Apr. 5, 2004; Jan. 21, 1998; July 12, 1991; and Jan. 16, 1990).
(b) Moody's Investors Service.
(c) No decisions reported.

REGRESSION RESULTS



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.956253961
R Square	0.914421638
Adjusted R Square	0.913896617
Standard Error	0.005057639
Observations	165

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.044551856	0.044551856	1741.687065	6.33906E-89
Residual	163	0.004169493	2.55797E-05		
Total	164	0.048721349			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.074730392	0.000967891	77.20949752	2.8127E-130	0.07281917	0.076641614	0.07281917	0.076641614
X Variable 1	-0.48149321	0.011537324	-41.73352448	6.33906E-89	-0.504275098	-0.45871133	-0.504275098	-0.458711328

EXPECTED EARNINGS APPROACH

GAS GROUP

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	Atmos Energy Corp.	9.0%	1.0484	9.4%
2	Chesapeake Utilities	11.5%	1.0533	12.1%
3	New Jersey Resources	12.0%	1.0348	12.4%
4	NiSource Inc.	11.5%	1.0253	11.8%
5	Northwest Natural	9.5%	1.0242	9.7%
6	ONE Gas, Inc.	7.5%	1.0550	7.9%
7	Southwest Gas	9.0%	1.0605	9.5%
8	Spire Inc.	8.0%	1.0422	8.3%
	Average	**9.8%**		**10.2%**

(a) The Value Line Investment Survey (May 27, 2022).
(b) Adjustment to convert year-end return to an average rate of return from Exhibit AMM-5.
(c) (a) x (b).

DCF MODEL - NON-UTILITY GROUP

DIVIDEND YIELD

	Company	Industry Group	(a) Price	(b) Dividends	Yield
1	3M Company	Diversified Co.	$142.52	$ 5.96	4.2%
2	Abbott Labs.	Med Supp Non-Invasive	$ 111.16	$ 1.88	1.7%
3	Air Products & Chem.	Chemical (Diversified)	$ 242.80	$ 6.48	2.7%
4	Amdocs Ltd.	IT Services	$ 83.37	$ 1.58	1.9%
5	Amgen	Biotechnology	$ 244.74	$ 8.18	3.3%
6	Analog Devices	Semiconductor	$ 158.04	$ 3.04	1.9%
7	Apple Inc.	Computers/Peripherals	$ 141.57	$ 0.92	0.6%
8	Baxter Int'l Inc.	Med Supp Invasive	$ 71.44	$ 1.16	1.6%
9	Becton, Dickinson	Med Supp Invasive	$ 249.07	$ 3.60	1.4%
10	Bristol-Myers Squibb	Drug	$ 75.88	$ 2.16	2.8%
11	Brown & Brown	Financial Svcs. (Div.)	$ 56.78	$ 0.41	0.7%
12	Brown-Forman 'B'	Beverage	$ 66.27	$ 0.75	1.1%
13	Church & Dwight	Household Products	$ 88.96	$ 1.05	1.2%
14	Cisco Systems	Telecom. Equipment	$ 44.95	$ 1.52	3.4%
15	Clorox Co.	Household Products	$ 138.85	$ 4.64	3.3%
16	CME Group	Brokers & Exchanges	$ 199.21	$ 4.00	2.0%
17	Coca-Cola	Beverage	$ 62.50	$ 1.76	2.8%
18	Colgate-Palmolive	Household Products	$ 77.29	$ 1.88	2.4%
19	Comcast Corp.	Cable TV	$ 41.70	$ 1.08	2.6%
20	Costco Wholesale	Retail Store	$ 462.06	$ 3.60	0.8%
21	Danaher Corp.	Diversified Co.	$ 252.89	$ 1.00	0.4%
22	Gen'l Mills	Food Processing	$ 68.83	$ 2.07	3.0%
23	Gilead Sciences	Drug	$ 62.25	$ 2.92	4.7%
24	Hershey Co.	Food Processing	$ 212.53	$ 3.60	1.7%
25	Hormel Foods	Food Processing	$ 47.50	$ 1.04	2.2%
26	Hunt (J.B.)	Trucking	$ 167.32	$ 1.63	1.0%
27	Intel Corp.	Semiconductor	$ 41.26	$ 1.46	3.5%
28	Intercontinental Exch.	Brokers & Exchanges	$ 97.95	$ 1.52	1.6%
29	Johnson & Johnson	Med Supp Non-Invasive	$ 97.95	$ 4.52	4.6%
30	Kellogg	Food Processing	$ 69.42	$ 2.35	3.4%
31	Kimberly-Clark	Household Products	$ 130.60	$ 4.64	3.6%
32	Lilly (Eli)	Drug	$ 302.37	$ 3.92	1.3%
33	Marsh & McLennan	Financial Svcs. (Div.)	$ 153.98	$ 2.14	1.4%
34	McCormick & Co.	Food Processing	$ 90.12	$ 1.50	1.7%
35	McDonald's Corp.	Restaurant	$ 242.59	$ 5.68	2.3%
36	McKesson Corp.	Med Supp Non-Invasive	$ 319.31	$ 1.88	0.6%
37	Merck & Co.	Drug	$ 90.20	$ 2.76	3.1%
38	Microsoft Corp.	Computer Software	$ 260.31	$ 2.52	1.0%
39	Mondelez Int'l	Food Processing	$ 62.03	$ 1.40	2.3%
40	NewMarket Corp.	Chemical (Specialty)	$ 319.33	$ 8.40	2.6%
41	Northrop Grumman	Aerospace/Defense	$ 461.79	$ 6.92	1.5%
42	Oracle Corp.	Computer Software	$ 69.87	$ 1.28	1.8%
43	PepsiCo, Inc.	Beverage	$ 165.17	$ 4.40	2.7%
44	Pfizer, Inc.	Drug	$ 51.16	$ 1.60	3.1%
45	Procter & Gamble	Household Products	$ 143.91	$ 3.65	2.5%
46	Progressive Corp.	Insurance (Prop/Cas.)	$ 114.19	$ 0.40	0.4%
47	Public Storage	R.E.I.T.	$ 315.73	$ 8.05	2.5%
48	Republic Services	Environmental	$ 129.59	$ 1.84	1.4%
49	Sherwin-Williams	Retail Building Supply	$ 254.43	$ 2.50	1.0%
50	Smucker (J.M.)	Food Processing	$ 128.07	$ 4.05	3.2%
51	Texas Instruments	Semiconductor	$ 164.92	$ 4.60	2.8%
52	Thermo Fisher Sci.	Precision Instrument	$ 540.08	$ 1.20	0.2%
53	United Parcel Serv.	Air Transport	$ 177.53	$ 6.08	3.4%
54	Verizon Communic.	Telecom. Services	$ 50.23	$ 2.60	5.2%
55	Walmart Inc.	Retail Store	$ 125.60	$ 2.24	1.8%
56	Waste Management	Environmental	$ 153.35	$ 2.60	1.7%
	Average				**2.2%**

(a) Average of closing prices for 30 trading days ended Jun. 24, 2022.
(b) The Value Line Investment Survey, ***Summary & Index*** (Jun. 24, 2022).

GROWTH RATES

		(a)	(b)	(c)
		Earnings Growth Rates		
	Company	**V Line**	**IBES**	**Zacks**
1	3M Company	5.50%	5.72%	9.50%
2	Abbott Labs.	8.00%	12.60%	5.72%
3	Air Products & Chem.	12.00%	12.13%	13.07%
4	Amdocs Ltd.	7.00%	12.25%	10.00%
5	Amgen	5.50%	7.10%	6.68%
6	Analog Devices	14.00%	18.71%	12.25%
7	Apple Inc.	14.00%	9.91%	12.50%
8	Baxter Int'l Inc.	10.00%	14.05%	12.60%
9	Becton, Dickinson	5.50%	4.85%	6.61%
10	Bristol-Myers Squibb	n/a	4.57%	6.24%
11	Brown & Brown	8.00%	13.22%	n/a
12	Brown-Forman 'B'	12.00%	8.49%	n/a
13	Church & Dwight	6.00%	7.24%	8.00%
14	Cisco Systems	8.00%	6.47%	6.50%
15	Clorox Co.	4.50%	-6.13%	7.00%
16	CME Group	7.50%	7.45%	6.14%
17	Coca-Cola	7.50%	6.58%	6.99%
18	Colgate-Palmolive	6.50%	3.96%	4.85%
19	Comcast Corp.	9.50%	13.07%	13.29%
20	Costco Wholesale	10.50%	12.61%	9.18%
21	Danaher Corp.	17.00%	11.05%	8.73%
22	Gen'l Mills	4.00%	4.13%	7.50%
23	Gilead Sciences	13.50%	-1.35%	15.00%
24	Hershey Co.	6.50%	9.50%	7.67%
25	Hormel Foods	6.50%	8.60%	7.79%
26	Hunt (J.B.)	11.50%	22.97%	15.00%
27	Intel Corp.	2.50%	3.24%	7.50%
28	Intercontinental Exch.	6.50%	7.62%	9.27%
29	Johnson & Johnson	8.00%	4.63%	4.94%
30	Kellogg	4.00%	2.56%	3.79%
31	Kimberly-Clark	5.50%	5.40%	5.00%
32	Lilly (Eli)	11.50%	10.44%	17.42%
33	Marsh & McLennan	12.00%	8.60%	8.63%
34	McCormick & Co.	6.00%	6.95%	6.09%
35	McDonald's Corp.	10.50%	7.70%	8.02%
36	McKesson Corp.	10.00%	13.00%	9.42%
37	Merck & Co.	8.00%	11.62%	10.13%
38	Microsoft Corp.	16.50%	16.11%	11.95%
39	Mondelez Int'l	9.50%	6.93%	6.80%
40	NewMarket Corp.	-0.50%	7.70%	n/a
41	Northrop Grumman	6.50%	6.10%	6.10%
42	Oracle Corp.	9.00%	12.10%	8.00%
43	PepsiCo, Inc.	6.00%	7.48%	7.57%
44	Pfizer, Inc.	6.50%	-0.80%	12.47%
45	Procter & Gamble	6.50%	5.27%	6.05%
46	Progressive Corp.	6.50%	30.32%	17.27%
47	Public Storage	n/a	17.00%	7.05%
48	Republic Services	12.50%	10.60%	10.53%
49	Sherwin-Williams	11.50%	14.70%	13.19%
50	Smucker (J.M.)	4.00%	1.60%	n/a
51	Texas Instruments	9.00%	10.00%	9.33%
52	Thermo Fisher Sci.	10.00%	8.70%	13.00%
53	United Parcel Serv.	11.50%	14.10%	8.95%
54	Verizon Communic.	3.00%	3.58%	3.60%
55	Walmart Inc.	7.50%	9.52%	5.50%
56	Waste Management	6.50%	11.66%	10.86%

(a) The Value Line Investment Survey (various editions as of Jun. 24, 2022).
(b) www.finance.yahoo.com (retrieved Jun. 23, 2022).
(c) www.zacks.com (retrieved Jun. 23, 2022).

DCF COST OF EQUITY ESTIMATES

	Company	(a) V Line	(a) IBES	(a) Zacks
1	3M Company	9.7%	9.9%	13.7%
2	Abbott Labs.	9.7%	14.3%	7.4%
3	Air Products & Chem.	14.7%	14.8%	15.7%
4	Amdocs Ltd.	8.9%	14.1%	11.9%
5	Amgen	8.8%	10.4%	10.0%
6	Analog Devices	15.9%	20.6%	14.2%
7	Apple Inc.	14.6%	10.6%	13.1%
8	Baxter Int'l Inc.	11.6%	15.7%	14.2%
9	Becton, Dickinson	6.9%	6.3%	8.1%
10	Bristol-Myers Squibb	n/a	7.4%	9.1%
11	Brown & Brown	8.7%	13.9%	n/a
12	Brown-Forman 'B'	13.1%	9.6%	n/a
13	Church & Dwight	7.2%	8.4%	9.2%
14	Cisco Systems	11.4%	9.9%	9.9%
15	Clorox Co.	7.8%	-2.8%	10.3%
16	CME Group	9.5%	9.5%	8.1%
17	Coca-Cola	10.3%	9.4%	9.8%
18	Colgate-Palmolive	8.9%	6.4%	7.3%
19	Comcast Corp.	12.1%	15.7%	15.9%
20	Costco Wholesale	11.3%	13.4%	10.0%
21	Danaher Corp.	17.4%	11.4%	9.1%
22	Gen'l Mills	7.0%	7.1%	10.5%
23	Gilead Sciences	18.2%	3.3%	19.7%
24	Hershey Co.	8.2%	11.2%	9.4%
25	Hormel Foods	8.7%	10.8%	10.0%
26	Hunt (J.B.)	12.5%	23.9%	16.0%
27	Intel Corp.	6.0%	6.8%	11.0%
28	Intercontinental Exch.	8.1%	9.2%	10.8%
29	Johnson & Johnson	12.6%	9.2%	9.6%
30	Kellogg	7.4%	5.9%	7.2%
31	Kimberly-Clark	9.1%	9.0%	8.6%
32	Lilly (Eli)	12.8%	11.7%	18.7%
33	Marsh & McLennan	13.4%	10.0%	10.0%
34	McCormick & Co.	7.7%	8.6%	7.8%
35	McDonald's Corp.	12.8%	10.0%	10.4%
36	McKesson Corp.	10.6%	13.6%	10.0%
37	Merck & Co.	11.1%	14.7%	13.2%
38	Microsoft Corp.	17.5%	17.1%	12.9%
39	Mondelez Int'l	11.8%	9.2%	9.1%
40	NewMarket Corp.	2.1%	10.3%	n/a
41	Northrop Grumman	8.0%	7.6%	7.6%
42	Oracle Corp.	10.8%	13.9%	9.8%
43	PepsiCo, Inc.	8.7%	10.1%	10.2%
44	Pfizer, Inc.	9.6%	2.3%	15.6%
45	Procter & Gamble	9.0%	7.8%	8.6%
46	Progressive Corp.	6.9%	30.7%	17.6%
47	Public Storage	n/a	19.5%	9.6%
48	Republic Services	13.9%	12.0%	11.9%
49	Sherwin-Williams	12.5%	15.7%	14.2%
50	Smucker (J.M.)	7.2%	4.8%	n/a
51	Texas Instruments	11.8%	12.8%	12.1%
52	Thermo Fisher Sci.	10.2%	8.9%	13.2%
53	United Parcel Serv.	14.9%	17.5%	12.4%
54	Verizon Communic.	8.2%	8.8%	8.8%
55	Walmart Inc.	9.3%	11.3%	7.3%
56	Waste Management	8.2%	13.4%	12.6%
	Average (b)	**10.2%**	**10.7%**	**10.3%**

(a) Sum of dividend yield (p. 1) and respective growth rate (p. 2).
(b) Excludes highlighted figures.

IMPACT OF DEPRECIATION EXPENSE

Original Cost Regulation

Cost of Capital **10.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	100,000	10,000	90,000	10,000	10,000	20,000		18,182
2	100,000	20,000	80,000	9,000	10,000	19,000		15,702
3	100,000	30,000	70,000	8,000	10,000	18,000		13,524
4	100,000	40,000	60,000	7,000	10,000	17,000		11,611
5	100,000	50,000	50,000	6,000	10,000	16,000		9,935
6	100,000	60,000	40,000	5,000	10,000	15,000		8,467
7	100,000	70,000	30,000	4,000	10,000	14,000		7,184
8	100,000	80,000	20,000	3,000	10,000	13,000		6,065
9	100,000	90,000	10,000	2,000	10,000	12,000		5,089
10	100,000	100,000	-	1,000	10,000	11,000		4,241
				55,000	100,000	155,000		100,000

IMPACT OF DEPRECIATION EXPENSE

Fair Value Regulation

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Rate of Return	**8.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	8,000	10,200	18,200		16,545
2	104,040	20,808	83,232	7,344	10,404	17,748		14,668
3	106,121	31,836	74,285	6,659	10,612	17,271		12,976
4	108,243	43,297	64,946	5,943	10,824	16,767		11,452
5	110,408	55,204	55,204	5,196	11,041	16,236		10,082
6	112,616	67,570	45,046	4,416	11,262	15,678		8,850
7	114,869	80,408	34,461	3,604	11,487	15,091		7,744
8	117,166	93,733	23,433	2,757	11,717	14,473		6,752
9	119,509	107,558	11,951	1,875	11,951	13,826		5,863
10	121,899	121,899	-	956	12,190	13,146		5,068
				46,749	111,687	158,436		100,000

IMPACT OF DEPRECIATION EXPENSE

Fair Value Regulation w. Book Depreciation

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Implied Return	**8.0%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	8,000	10,000	18,000		16,364
2	104,040	20,808	83,232	7,344	10,000	17,344		14,334
3	106,121	31,836	74,285	6,659	10,000	16,659		12,516
4	108,243	43,297	64,946	5,943	10,000	15,943		10,889
5	110,408	55,204	55,204	5,196	10,000	15,196		9,435
6	112,616	67,570	45,046	4,416	10,000	14,416		8,138
7	114,869	80,408	34,461	3,604	10,000	13,604		6,981
8	117,166	93,733	23,433	2,757	10,000	12,757		5,951
9	119,509	107,558	11,951	1,875	10,000	11,875		5,036
10	121,899	121,899	-	956	10,000	10,956		4,224
				46,749	100,000	146,749		93,867

IMPACT OF DEPRECIATION EXPENSE

Fair Value Regulation w. Book Depreciation & Adjusted Return

Cost of Capital	**10.0%**
Future Inflation	**2.0%**
Implied Return	**8.0%**
Required Return	**9.5%**

Year	Plant	Accumulated Depreciation	Rate Base	Return	Depreciation Expense	Revenue Requirement	PV Factor	NPV
0	100,000	-	100,000	-	-	-		-
1	102,000	10,200	91,800	9,513	10,000	19,513		17,739
2	104,040	20,808	83,232	8,733	10,000	18,733		15,482
3	106,121	31,836	74,285	7,918	10,000	17,918		13,462
4	108,243	43,297	64,946	7,067	10,000	17,067		11,657
5	110,408	55,204	55,204	6,178	10,000	16,178		10,046
6	112,616	67,570	45,046	5,252	10,000	15,252		8,609
7	114,869	80,408	34,461	4,285	10,000	14,285		7,331
8	117,166	93,733	23,433	3,278	10,000	13,278		6,194
9	119,509	107,558	11,951	2,229	10,000	12,229		5,186
10	121,899	121,899	-	1,137	10,000	11,137		4,294
				55,591	100,000	155,591		100,000