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

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[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

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[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

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[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

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[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?

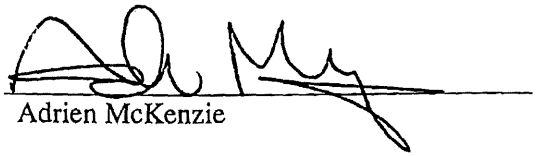
A128. Based on the forecasts and observable Treasury yields referenced above, investors' long-term expectations of inflation are likely to fall in the range of approximately 2.3% to 3.0%. Considering the implications for common equity investors and fact that the use of historical cost depreciation expense 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

FINCAP, INC.
Financial Concepts and Applications
Economic and Financial Counsel

3907 Red River Street
Austin, Texas 78751
(512) 923-2790
FAX (512) 458-4768
amm.fincap@outlook.com

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

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.

CONSTANT GROWTH DCF MODEL - GAS GROUP

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%**

CONSTANT GROWTH DCF MODEL - GAS GROUP

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.

EMPIRICAL CAPM

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

Year	Qtr.	(a) Allowed ROE	(b) 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%
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

Year	Qtr.	(a) Allowed ROE	(b) 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%

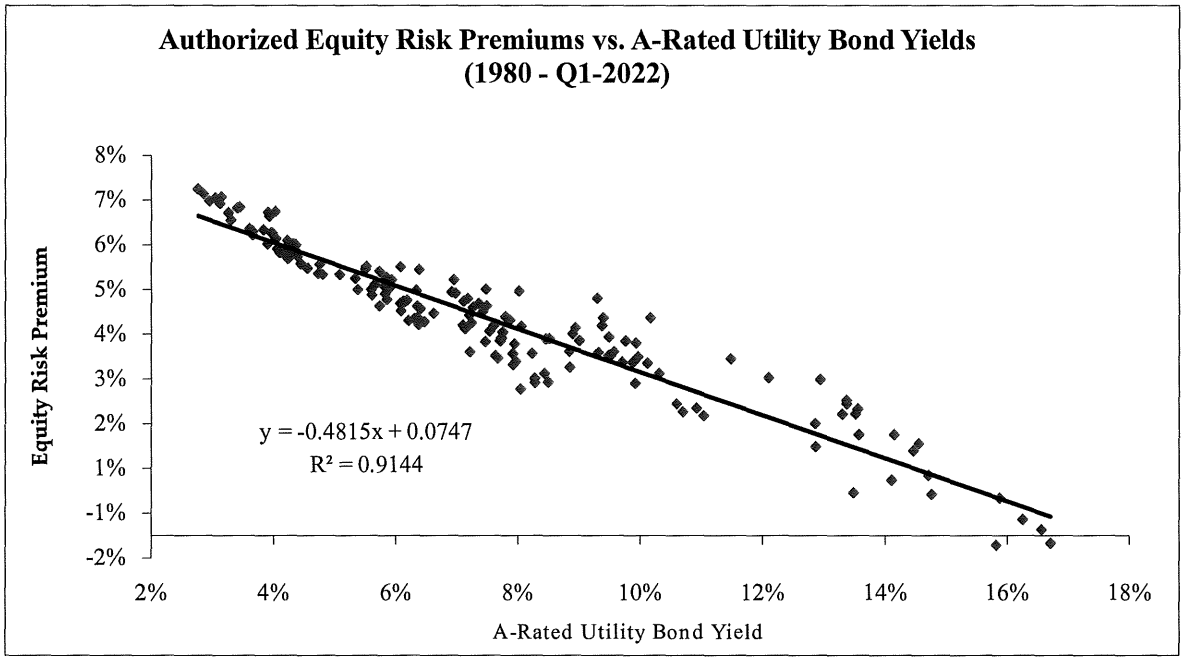
GAS UTILITY RISK PREMIUM

AUTHORIZED RETURNS

Year	Qtr.	(a) Allowed ROE	(b) 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.

FAIR VALUE RATEMAKING

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