BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In The Matter of the Application Of Black	**)**	**Docket No.**
Hills/Kansas Gas Utility Company, LLC,	**)**	
d/b/a Black Hills Energy, for Approval of the	**)**	
Commission to Make Certain Changes in its	**)**	**24-BHCG-____-RTS**
Rates for Natural Gas Service	**)**	

DIRECT TESTIMONY OF

ADRIEN M. MCKENZIE, CFA

ON BEHALF OF

BLACK HILLS/KANSAS GAS UTILITY COMPANY, LLC

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EXHIBITS TO DIRECT TESTIMONY

LIST OF ACRONYMS

Black Hills	Black Hills/Kansas Gas Utility Company, LLC
BHC	Black Hills Corporation
CAPM	Capital Asset Pricing Model
Chesapeake Utilities	Chesapeake Utilities Corporation
Commission	State Corporation Commission of the State of Kansas
Company	Black Hills/Kansas Gas Utility Company, LLC
DCF	Discounted Cash Flow
DPS	dividends per share
ECAPM	Empirical Capital Asset Pricing Model
EPS	earnings per share
FERC	Federal Energy Regulatory Commission
FINCAP, Inc.	Financial Concepts and Applications, Inc.
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
IBES	Institutional Brokers' Estimate System, compiled by Refinitiv
Moody's	Moody's Investors Service
ROE	return on equity
RRA	S&P Global Market Intelligence, *RRA Regulatory Focus*
S&P	S&P Global Ratings
UGI	UGI Corporation
Value Line	The Value Line Investment Survey
Zacks	Zacks Investment Research, Inc.

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q. IN WHAT CAPACITY ARE YOU EMPLOYED?

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

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills.

A. Statement of Qualifications

Q. WILL YOU PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE?

A. My education, employment history, and professional experience are provided on KSG Direct Exhibit AMM-1.

Q. WHAT ARE YOUR CURRENT JOB RESPONSIBILITIES?

A. I have extensive experience in economic and financial analysis for regulated industries and 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.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY BODIES?

A. Yes. I have personally sponsored testimony in over 200 proceedings filed with FERC and regulatory agencies in Alaska, Arkansas, Colorado, District of Columbia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Montana, Nebraska, New

Mexico, Ohio, Oklahoma, Oregon, South Dakota, Texas, Virginia, Washington, West Virginia, and Wyoming.

Q. HAVE THE TESTIMONY AND EXHIBITS THAT YOU ARE SPONSORING BEEN PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

B. Purpose of Testimony

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

A. The purpose of my testimony is to present to the Commission my independent assessment of the fair ROE for the jurisdictional gas utility operations of Black Hills. In addition, I also examined the reasonableness of Black Hills's requested capital structure, considering both the specific risks faced by the Company and other industry guidelines.

C. Overview

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

A. To prepare my testimony, I use information from a variety of sources that would normally be relied upon by a person in my capacity. I am familiar with BHC, having previously filed rate of return testimony on behalf of its utility operations in Kansas, as well as Arkansas, Colorado, Iowa, Nebraska, South Dakota, and Wyoming. In connection with the present filing, I consider and rely upon corporate disclosures, publicly available financial reports and filings, and other published information relating to BHC and Black Hills. I also review information relating generally to current capital market conditions and specifically to investor perceptions, requirements, and expectations for utilities. 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 Black Hills, and they form the basis of my analyses and conclusions.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. After first summarizing my conclusion and recommendations, I briefly review the Company's operations and finances and discuss current conditions in the capital markets and their implications in evaluating a just and reasonable return for the Company. Next, I explain the development of a relevant proxy group of natural gas utilities and examine Black Hills's risk profile in relation to this group. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for my proxy group. These include the DCF model, the CAPM, the ECAPM, an equity risk premium approach based on allowed equity returns, and reference to expected earned rates of return for gas utilities, which are all methods that are commonly relied on in regulatory proceedings. 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, a fair ROE for the Company is evaluated considering the specific risks for Black Hills and its requirements for financial strength. I also consider the Company's requested capital structure in relation to industry benchmarks and the Company's ongoing efforts to maintain its credit standing and support access to capital on reasonable terms.

D. Summary and Conclusions

Q. WHAT IS YOUR RECOMMENDED ROE FOR BLACK HILLS?

A. I apply the DCF, CAPM, ECAPM, risk premium, and expected earnings analyses to a proxy group of utilities, with the results being summarized on KSG Direct Exhibit AMM-2. As shown there, based on the results of my analysis, I recommend a cost of equity range for the Company's operations of 10.0% to 11.0%. It is my conclusion that 10.5%, which falls at the midpoint of this range, represents a just and reasonable cost of equity that is adequate to compensate the Company's investors, while maintaining Black Hills's financial integrity and ability to attract capital on reasonable terms.

In addition, my testimony confirms the reasonableness of Company witness Thomas D. Stevens recommendation that the Company's ratemaking capital structure be established using a common equity ratio of 50.44%.

II. FUNDAMENTAL ANALYSES

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. As a foundation for my opinions and subsequent quantitative analyses, this section briefly reviews the operations and finances of Black Hills and examines conditions impacting todays' capital markets and the general economy. 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 a fair ROE.

A. Black Hills

Q. BRIEFLY DESCRIBE BLACK HILLS AND ITS GAS UTILITY OPERATIONS.

A. Black Hills is a natural gas utility in Kansas. Black Hills operates along with gas utilities in several other states as part of BHC. BHC, headquartered in Rapid City, South Dakota,

operates regulated electric utilities, regulated gas utilities, and power generation and mining business segments. Its gas utilities segment serves approximately 1.34 million natural gas utility customers in Arkansas, Colorado, Iowa, Kansas, Montana, Nebraska, South Dakota and Wyoming. The Company's Kansas jurisdictional gas utility system includes over 3,000 miles of distribution mains, approximately 1,400 miles of gas service lines, and almost 340 miles of natural gas transmission pipelines. In 2023, the Company's gas utility operations in Kansas reported revenues of approximately $150.4 million, and nearly 117,705 customers.[1]

Q. WHERE DOES BLACK HILLS OBTAIN THE CAPITAL USED TO FINANCE ITS INVESTMENT IN UTILITY PLANT?

A. Black Hills does not directly access the credit markets. As a subsidiary of BHC, it obtains its debt and equity capital solely from BHC. BHC's common stock is publicly traded on the New York Stock Exchange, and it is assigned corporate credit ratings of Baa2 by Moody's and BBB+ by S&P.

Q. DOES BLACK HILLS ANTICIPATE THE NEED FOR CAPITAL GOING FORWARD?

A. Yes. The Company must undertake investments to meet customer demand and necessary maintenance and replacements of its natural gas utility system as it continues to provide safe and reliable service to its customers. Continued support for Black Hills's financial integrity and flexibility will be instrumental in attracting the capital necessary to fund these projects in an effective manner.

[1] Black Hills Corporation, Form 10-K Report for the year ended December 31, 2023.

B. Outlook for Capital Costs

Q. PLEASE SUMMARIZE CURRENT ECONOMIC AND CAPITAL MARKET CONDITIONS.

A. Following the economic contraction stemming from the COVID-19 pandemic in 2020, U.S. real GDP improved significantly in 2021, with GDP growing at a pace of 6.1%.[2] Growth in 2022 and 2023 was more subdued at 2.5% and 2.9%, respectively.[3] More recently, growth in real GDP declined to 1.6% in Q1 2024, before rising to 3.0% in Q2 2024 and 2.8% in Q3 2024.[4] Meanwhile, indicators of employment have been weakening somewhat, with the national unemployment rate being 4.2% in November 2024.[5]

The underlying risk and price pressures associated with the COVID-19 pandemic were overshadowed by a dramatic increase in geopolitical risks following Russia's invasion of Ukraine in February 2022. More recently, these risks have been compounded by heightened uncertainties prompted by the resurgence of conflict in the Middle East. Apart from disrupting global trade, the potential for further escalation has prompted concerns over constraints to crude oil supplies and resulting supply-side price shocks that could reignite inflation. More recently, President Trump's threats to impose tariffs on major U.S. trading partners have sparked concerns over additional inflationary pressures, and have generally added to the level of economic uncertainty.

Stimulative monetary and fiscal policies, coupled with supply-chain disruptions and rapid price rises in the energy and commodities markets, led to increasing concern that

[2] https://www.bea.gov/sites/default/files/2024-10/gdp3q24-adv.xlsx (last visited Dec. 12, 2024).
[3] *Id.*
[4] *Id.*
[5] Economic News Release, U.S. Dep't of Labor, Bureau of Labor Statistics, *Employment Situation Summary* (Dec. 6, 2024), https://www.bls.gov/news.release/empsit.nr0.htm (last visited Dec. 12, 2024).

inflation would remain significantly above the Federal Reserve's longer-run benchmark of 2%. CPI inflation peaked in June 2022 at 9.1%, its highest level since November 1981. Since then, CPI inflation has moderated significantly, but remained at 2.7% in November 2024, which exceeds the Federal Reserve's target.[6] The so-called "core" price index, which excludes more volatile energy and food costs, rose at an annual rate of 3.3% in November 2024.[7] PCE inflation rose 2.3% in October 2024, or 2.8% after excluding more volatile food and energy costs.[8]

Q. HAVE THESE DEVELOPMENTS IMPACTED THE RISKS FACED BY UTILITIES AND THEIR INVESTORS?

A. Yes. In February 2024, S&P revised its outlook for the utility sector to "negative," noting that:

> Credit quality for North American investor-owned regulated utilities has weakened over the past four years, with downgrades outpacing upgrades by more than three times. We expect downgrades to again surpass upgrades in 2024 for the fifth consecutive year.[9]

More recently, S&P affirmed their negative outlook, citing to rising physical risks, as well as weakening financial measures due to "record-breaking capital spending" and cash flow deficits, and noting "the industry's high percentage of companies … that operate with only minimal financial cushion from their downgrade threshold."[10]

[6] Economic News Release, U.S. Dep't of Labor, Bureau of Labor Statistics, *Consumer Price Index Summary* (Dec. 11, 2024), https://www.bls.gov/news.release/cpi.nr0.htm (last visited Dec. 12, 2024).
[7] *Id.*
[8] News Release, Bureau of Economic Analysis, *Personal Income and Outlays, October 2024*, BEA 24-56 (Nov. 27, 2024), https://www.bea.gov/news/2024/personal-income-and-outlays-october-2024 (last visited Dec. 12, 2024).
[9] Standard & Poor's, *Rising Risks: Outlook For North American Investor-Owned Regulated Utilities Weakens,* Criteria Corporates (Feb. 14, 2024).
[10] S&P Global Ratings, *Regulated Utilities: Credit risks are rising*, Industry Credit Outlook Update – North America (Jul. 18, 2024).

Meanwhile, Moody's cautioned that widening cash flow deficits in the utility industry were placing increasing negative pressure on financial credit metrics, concluding that credit pressure "will likely continue to lead to negative rating actions if not sufficiently mitigated."[11]

Q. DO RECENT BOND YIELD TRENDS INDICATE THAT THE COST OF EQUITY HAS INCREASED RELATIVE TO THE RECENT PAST?

A. 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. Table 1 below compares the average yields on Treasury securities and Baa-rated public utility bonds in November 2024 with those required during 2021.

TABLE 1
CAPITAL MARKET BENCHMARKS

Series	2021	Nov. 2024	Change (bps)
10-Year Treasury Bonds	1.44%	4.36%	292
30-Year Treasury Bonds	2.05%	4.54%	249
Baa Utility Bonds	3.35%	5.77%	242
Average			**261**

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 common equity investors—average yields in November 2024 are more than 240 basis points

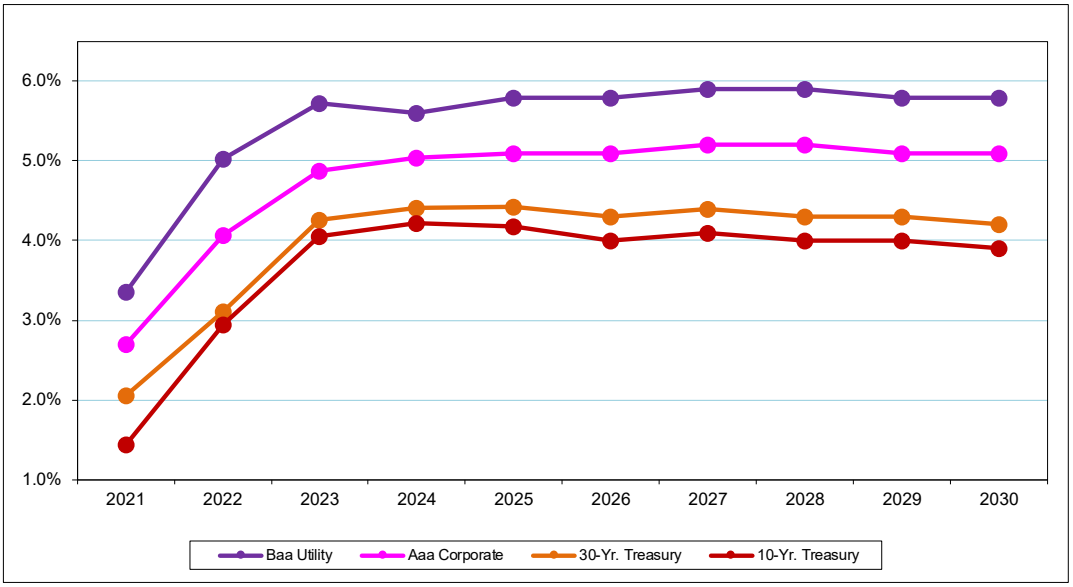
[11] Moody's Investors Service, *Electric and Gas Utilities – US,* Sector In-Depth (Oct. 24, 2024).

above the levels prevailing during 2021. Bond yields have continued to trend upward subsequent to the November averages reported in Table 1.

Q. DO INVESTORS ANTICIPATE THAT THESE HIGHER BOND YIELDS WILL BE SUSTAINED?

A. Yes. As illustrated in Figure 1 below, the most recent long-term consensus projections from top economists published by Blue Chip document that long-term bond yields are expected to remain elevated when compared to recent historical levels.

FIGURE 1
INTEREST RATE TRENDS



Source: Wolters Kluwer, Blue Chip Financial Forecasts (Nov. 27, 2024); Moody's Investors Service; https://fred.stlouisfed.org/.

This evidence shows that long-term capital costs—including the ROE—have increased substantially since 2021, and that investors expect these higher capital costs to be sustained at least through 2030.

Q. DO THE FEDERAL RESERVE'S RECENT DECISIONS TO LOWER THE TARGET RANGE FOR THE FEDERAL FUNDS RATE CHANGE YOUR CONCLUSION THAT THE COST OF EQUITY IS NOW SIGNIFICANTLY HIGHER THAN IT WAS IN RECENT YEARS?[12]

A. No. Bond yields embody the market's expectations of future events, including Federal Reserve monetary policy and inflation trends, and there is substantial evidence that the Federal Reserve's recent rate cuts were expected. For example, a Forbes.com article from several weeks before the Federal Reserve's first rate cut on September 18, 2024 characterized the market's expectations:

> Fixed income markets expect the Federal Open Market Committee to cut interest rates at its next meeting on September 18. There is a lot of evidence for this view based on both the FOMC's own minutes and public statements.[13]

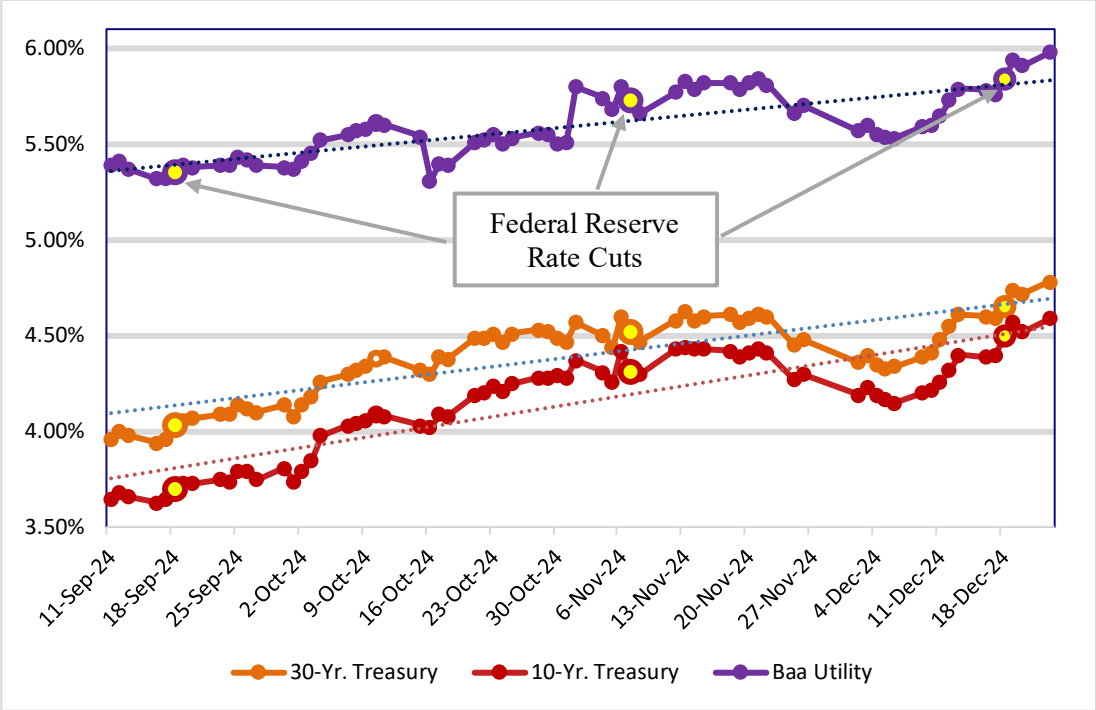
Meanwhile, a Reuters.com article on the day of the Federal Reserve's September 2024 rate action confirmed that it, along with future cuts to the federal funds rate, were anticipated:

> The U.S. central bank on Wednesday kicked off an anticipated series of interest rate cuts with a larger-than-usual half-percentage-point reduction that Federal Reserve Chair Jerome Powell said was meant to show policymakers' commitment to sustaining a low unemployment rate now that inflation has eased.[14]

[12] The federal funds rate is the interest rate charged by banks to borrow from each other overnight, and is a key barometer of the Federal Reserve's monetary policy.
[13] Forbes.com, *Markets Firmly Expect The Fed To Cut Interest Rates On September 18* (Aug. 18, 2024), https://www.forbes.com/sites/simonmoore/2024/08/27/markets-firmly-expect-the-fed-to-cut-rates-on-september-18/ (last visited Oct. 12, 2024).
[14] Reuters.com, *Fed unveils oversized rate cut as it gains 'greater confidence' about inflation* (Sep. 18, 2024), https://www.reuters.com/markets/rates-bonds/with-feds-rate-cut-hand-debate-swirls-over-how-big-move-2024-09-18/ (last visited Oct. 12, 2024) (emphasis added).

Consistent with the expectations documented in the reporting above, bond yields showed no signs of substantial movement around the time of the rate cuts, as would otherwise be expected if the Federal Reserve's actions were not anticipated. For example, Figure 2 below shows trends in utility and Treasury yields at the time of the Federal Reserve's announced rate cuts on September 18, November 7, and December 18, 2024.

FIGURE 2
BOND YIELDS AND ANNOUNCED RATE CUTS



Source: Moody's Investors Serivce; https://fred.stlouisfed.org/.

As evidenced above, bond yields actually trended higher after the Federal Reserve's policy announcement on September 18, 2024 and continued a general upward trend following the Federal Reserve's December 18, 2024 rate action.

This evidence supports the conclusion that the Federal Reserve's rate cuts were anticipated by the bond markets. It follows that current bond yields, such as the November

2024 yield averages referenced in Table 1, already reflect expectations of future Federal Reserve actions. Similarly, Figure 1 demonstrates that recent forecasts of leading economists employed by large U.S. banks, insurance companies, brokerage firms, and manufacturers—which consider their expectations for future Federal Reserve actions—do not support a conclusion that long-term bond yields are expected to decrease significantly.

Figure 2 demonstrates that since the Federal Reserve's initial rate cut in September 2024, long-term bond yields have actually increased. This trend has also been impacted by investors' expectations concerning the likely economic, fiscal, and other policy changes of the incoming administration. Moody's concluded that higher broad-based tariffs on imports, deficit-financed tax cuts, and increasingly restrictive immigration policies "will thus result in some combination of higher inflation and interest rates."[15]

Moreover, the impact of the Federal Reserve's moves to a more accommodative monetary policy is likely to have a more pronounced effect on yields for shorter duration instruments, as the yield curve normalizes from the inverted pattern that has characterized financial markets. Morningstar advised investors that while "yields on cash and shorter-maturity products will drop rapidly" in response to the Federal Reserve's policy change, "a stronger-than-expected economy could push longer-term bond yields higher and pose a risk to investors in those assets."[16] As Morningstar concluded:

> Analysts say forecasts for a strong economy mean that yields aren't likely to fall further, even if it's widely agreed among investors and analysts that more rate cuts are coming through the end of the year and into 2025. Much of the impact of rate cuts has already been priced into the market, they say, and it wouldn't be surprising to see yields rise as a result.[17]

[15] Moody's Investors Service, *Trump Take Two (Take Two)*, Economic View (Nov. 19, 2024).
[16] Sarah Hansen, *What the Fed's Rate Cut Means for Bond Investors*, Morningstar (Sep. 20, 2024), https://www.morningstar.com/markets/what-feds-rate-cut-means-bond-investors (last visited Dec. 4, 2024).
[17] *Id.*

This is consistent with the forecasts of leading economists illustrated in Figure 1 above.

Q. WHAT IMPLICATIONS DO THESE TRENDS HAVE IN EVALUATING A JUST AND REASONABLE ROE FOR BLACK HILLS?

A. The upward move in interest rates suggests that long-term capital costs—including the cost of equity—have increased significantly in recent years. Current capital market conditions reflect the reality of the situation in which Black Hills must attract and retain capital. The standards underlying a fair rate of return require an authorized ROE 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 current requirements of investors. If the upward shift in investors' risk perceptions and required rates of return for long-term capital is not incorporated in the allowed ROE, 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 Black Hills's risks will weaken its financial integrity and undermine its ability to attract necessary capital.

III. COMPARABLE RISK PROXY GROUP

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section explains the basis of the proxy group of publicly traded companies I use to estimate the cost of equity, examines alternative objective indicators of investment risk for these firms, and compares the investment risks applicable to Black Hills with my reference group.

A. Determination of the Proxy Group

Q. HOW DO YOU IMPLEMENT QUANTITATIVE METHODS TO ESTIMATE THE COST OF COMMON EQUITY FOR BLACK HILLS?

A. 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. 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.

Q. HOW DO YOU IDENTIFY THE PROXY GROUP OF GAS UTILITIES RELIED ON FOR YOUR ANALYSES?

A. 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.

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

A. From the list of gas utilities compiled by Value Line, I exclude UGI because it is primarily engaged in international sales and marketing of liquid propane gas, as well as energy marketing in the United States and Europe, midstream infrastructure, storage, natural gas gathering and processing, and natural gas production. During 2023, UGI's regulated gas and electric utility operations combined accounted for just 20% of total revenues. Accordingly, UGI's primary business activities are not directly comparable to the Company's gas distribution operations, and I excluded UGI from the proxy group on this basis.

I then confirmed that all of the proxy group firms have investment-grade credit ratings.[18] While Chesapeake Utilities does not have published credit ratings from Moody's or S&P, it has privately placed bonds that were rated "2.B" by the National Association of Insurance Companies ("NAIC").[19] Under NAIC guidelines, a 2.B rating is equivalent to a rating of Baa2 or BBB on the Moody's and S&P rating scales, respectively.[20] Finally, I verified 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 shown in Table 2 below,

[18] 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.

[19] See, Quarterly Statement of the Metropolitan Life Insurance Company (Jun. 30, 2023) at 257. https://s201.q4cdn.com/280976757/files/doc_downloads/2023/MLIC-Q2-2023-Final-Statement.pdf (last visited Dec. 14, 2024).

[20] NAIC, *Purposes & Procedures Manual of the NAIC Investment Analysis Office* (December 2023). https://content.naic.org/sites/default/files/ppm-oss-2023_0.pdf (last visited Mar. 17, 2024).

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

TABLE 2
GAS GROUP

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

B. Relative Risks of the Gas Group and Black Hills

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

A. My evaluation of relative risk considers five published benchmarks that are widely relied on by investors—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 to provide investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default). Other symbols (*e.g.*, "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes the factors considered important in assessing a firm's relative credit standing, corporate credit ratings provide broad, objective measures of overall investment risk that are readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

While credit ratings provide a widely referenced benchmark, other quality rankings published by investment advisory services also provide relative assessments of risks that are

considered by investors. 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. 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. Value Line is one of the most widely available source of investment advisory information and this objective, published indicators consider a broad spectrum of risks—including financial and business position, relative size, and exposure to firm-specific factors—and provide useful guidance regarding the risk perceptions of investors.

Finally, as explained earlier, 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. Beta is the only relevant measure of investment risk under modern capital market theory, and it is widely cited in academics and in the investment industry as a guide to investors' risk perceptions.

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

A. The average risk indicators for the Gas Group are shown in Table 3, below. Because Black Hills does not issue its own debt securities and has no publicly traded common stock, the proxy group risk measures are compared to those of the Company's parent, BHC:

TABLE 3
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Gas Group	BBB+	A3	2	A	0.91
BHC	BBB+	Baa2	2	A	1.05

The credit ratings corresponding to the Gas Group indicate comparable if not slightly lower risk than Black Hills. The average Value Line Safety Rank and Financial Strength indicators for the Gas Group are identical to those for BHC, although BHC's higher beta value indicates greater risk. Considered together, a comparison of these objective measures indicates that investors would likely conclude that the overall investment risks corresponding to Black Hills are comparable to, if not slightly greater than, those of the Gas Group.

Q. WOULD INVESTORS ALSO CONSIDER THE IMPLICATIONS OF REGULATORY MECHANISMS IN EVALUATING RELATIVE RISK?

A. Yes. In response to the increasing sensitivity over fluctuations in costs and the importance of advancing other public interest goals such as reliability, energy conservation, and safety, utilities and their regulators have sought to mitigate cost recovery uncertainty and align the interest of utilities and their customers. As a result, adjustment mechanisms, cost trackers, and future test years have become increasingly prevalent, along with alternatives to traditional ratemaking such as formula rates and multi-year rate plans. RRA concluded in its most recent review of adjustment clauses that:

> More recently and with greater frequency, commissions have approved mechanisms that permit the costs associated with the construction of new generation or delivery infrastructure to be used, effectively including these items in rate base without the need for a full rate case. In some instances, these mechanisms may even provide the utilities a cash return on construction work in progress. . . . [C]ertain types of adjustment clauses are more prevalent than others. For example, those that address electric fuel and gas commodity charges are in place in all jurisdictions. Also, about two-thirds of all utilities have riders in place to recover costs related to energy efficiency programs, and roughly half of the utilities have some type of decoupling mechanism in place.[21]

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

A. Yes. As summarized on KSG Direct Exhibit AMM-3, these mechanisms are ubiquitous and wide ranging. For example, of the twenty-six separate utilities controlled by the companies in the Gas Group, twenty-one operate under some form of decoupling mechanism that accounts for the impact of various factors affecting sales volumes and revenues. In addition, a weather normalization mechanism has been approved for seventeen of these utilities,[22] while eighteen benefits from trackers designed to address rising capital investment in utility infrastructure outside of a traditional rate case.

Q. WHAT REGULATORY CLAUSES HAVE BEEN APPROVED FOR THE COMPANY'S KANSAS JURISDICTIONAL OPERATIONS?

A. Like all companies represented in the Gas Group, Black Hills has a gas cost adjustment mechanism that allows it to pass the prudently incurred cost of gas, along with the cost of bad debts relating to the cost of gas, to the customer between rate reviews. In addition, the Company benefits from a Gas System Reliability Surcharge rider that allows for more timely

[21] S&P Global Market Intelligence, *Adjustment Clause: A state-by-state overview*, RRA Regulatory Focus (Jul. 18, 2022).
[22] Weather risks are also offset by other forms of rate design, including decoupling and straight-fixed-variable pricing.

recovery of capital investment in accelerated pipeline replacement and other system safety and integrity projects. The Company also has cost trackers or riders for weather normalization, employee benefit expenses, and ad valorem taxes that benefit both customers and the Company in that they allow the Company to recover its actual costs of those expenses.

Q. DOES THE COMPANY HAVE A REVENUE DECOUPLING MECHANISM?

A. No. In contrast to many of the specific operating utilities associated with the firms in the Gas Group, the Company does not benefit from elasticity or decoupling mechanisms that insulate utility margins from declining usage.

Q. DO THE REGULATORY MECHANISMS APPROVED FOR BLACK HILLS DISTINGUISH THE COMPANY'S RISKS FROM ITS INDUSTRY PEERS?

A. No. While the Company arguably faces relatively greater exposure to the risks associated with reduced consumption because of its lack of revenue decoupling, on balance the impact of Black Hills's recovery mechanisms is already considered in the risk profile of the Gas Group. This conclusion is consistent with the prior finding of Staff witness Adam H. Gatewood, who has previously concluded that any impact of similar mechanisms is already accounted for through the use of a proxy group:

> Those mechanisms differ from company to company and jurisdiction to jurisdiction. Regardless of their nuances, the intent is the same; reduce cash-flow volatility year to year and place recent capital expenditures in rates as quickly as possible. Investors are aware of these mechanisms and their benefits are a factor when investors value those stocks. Thus, any risk reduction associated with these mechanisms is captured in the market data (stock prices) used in Staff's analysis.[23]

[23] State Corporation Commission of the State of Kansas, Docket No. 12-ATMG-564-RTS, *Direct Testimony Prepared by Adam H. Gatewood* (June 8, 2012) at 8-9. This proceeding was ultimately resolved through a stipulated settlement. (Emphasis added).

IV. CAPITAL MARKET ANALYSES AND ESTIMATES

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section presents capital market estimates of the cost of equity. First, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. I then describe various quantitative analyses conducted to estimate the cost of common equity for the proxy group of comparable risk utilities.

A. Economic Standards

Q. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THE COST OF EQUITY?

A. Underlying the concept of the cost of equity is the understanding that investors are risk averse. In capital markets where relatively risk-free assets are available (*e.g.*, U.S. Treasury securities), investors will hold riskier assets only if they are offered an additional return, or risk premium, above the rate of return on a risk-free asset. Because all assets compete 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.

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

A. Yes. The risk-return tradeoff can be 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.

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

A. Yes. It is widely accepted that the risk-return tradeoff 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 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.

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

A. 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 share in the net earnings, if any, that remain 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.

Q. WHAT ARE THE CHALLENGES IN DETERMINING A JUST AND REASONABLE ROE FOR A REGULATED UTILITY?

A. The actual return that equity investors require is not directly observable. Different methodologies have been developed to estimate investors' expected return on capital, but these methods are theoretical tools and 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 evaluate the return investors require; there are a number of other accepted methodologies for estimating the cost of capital and the ranges produced by these approaches can vary widely.

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

A. Yes. In my experience, financial analysts and regulators routinely consider the results of alternative approaches in evaluating a fair ROE. 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."[24] 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.[25]

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."[26] Similarly, *New Regulatory Finance* concluded that:

> 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.[27]

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 Indiana Utility Regulatory Commission, for example, has recognized this principle:

[24] *Northwest Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 4 (1997).
[25] David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (2010) at 84.
[26] *Id.*
[27] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 429.

> 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' judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[28]

More recently, FERC recognized the potential for any application of the DCF model to produce unreliable results.[29]

As this discussion indicates, consideration of the results of alternative approaches reduces the potential for error associated with any single method. Just as investors inform their decisions through the use of a variety of methodologies, my evaluation of a fair ROE for the Company considered the results of multiple financial models.

Q. DOES THE FACT THAT BLACK HILLS IS A SUBSIDIARY OF BLACK HILLS CORPORATION ALTER THESE FUNDAMENTAL STANDARDS?

A. No. While Black Hills has no publicly traded common stock and BHC is the ultimate owner, this does not change the standards governing the determination of a fair ROE for the jurisdictional gas utility. Ultimately, the common equity that is required to support the utility operations of Black Hills must be raised in the capital markets, where investors consider the Company's ability to offer a rate of return that is competitive with other risk-comparable alternatives. Black Hills must compete with other investment opportunities and unless investors have a reasonable expectation that they will earn a return commensurate with the

[28] *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).
[29] *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).

underlying risks, capital will be allocated elsewhere, the Company's financial integrity will be weakened, and investors will demand an even higher rate of return. Black Hills's ability to offer a reasonable return on investment is a necessary ingredient in ensuring that customers continue to enjoy economical rates and reliable service.

Q. WHAT DOES THIS DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE ROE FOR A UTILITY?

A. Although the ROE cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is not readily observable, the ROE for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the company specifically, and employing various quantitative methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, interest rates, or other capital market data.

B. Discounted Cash Flow Analysis

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

A. DCF models are based on the assumption 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:[30]

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

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

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

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

A. 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.

[30] 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 of 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.

Q. HOW DO YOU DETERMINE THE DIVIDEND YIELD FOR THE UTILITIES IN THE GAS GROUP?

A. I rely on Value Line's estimates of dividends to be paid by each of these utilities over the next twelve months 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 page 1 of KSG Direct Exhibit AMM-4. As shown there, dividend yields for the firms in the Gas Group ranged from 2.1% to 4.8% and averaged 3.5%.

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

A. 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. A wide variety of techniques can be used to derive growth rates, but the only "*g*" that matters in applying the DCF model is the value that investors expect.

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

A. Implementation of the DCF model is solely concerned with replicating the forward-looking evaluation of real-world investors. In the case of utilities, growth in DPS is 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 generally lags 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 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 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.

Q. WHAT ARE SECURITY ANALYSTS CURRENTLY PROJECTING IN THE WAY OF GROWTH FOR THE FIRMS IN THE GAS GROUP?

A. The earnings growth projections for each of the firms in the Gas Group reported by Value Line, IBES, and Zacks are displayed on page 2 of KSG Direct Exhibit AMM-4.

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

A. 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 proxy group are summarized on page 2 of KSG Direct Exhibit AMM-4, with the underlying details being presented on KSG Direct Exhibit AMM-5.

The sustainable growth rate analysis shown on KSG Direct Exhibit AMM-4 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 KSG Direct Exhibit 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.[31]

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

A. 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 KSG Direct Exhibit AMM-4.

Q. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL, IS IT APPROPRIATE TO ELIMINATE ILLOGICAL ESTIMATES AT THE EXTREME LOW OR HIGH END OF THE RANGE?

A. Yes. It is essential that the cost of equity estimates produced by quantitative methods pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated.

[31] *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).

Q. HOW DO YOU EVALUATE DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. I base my evaluation of DCF estimates at the low end of the range on the fundamental risk-return tradeoff, which holds that investors will only take on more risk if they expect to earn a higher rate of return to compensate them for the greater uncertainly. Because common stocks lack the protections associated with an investment in long-term bonds, a utility's common stock imposes far greater risks on investors. As a result, the rate of return that investors require from a utility's common stock is considerably higher than the yield offered by senior, long-term debt. Consistent with this principle, DCF results that are not sufficiently higher than the yield available on less risky utility bonds must be eliminated.

Q. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

A. 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 has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.[32] FERC's current practice is to exclude low-end cost of estimates that fall below the six-month average yield on Baa-rated utility bonds, plus 20% of the CAPM market risk premium.[33] In addition, FERC also excludes estimates that are "irrationally or anomalously high."[34] Similarly, the Staff of the Maryland Public Service Commission has also eliminated DCF values where

[32] *See*, *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc*., 169 FERC ¶ 61,129 at PP 387, 388 (2019).
[33] Based on the six-month average yield at November 2024 of 5.68% and the 7.6% market risk premium shown on KSG Direct Exhibit AMM-6, this implies a current low-end threshold of approximately 7.2%.
[34] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 171 FERC ¶ 61,154 at P 152 (2020).

they do not offer a sufficient premium above the cost of debt to be attractive to an equity investor.[35]

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

A. Yes. As highlighted on page 3 of KSG Direct Exhibit AMM-4, I remove three low-end values ranging from 6.4% to 7.1%. 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.

The upper end of the DCF results for the Gas Group is established by a cost of equity estimate of 13.3%. While a 13.3% cost of equity estimate may exceed the other values, retained low-end DCF estimates in the 7.4% to 8.6% range are assuredly far below investors' required rate of return. Taken together and considered along with the balance of the results, these values provide a reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

Q. WHAT ROE ESTIMATES ARE IMPLIED BY YOUR DCF RESULTS FOR THE GAS GROUP?

A. As shown on page 3 of KSG Direct Exhibit AMM-4 and summarized in Table 4, below, application of the constant growth DCF model resulted in the following ROE estimates:

[35] *See*, *e.g.*, Maryland Public Service Commission, Case No. 9670, *Direct Testimony and Exhibits of Drew M. McAuliffe* (Dec. 2, 2021) at 15-16.

TABLE 4
DCF RESULTS—GAS GROUP

Growth Rate	Average	Midpoint
Value Line	10.5%	11.0%
IBES	10.5%	10.5%
Zacks	9.7%	9.7%
br + sv	9.3%	8.8%

C. Capital Asset Pricing Model

Q. PLEASE DESCRIBE THE CAPM.

A. 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 firm's stock 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 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, in order 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.

Q. WHY IS THE CAPM APPROACH RELEVANT WHEN EVALUATING THE COST OF EQUITY FOR BLACK HILLS?

A. 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.

Q. HOW DO YOU APPLY THE CAPM TO ESTIMATE THE ROE?

A. Application of the CAPM to the Gas Group based on a forward-looking estimate for investors' required rate of return from common stocks is presented in KSG Direct Exhibit AMM-6. In order 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, Value Line, and Zacks, 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 10.3%. Combining this average growth rate with a year-ahead dividend yield of 1.6% results in a

current cost of common equity estimate for the market as a whole (R_m) of 11.9%. Subtracting a 4.3% risk-free rate based on the average yield on 30-year Treasury bonds for the six-months ending November 2024 produced a market equity risk premium of 7.6%.

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

A. 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.

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

A. 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 the finding of a relationship between firm size and return. On average, small companies have higher returns than large ones. . . . The relationship between firm size and return cuts across the entire size spectrum; it is not restricted to the smallest stocks.[36]

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

[36] Morningstar, *2015 Ibbotson SBBI Classic Yearbook*, at 99.

determining the CAPM cost of equity.[37] Accordingly, my CAPM analyses also incorporated an adjustment to recognize the impact of size distinctions, as measured by the market capitalization for the firms in the Gas Group.

Q. WHAT IS THE BASIS FOR THE SIZE ADJUSTMENT?

A. 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 most recently published by Kroll. 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 size, or "size adjustment."

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

[37] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, *Stocks, Bonds, Bills and Inflation*, these size premia are now developed by Duff & Phelps and presented in its *Valuation Handbook – Guide to Cost of Capital.*

understates the risk of smaller utilities, and a cost of equity based purely on a CAPM beta will therefore produce too low an estimate."[38]

Q. IS THIS SIZE ADJUSTMENT RELATED TO THE SIZE OF BLACK HILLS RELATIVE TO THE PROXY GROUP?

A. No. I am not proposing to apply a general size risk premium in evaluating a just and reasonable ROE for the Company and my recommendation does not include any adjustment related to the relative size of Black Hills. Rather, this size adjustment is specific to the CAPM and corrects for an observed inability of the beta measure to fully reflect the risks perceived by investors for the firms in the proxy group. As FERC has recognized, "[t]his type of size adjustment is a generally accepted approach to CAPM analyses."[39]

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

A. As shown on KSG Direct Exhibit AMM-6, the CAPM approach implies an average cost of equity of 11.2% for the Gas Group, and 12.0% after adjusting for the impact of firm size.

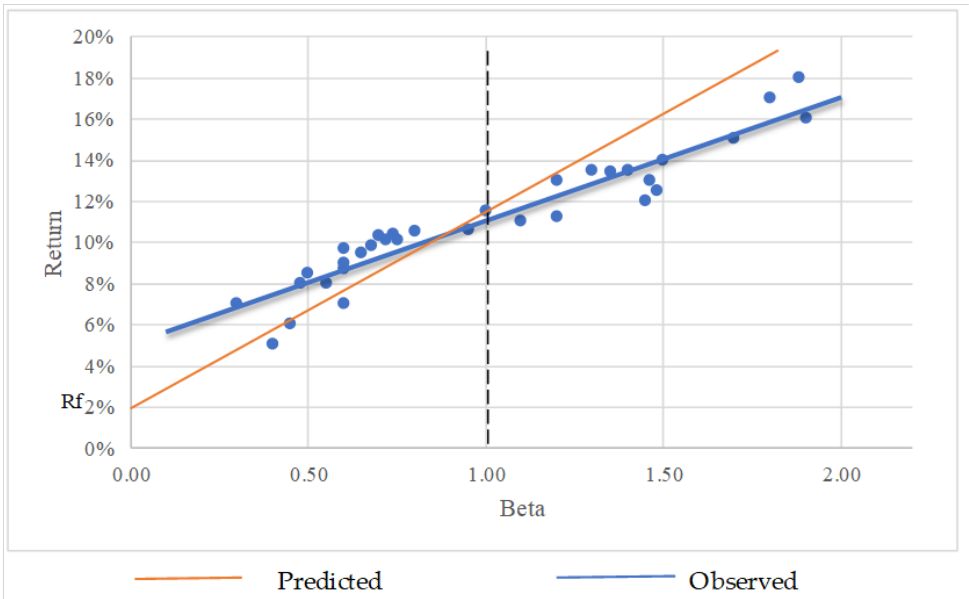
D. Empirical Capital Asset Pricing Model

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

A. 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 3:

[38] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 187.
[39] Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

FIGURE 3
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the Gas 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.[40]

Based on a review of the empirical evidence, *New Regulatory Finance* concluded that the expected return on a security is represented by the following formula:

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

[40] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports (2006) at 189.

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.

Q. WHAT COST OF EQUITY ESTIMATES ARE INDICATED BY THE ECAPM?

A. 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 KSG Direct Exhibit AMM-7, applying the forward-looking ECAPM approach results in an average cost of equity estimate of 11.4%, or 12.2% after incorporating the size adjustment corresponding to the market capitalization of the individual utilities.

E. Gas Utility Risk Premium

Q. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

A. 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 then 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.

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

A. 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 Black Hills.

Q. HOW DO YOU IMPLEMENT THE RISK PREMIUM METHOD?

A. Estimates of equity risk premiums for utilities are 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, when considered in the context of a complete and rigorous analysis, this data provides a logical and frequently referenced basis for estimating equity risk premiums for regulated utilities.

Q. HOW DO YOU CALCULATE THE EQUITY RISK PREMIUMS BASED ON ALLOWED RETURNS?

A. The ROEs authorized for gas utilities by regulatory commissions across the U.S. are compiled and published by RRA. On pages 2-4 of KSG Direct Exhibit AMM-8, the average

yield on single-A public utility bonds is subtracted from the average allowed return for gas utilities to calculate equity risk premiums for each quarter between 1980 and 2024 Q3. As shown on page 4 of KSG Direct Exhibit AMM-8, over this period, these equity risk premiums for gas utilities averaged 3.81%, and the yields on single-A public utility bonds averaged 7.53%.

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

A. 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%. When implementing the risk premium method, adjustments are required to incorporate this inverse relationship if the current interest rate is different from the average interest rate represented in the data set.

Current bond yields are lower than those prevailing over the risk premium study period. Given that equity risk premiums move inversely with interest rates, these lower bond yields also imply an increase in the equity risk premium. In other words, higher required equity risk premiums offset the impact of declining interest rates on the ROE.

Q. IS THIS INVERSE RELATIONSHIP CONFIRMED BY PUBLISHED FINANCIAL RESEARCH?

A. 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.[41]

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.[42] This relationship is illustrated in the figure on page 5 of KSG Direct Exhibit AMM-8.

Q. WHAT ROE IS IMPLIED BY THE RISK PREMIUM METHOD USING SURVEYS OF ALLOWED ROES?

A. Based on the regression output between the interest rates and equity risk premiums displayed on page 5 of KSG Direct Exhibit AMM-8, the equity risk premium for gas utilities increases by approximately 47 basis points for each percentage point drop in the yield on average public utility bonds. As shown on page 1 of KSG Direct Exhibit AMM-8, with an average yield on single-A public utility bonds for the six-months ending November 2024 of 5.47%, this implies a current equity risk premium of 4.79%. Adding this equity risk premium to the

[41] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports (2006) at 128.
[42] *See, e.g.*, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-7, https://www.entergy-mississippi.com/userfiles/content/price/tariffs/eml_frp.pdf (last visited Mar. 17, 2024); *Martha Coakley et al.*, 147 FERC ¶ 61,234 at P 147 (2014).

average yield on Baa-rated utility bonds of 5.68% results in an indicated cost of equity for Black Hills of 10.47%.

F. Expected Earnings Approach

Q. WHAT OTHER ANALYSIS DO YOU CONDUCT TO ESTIMATE THE ROE?

A. I also evaluate the ROE 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*.[43] 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.

Q. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A. 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. This outcome would violate the *Hope* and *Bluefield* standards and undermine the utility's access to capital on reasonable terms.

[43] *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).

Q. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

A. 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 projected returns on book value equity are analogous to the forward-looking allowed ROE 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 book 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.

Q. WHAT ROE IS INDICATED FOR BLACK HILLS BASED ON THE EXPECTED EARNINGS APPROACH?

A. 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 KSG Direct Exhibit 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.[44] Accordingly, these year-end values were converted to average returns using the same adjustment factor discussed earlier and developed on KSG Direct Exhibit AMM-5. As shown on KSG Direct Exhibit AMM-9, after the removal of illogical values, Value Line's projections suggest an average ROE of 9.6% for the Gas Group.

V. NON-UTILITY BENCHMARK

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. This section presents the results of my DCF analysis for a group of low-risk firms in the competitive sector, which I refer to as the "Non-Utility Group." This analysis was not relied on to arrive at my recommended ROE range of reasonableness; however, it is my opinion that this is a relevant consideration in evaluating just and reasonable ROEs for the Company's gas utility operations.

[44] 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.

Q. DO UTILITIES COMPETE WITH NON-REGULATED FIRMS FOR CAPITAL?

A. 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 a small fraction of total common stock investment, and there is a plethora of other alternatives 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. This understanding is consistent with modern portfolio theory, which is built on the assumption that rational investors will hold a diverse portfolio of stocks and not just companies in a single industry.

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

A. Yes. The cost of equity capital in the competitive sector of the economy underpins utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets. The U.S. 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.[45]

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

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

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

A. Yes. Growth estimates used in 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.

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

A. My comparable risk proxy group is 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 of 0.95 or less; and

5) have investment grade credit ratings from Moody's and S&P.

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

A. Table 5 compares the Non-Utility Group with the Gas Group and Black Hills across the measures of investment risk discussed earlier:

TABLE 5
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line Safety	Financial	
Proxy Group	**S&P**	**Moody's**	**Rank**	**Strength**	**Beta**
Non-Utility Group	A-	A2	1	A+	0.80
Gas Group	BBB+	A3	2	A	0.91
BHC	BBB+	Baa2	2	A	1.05

As shown above, considered together the risk indicators for the Non-Utility Group generally suggest less risk than for the Gas Group and BHC.

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Colgate-Palmolive, Home Depot, 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 2.1%. 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.

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

A. I apply the DCF model to the Non-Utility Group using the same analysts' EPS growth projections described earlier for the Gas Group, with the results being presented in KSG Direct Exhibit AMM-10. As summarized in Table 6, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following cost of equity estimates:

TABLE 6
DCF RESULTS—NON-UTILITY GROUP

Growth Rate	Average	Midpoint
Value Line	10.5%	11.6%
IBES	10.8%	11.2%
Zacks	10.5%	11.3%

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, cost of equity estimates for the Non-Utility Group provide an important benchmark in evaluating a just and reasonable ROE for Black Hills.

VI. RETURN ON EQUITY FOR BLACK HILLS

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section presents an overview of the relationship between ROE and preservation of a utility's financial integrity and its ability to attract capital under reasonable terms and presents my conclusions regarding the fair and reasonable ROE applicable to Black Hills's utility operations. I also present evidence supporting the ratemaking capital structure presented in the testimony of Black Hills witness Stevens.

A. Importance of Financial Strength

Q. WHAT IS THE ROLE OF THE ROE IN SETTING A UTILITY'S RATES?

A. The ROE 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 ROE is integral in meeting 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.

The *Hope* case expanded on the guidelines as to a reasonable ROE, 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.

In summary, the Supreme Court's findings in *Hope* and *Bluefield* established that a just and reasonable ROE 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.[46] These standards should allow the utility to fulfill its obligation to provide reliable service while meeting the needs of customers through

[46] These standards have also been recognized by the Colorado Supreme Court. *See, e.g., Public Utils. Comm'n v. District Court*, 527 P.2d 233 (Colo. 1974), *Public Serv. Co. of Colorado v. Public Utils. Comm'n*, 644 P.2d 933 (Colo. 1982).

necessary system replacement and expansion, but the Supreme Court's requirements can only be met if the utility has a reasonable opportunity to actually earn its allowed ROE.

While the *Hope* and *Bluefield* decisions did not establish a particular method to be followed in fixing rates (or in determining the allowed ROE),[47] 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 an ROE that will produce a balanced and fair end result for investors and customers.

Q. 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?

A. 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 a reasonable cost, consistent with the Supreme Court standards. The Company's plans call for a continuation of capital investments in main replacement, system safety and integrity, and technology to preserve and enhance service reliability for its customers. The Company must generate adequate cash flow from operations to fund these requirements and for repayment of maturing debt,

[47] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. at 602 (1944) (*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.")

together with access to capital from external sources under reasonable terms, on a sustainable basis.

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 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.

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

A. 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."[48] 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."[49] More recently, S&P confirmed that "Utility regulation, no matter where on

[48] Moody's Investors Service, *Regulation Will Keep Cash Flow Stable As Major Tax Break Ends*, Industry Outlook (Feb. 19, 2014).
[49] S&P Global Ratings, *Assessing U.S. Investors-Owned Utility Regulatory Environments*, Credit Research (Aug. 10, 2016).

the continuum of our assessments, strengthens a utility's business risk profile, and generally underpins our ratings."[50] Value Line summarizes similar 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.[51]

In addition, the ROE set by the Commission impacts investor confidence in not only the jurisdictional utility, but also in the ultimate parent company that is the entity that actually issues common stock.

Q. DO CUSTOMERS BENEFIT FROM REGULATORY ACTIONS THAT SUPPORT THE UTILITY'S FINANCIAL FLEXIBILITY?

A. Yes. Providing an ROE that is sufficient to maintain the Company'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* and *Bluefield* decisions, but 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.

In contrast, denying a utility the opportunity to earn a fair ROE or attract capital on reasonable terms is detrimental to customers and the economy in the longer term. The costs of obtaining capital rise as the risks of the utility mount, which ultimately increases the cost of providing service. Financial stress can also hinder the ability to provide safe and reliable service if the utility is unable to raise the capital necessary for system expansion and improvements.

[50] S&P Global Ratings, *North American Utility Regulatory Jurisdictions: Some Notable Developments* (Nov. 10, 2023).
[51] Value Line Investment Survey, *Water Utility Industry* (January 13, 2017) at p. 1780.

B. Conclusions and Recommendations

Q. WHAT ARE YOUR FINDINGS REGARDING A FAIR ROE FOR BLACK HILLS?

A. Based on the results of my analyses and the economic requirements necessary to support continuous access to capital under reasonable terms, I determined that 10.5% is a reasonable estimate of investors' required ROE for Black Hills. The bases for my conclusion are summarized below:

- In order to reflect the risks and prospects associated with Black Hills's utility business, my analysis focuses on the seven gas utility firms in the Gas Group.
- Because investors' required ROE is unobservable, and no single method should be viewed in isolation, I apply the DCF, CAPM, ECAPM, and risk premium methods to estimate a fair and reasonable ROE for Black Hills, as well as referencing the expected earnings approach.
- As summarized on KSG Direct Exhibit AMM-2, based on the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I conclude that the cost of equity for a regulated gas utility is in the 10.0% to 11.0% range, with a midpoint of 10.5%.[52]
- Based on the results outlined above, I conclude that 10.5% represents a just and reasonable ROE for Black Hills.

Q. WHAT ELSE IS RELEVANT IN WEIGHING YOUR QUANTITATIVE RESULTS?

A. As noted earlier, the evaluation of a fair ROE should not be based on the mechanical application of a single methodology. Because no single approach is inherently superior, the results of alternative quantitative approaches should serve as an integral part of the decision-making underlying the determination of a just and reasonable ROE. In this light, it is important to consider alternatives to the DCF model. As shown in KSG Direct Exhibit AMM-2, alternative methods, such as the risk premium and CAPM approach, produce ROE estimates that generally exceed the DCF results.

[52] While I did not make an explicit adjustment to the results of my quantitative methods to include an adjustment for flotation costs associated with issuing common stock, this is another legitimate consideration that supports the reasonableness of my evaluation of a just and reasonable ROE for Black Hills in this case.

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

A. As shown on KSG Direct Exhibit AMMM-10, page 3, average DCF estimates for a low-risk group of firms in the competitive sector of the economy range from 10.5% to 10.8%. While I do not base my recommendation directly on these results, they confirm that an ROE of 10.5% falls in a reasonable range to maintain Black Hills's financial integrity, to provide a return commensurate with investments of comparable risk, and to support the Company's ability to attract capital.

Q. WHAT OTHER EVIDENCE SUPPORTS THE REASONABLENESS OF YOUR 10.5% ROE RECOMMENDATION?

A. In Black Hills's last rate proceeding, Staff witness Gatewood referenced the average risk premium implied by the Commission's prior ROE findings as a test of reasonableness. Specifically, Mr. Gatewood concluded that, "Since the 2008 Financial Crisis, jurisdictional utilities have had their ROEs set by the Commission that resulted in an average risk premium over the reported yield of BBB/Baa rated public utility bonds of about 474 basis points . . ."[53] As shown in Table 7, below, combining the 474 basis point risk premium cited by Staff witness Gatewood with the November 2024 average yield on Baa utility bonds results in an implied cost of equity of 10.51%.

[53] State Corporation Commission of the State of Kansas, Docket No. 21-BHCG-418-RTS, *Direct Testimony Prepared by Adam H. Gatewood* (Sep. 10, 2021) at 8-9 (internal footnotes omitted). RRA has not reported any allowed ROEs for Kansas jurisdictional utilities since Staff witness Gatewood's testimony in Docket No. 21-BHCG-418-RTS was prepared.

TABLE 7
GATEWOOD RISK PREMIUM BENCHMARK

Company	Docket	Order Date	Authorized ROE	Baa Utility Bond Yield	Risk Premium
Kansas City Power & Light	10-KCPE-415-RTS	11/22/2010	10.00%	5.94%	4.06%
Kansas City Power & Light	12-KCPE-764-RTS	12/13/2012	9.50%	4.21%	5.29%
Atmos Energy Corp.	14-ATMG-320-RTS	9/4/2014	9.10%	4.45%	4.65%
Kansas City Power & Light	15-KCPE-116-RTS	9/10/2015	9.30%	4.80%	4.50%
Atmos Energy Corp.	19-ATMG-525-RTS	2/24/2020	9.10%	3.92%	5.18%
					4.74%
				Nov. 2024 Baa Utility Bond Yield	5.77%
				Implied Cost of Equity	**10.51%**

C. Capital Structure

Q. WHAT IS THE ROLE OF CAPITAL STRUCTURE IN SETTING A UTILITY'S RATE OF RETURN?

A. Capital structure reflects the mix of capital – debt, preferred securities, and common equity – used to finance a utility's assets. The proportions of the total capitalization attributable to each source of capital are typically used to weight the costs of investor-supplied capital in calculating an overall rate of return.

Q. WHY DOES THIS WEIGHTING MATTER?

A. The capital structure ratios determine how much weight is given to a particular source of capital. Because the costs of debt and preferred securities and the rate of return on common equity are not the same, this affects the weighted average cost, or overall rate of return, of all sources of capital.

Q. HOW DO COMPANIES DETERMINE AN APPROPRIATE CAPITAL STRUCTURE FOR THEIR OPERATIONS?

A. There are many considerations in the capital structure decision. In general, the goal is to employ the mix of capital that minimizes the weighted average cost of capital. Given the

interplay between costs of debt and equity, the impact of taxes, bankruptcy costs, and the level of business risks, determining a firm's optimal capital structure is an imprecise exercise. In practice, capital structure decisions must be made by combining managements' judgment, numerical analysis, and considering investors' risk perceptions.

It is generally accepted that the norms established by comparable firms provide a valid benchmark to evaluate a reasonable capital structure for a utility. The capital structure maintained by other utilities should reflect their collective efforts to finance themselves so as to minimize capital costs while preserving their financial integrity and ability to attract capital. Moreover, these industry capital structures should also incorporate the requirements of investors (both debt and equity), as well as the influence of regulators.

Q. WHAT COMMON EQUITY RATIO IS IMPLICIT IN THE COMPANY'S CAPITAL STRUCTURE?

A. As summarized the direct testimony of Company witness Stevens, Black Hills is proposing a capital structure that includes 50.44% common equity.

Q. HOW DOES THIS COMPARE TO RECENT HISTORICAL CAPITALIZATION FOR THE GAS GROUP, AND ALSO INVESTORS' FORWARD-LOOKING EXPECTATIONS?

A. As shown on page 1 of KSG Direct Exhibit AMM-11, the most recent four quarters imply equity ratios in ranging from 41.9% to 60.8% for the Gas Group, with an average equity ratio of 48.5%. With regard to forward-looking expectations, page 2 of KSG Direct Exhibit AMM-11 shows that Value Line is expecting an average common equity ratio of 48.1% for the Gas Group over its three-to-five year forecast horizon, and this falls in a range of 44.0% to 60.0% for the individual proxy group companies.

Q. WHAT OTHER EVIDENCE SUPPORTS THE REASONABLENESS OF THE COMPANY'S REQUESTED CAPITAL STRUCTURE?

A. Reference to recent findings for gas utilities in other regulatory proceedings also supports the reasonableness of the 50.44% common equity ratio used as the basis for the Company's external capital. The table below presents the common equity ratios approved for gas utilities over the past eight quarters, as reported by RRA:

TABLE 8
GAS UTILITY ALLOWED COMMON EQUITY RATIOS

	Low		High	Average
Q4-22	45.00%	--	58.22%	52.03%
Q1-23	45.16%	--	59.74%	52.93%
Q2-23	50.00%	--	62.20%	56.73%
Q3-23	48.00%	--	54.78%	51.20%
Q4-23	48.00%	--	56.06%	51.31%
Q1-24	50.87%	--	59.07%	53.11%
Q2-24	50.00%	--	60.61%	53.07%
Q3-24	48.00%	--	62.38%	51.77%
Average	**48.13%**	--	**59.13%**	**52.77%**

Source: S&P Global Market Intelligence, *Major Rate Case Decisions* , RRA Regulatory Focus (Feb. 2023; Feb. 6 and Oct. 30, 2024). Excludes limited issue rider cases and capital structures that include cost-free items.

As demonstrated in the table above, the Company's requested 50.44% common equity ratio falls well within the range of capital structures recently approved for other gas utilities, and below the average of 52.77%.

Q. DO ONGOING ECONOMIC AND CAPITAL MARKET UNCERTAINTIES INFLUENCE THE APPROPRIATE CAPITAL STRUCTURE FOR BLACK HILLS?

A. Yes. Financial flexibility plays a crucial role in ensuring the wherewithal of a utility to meet funding needs, and utilities with higher financial leverage may be foreclosed or have limited

access to additional borrowing, especially during times of financial market stress. As Moody's observed:

> Utilities are among the largest debt issuers in the corporate universe and typically require consistent access to capital markets to assure adequate sources of funding and to maintain financial flexibility. During times of distress and when capital markets are exceedingly volatile and tight, liquidity becomes critically important because access to capital markets may be difficult.[54]

More recently, Moody's emphasized that the utility sector "is likely to continue to generate negative free cash flow and credit quality is likely to suffer unless utilities fund this negative free cash flow appropriately with a balance of debt and equity financing."[55]

S&P confirmed the financial challenges associated with funding heightened investment in the utility sector, noting that, "In February [2024] we revised our industry outlook to negative, reflecting the industry's high percentage of companies with negative outlooks that operate with only minimal financial cushion from their downgrade threshold," and warning that common equity is at a level "insufficient to fund the industry's cash flow deficits."[56]

As a result, the Company's capital structure must maintain adequate equity to preserve the flexibility necessary to maintain continuous access to capital even during times of unfavorable energy or financial market conditions.

[54] Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar. 26, 2020).
[55] Moody's Investors Service, *Regulate Electric and Gas Utilities – US, Rising capital expenditures will require higher annual equity funding*, Sector In-Depth (Nov. 8, 2023).
[56] S&P Global Ratings, *Regulated Utilities: Credit risks are rising*, Industry Credit Outlook Update (Jul. 18, 2024).

Q. WHAT OTHER FACTORS DO INVESTORS CONSIDER IN THEIR ASSESSMENT OF A COMPANY'S CAPITAL STRUCTURE?

A. Utilities, including Black Hills, are facing significant capital investment plans. Coupled with the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal with an uncertain environment. As S&P noted:

> The industry's capital spending remains at record levels, supporting initiatives for safety, reliability, energy transition, and growth. We consider these trends long term and expect capital spending will only continue to increase over this decade. Accordingly, cash flow deficits have increased, pressuring the industry's credit quality.[57]

A conservative financial profile, in the form of a reasonable common equity ratio, is consistent with the need to accommodate these uncertainties and maintain the continuous access to capital under reasonable terms that is required to fund operations and necessary system investment, even during times of adverse capital market conditions.

Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO THE COMMON EQUITY RATIO PROPOSED BY BLACK HILLS?

A. Based on my evaluation, I conclude that Black Hills's requested common equity ratio of approximately 50.44% represents a reasonable basis on which to calculate the Company's overall rate of return. While industry averages provide one benchmark for comparison, each firm must select its capitalization based on the risks and prospects it faces, as well its specific needs to access the capital markets. A public utility with an obligation to serve must maintain ready access to capital under reasonable terms so that it can meet the service requirements of its customers. Financial flexibility plays a crucial role in ensuring the

[57] S&P Global Ratings, *Rising Risks: Outlook For North American Investor-Owned Regulated Utilities Weakens*, Comments (Feb. 14, 2024).

wherewithal to meet the needs of customers, and utilities with higher leverage may be foreclosed from additional borrowing under reasonable terms, especially during times of stress.

Black Hills's ratemaking capital structure is consistent with the range of industry benchmarks reflected in the capital structure ratios expected for the Gas Group, as well as the common equity ratios authorized for other gas utilities. The Company's capitalization reflects the need to fund ongoing capital expenditures and strengthen its financial integrity and access to capital on reasonable terms. Based on this evidence, I conclude that the Company's ratemaking capital structure represents a reasonable mix of capital sources from which to calculate Black Hills's overall rate of return.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

AFFIDAVIT OF ADRIEN M. MCKENZIE

State of Texas)
) ss
County of Travis)

I, ADRIEN M. MCKENZIE, being first duly sworn on oath, depose and state that I am the same Adrien M. McKenzie identified in the foregoing Direct Testimony; that I have caused the foregoing Direct Testimony to be prepared and am familiar with the contents thereof; and that the foregoing Direct Testimony is true and correct to the best of my knowledge, information, and belief as of the date of this Affidavit.

Adrien M. McKenzie

Subscribed and sworn to before me,
A Notary Public, in and for said County
and State, this 17th day of January, 2025.

Notary Public

BRUCE HARCUM FAIRCHILD
Notary ID #131906507
My Commission Expires
February 25, 2027

My Commission expires: 2/25/2027

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 more than 200 proceedings filed with the Federal Energy Regulatory Commission ("FERC") and regulatory agencies in Alaska, Arkansas, Colorado, District of Columbia, Florida, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, 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

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Austin, Texas 78751
(512) 923-2790
amm.fincap@outlook.com

Summary of Qualifications

Adrien McKenzie has over 35 years of experience in economic and financial analysis for regulated industries, and in preparing and supporting expert witness testimony before regulatory agencies, courts, 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. Mr. McKenzie holds the Chartered Financial Analyst (CFA®) designation and earned an MBA in finance from the University of Texas at Austin.

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 200 regulatory proceedings.
- In addition to filings before regulatory agencies in Alaska, Arkansas, Colorado, District of Columbia, Florida, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, 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.
- Evaluation of fair rate of return on equity for electric, gas, water, sewer, and telephone utilities, as well as natural gas pipelines.
- Analysis of capital structure issues for regulated utilities.
- Developing cost of service, cost allocation, and rate design studies.
- Design and development of explanatory models for nuclear plant capital costs in connection with prudency reviews.
- Analysis of avoided cost pricing for cogenerated power.
- Application of econometric models to analyze the impact of anti-competitive behavior, theft of trade secrets, and estimate lost profits.
- Valuation of closely-held businesses.

SUMMARY OF RESULTS

Method		Average	
DCF			
Value Line		10.5%	
IBES		10.5%	
Zacks		9.7%	
Internal br + sv		9.3%	
CAPM	11.2%	--	12.0%
ECAPM	11.4%	--	12.2%
Utility Risk Premium		10.5%	
Expected Earnings		9.6%	

ROE Recommendation			
ROE Range	10.0%	--	11.0%
Recommended ROE		10.5%	

GAS GROUP

			Type of Adjustment Clause (a)																(c)	(d)
					Conserv.					New Capital									Future	Formula
					Program	Decoupling				Trad.	Renewables/	Delivery		Environ.			(b)	Test	Rates /
	Company	State	PGA		Expense	Full		Partial		Generation	Non-Trad.	Infra.		Compliance			WNA	Year	MRP
1	**ATMOS ENERGY**																		
	Atmos Energy Corp.	KS	✓		--	*	--		✓	*	--	--	✓	*	--		✓	--	--
	Atmos Energy Corp.	KY	✓		✓		--		✓	*	--	--	✓		--		✓	O	--
	Atmos Energy Corp.	LA	✓		--		--		✓	*	--	--	--		--		✓	O	✓
	Atmos Energy Inc.	MS	✓		--		--		✓	*	--	--	✓		--		✓	O	✓
	Atmos Energy Inc.	TN	✓		--		--		✓	*	--	--	--		--		✓	C	✓
	Atmos Energy Inc.	TX	✓	*	--		--		✓	*	--	--	✓		--		--	--	✓
2	**CHESAPEAKE UTILITES**																		
	Chesapeake Utilities Corp.	DE	✓		--		--		--		--	--	✓	*	✓	*	--	P	--
	Florida Public Utilities Co.	FL	✓		✓		--		--		--	--	✓	*	✓		--	C	✓
3	**NEW JERSEY RESOURCES**																		
	New Jersey Natural Gas Co.	NJ	--	*	✓	*	✓	*	--		--	--	✓	*	✓	*	✓	P	--
4	**NISOURCE INC.**																		
	Northern Indiana Pub. Service Co.	IN	✓		✓		--		--		--	--	✓	*	--		--	--	✓
	Columbia Gas of Kentucky Inc.	KY	✓		✓		--		✓	*	--	--	✓		--		✓	O	--
	Columbia Gas of Maryland Inc.	MD	✓		✓		--		✓	*	--	--	✓		--		✓	P	--
	Columbia Gas of Ohio Inc.	OH	--	*	✓		--	*	--		--	--	✓	*	--		--	P	✓
	Columbia Gas of Pennsylvania Inc.	PA	✓		--		--		✓	*	--	--	✓	*	--		✓	O	--
	Columbia Gas of Virginia Inc.	VA	✓		✓		--		✓	*	--	--	✓		--		✓	--	✓
5	**NORTHWEST NATURAL**																		
	Northwest Natural Gas Co.	OR	✓		✓	*	--		✓	*	--	--	--		✓	*	✓	C	--
	Northwest Natural Gas Co.	WA	✓		✓		--		--		--	--	--		--		--	--	✓
6	**ONE GAS, INC.**																		
	Kansas Gas Service Co.	KS	✓		--	*	--		✓	*	--	--	✓	*	--		✓	--	--
	Oklahoma Natural Gas Co.	OK	✓		✓	*	--		✓	*	--	--	--		--		✓	--	✓
	Texas Gas Service Co.	TX	✓	*	--		--		✓	*	--	--	✓		--		✓	--	✓
7	**SOUTHWEST GAS**																		
	Southwest Gas Corp.	AZ	✓		✓		✓		--	*	--	--	✓	*	--		--	--	✓
	Southwest Gas Corp.	CA	✓		--		✓		--		--	--	--		--		--	C	✓
	Southwest Gas Corp.	NV	✓		✓		✓		--		--	✓	✓		--		--	--	--
8	**SPIRE INC.**																		
	Spire Alabama Inc.	AL	✓	*	--		--		✓	*	--	--	--		--		✓	C	✓
	Spire Gulf Inc.	AL	✓	*	--		--		✓	*	--	--	--		--		✓	C	✓
	Spire Missouri Inc.	MO	✓		--		--		✓	*	--	--	✓		--		✓	P	--

Sources:

(a) S&P Global Market Intelligence, *Adjustment clauses: A state by state overview* , Regulatory Focus Topical Special Report (Jul. 18, 2022).

(b) SEC Form 10-K Reports.

(c) Edison Electric Institute, *Alternative Regulation for Emerging Utility Challenges: 2015 Update* (Nov. 11, 2015).

(d) Formula rates and Multiyear Rate plans approved in the state listed for this operating company. *See* , U.S. Department of Energy, *State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities* ,GRID Modernization Laboratory Consortium (Jul. 2017); The Brattle Group, *Exploring the Use of Alternative Regulatory Mechanisms to Establish New Base Rates* , Joint Utilities of Maryland (Mar. 29, 2018).

Notes:

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.

* For additional context around the specific recovery mechanisms available to the particular operating companies in each state, see the source document.

DIVIDEND YIELD

	Company	(a) Price	(b) Dividends	Yield
1	Atmos Energy Corp.	$ 143.09	$ 3.54	2.5%
2	Chesapeake Utilities	$ 123.37	$ 2.64	2.1%
3	New Jersey Resources	$ 47.10	$ 1.80	3.8%
4	NiSource Inc.	$ 35.57	$ 1.11	3.1%
5	Northwest Natural	$ 40.71	$ 1.96	4.8%
6	ONE Gas, Inc.	$ 73.89	$ 2.68	3.6%
7	Southwest Gas	$ 75.05	$ 2.50	3.3%
8	Spire Inc.	$ 65.78	$ 3.16	4.8%
	Average			**3.5%**

(a) Average of closing prices for 30 trading days ended Nov. 22, 2024.
(b) The Value Line Investment Survey, *Summary & Index* (Nov. 22, 2024).

GROWTH RATES

		(a)	(b)	(c)	(d)
		Earnings Growth			**br+sv**
	Company	**V Line**	**IBES**	**Zacks**	**Growth**
1	Atmos Energy Corp.	7.0%	7.4%	7.0%	6.6%
2	Chesapeake Utilities	6.5%	7.6%	n/a	7.8%
3	New Jersey Resources	5.0%	n/a	n/a	6.2%
4	NiSource Inc.	9.5%	8.0%	7.0%	3.8%
5	Northwest Natural	6.5%	n/a	n/a	5.5%
6	ONE Gas, Inc.	3.5%	n/a	n/a	3.7%
7	Southwest Gas	10.0%	n/a	6.0%	3.1%
8	Spire Inc.	4.5%	6.4%	5.0%	4.0%

(a) The Value Line Investment Survey (Nov. 22, 2024).
(b) Refinitiv/Versus from www.fidelity.com (retrieved Nov. 20, 2024).
(c) www.zacks.com (retrieved Nov. 20, 2024).
(d) See KSG Direct Exhibit AMM-5.

DCF COST OF EQUITY ESTIMATES

	Company	(a) V Line	(a) IBES	(a) Zacks	(a) br+sv Growth
1	Atmos Energy Corp.	9.5%	9.9%	9.5%	9.1%
2	Chesapeake Utilities	8.6%	9.7%	n/a	9.9%
3	New Jersey Resources	8.8%	n/a	n/a	10.0%
4	NiSource Inc.	12.6%	11.1%	10.1%	6.9%
5	Northwest Natural	11.3%	n/a	n/a	10.3%
6	ONE Gas, Inc.	7.1%	n/a	n/a	7.4%
7	Southwest Gas	13.3%	n/a	9.3%	6.4%
8	Spire Inc.	9.3%	11.2%	9.8%	8.8%
	Average (b)	**10.5%**	**10.5%**	**9.7%**	**9.3%**

(a) Sum of dividend yield (page 1) and respective growth rate (page 2).

(b) Excludes highlighted figures.

BR + SV GROWTH RATE

		(a)	(a)	(a)	(b)	(c)	(d)	(e)		(f)	(g)		
		2028					**Adjustment**			**"sv" Factor**			
	Company	**EPS**	**DPS**	**BVPS**	**b**	**r**	**Factor**	**Adjusted r**	**br**	**s**	**v**	**sv**	**br + sv**
1	Atmos Energy Corp.	$8.35	$4.25	$89.15	49.1%	9.4%	1.0361	9.7%	4.8%	0.0515	0.3516	1.81%	**6.6%**
2	Chesapeake Utilities	$7.00	$3.25	$70.70	53.6%	9.9%	1.0350	10.2%	5.5%	0.0469	0.4950	2.32%	**7.8%**
3	New Jersey Resources	$3.50	$1.95	$28.35	44.3%	12.3%	1.0354	12.8%	5.7%	0.0104	0.5275	0.55%	**6.2%**
4	NiSource Inc.	$2.20	$1.20	$27.50	45.5%	8.0%	1.0249	8.2%	3.7%	0.0025	0.3529	0.09%	**3.8%**
5	Northwest Natural	$3.15	$1.98	$39.00	37.1%	8.1%	1.0312	8.3%	3.1%	0.0607	0.4000	2.43%	**5.5%**
6	ONE Gas, Inc.	$5.00	$2.85	$60.20	43.0%	8.3%	1.0214	8.5%	3.6%	0.0024	0.3311	0.08%	**3.7%**
7	Southwest Gas	$4.20	$2.60	$58.65	38.1%	7.2%	1.0252	7.3%	2.8%	0.0121	0.2180	0.26%	**3.1%**
8	Spire Inc.	$5.50	$3.60	$66.05	34.5%	8.3%	1.0426	8.7%	3.0%	0.0412	0.2451	1.01%	**4.0%**

BR + SV GROWTH RATE

		(a)	(a)	(h)	(a)	(a)	(h)	(i)	(a)	(a)		(j)	(a)	(a)	(i)
		2023			**2028**			**Chg**	**2028 Price**				**Common Shares**		
	Company	**Eq Ratio**	**Tot Cap**	**Com Eq**	**Eq Ratio**	**Tot Cap**	**Com Eq**	**Equity**	**High**	**Low**	**Avg.**	**M/B**	**2023**	**2028**	**Growth**
1	Atmos Energy Corp.	62.1%	$17,509	$10,873	60.0%	$26,000	$15,600	7.5%	$150.00	$125.00	$137.50	1.542	148.49	175.00	3.34%
2	Chesapeake Utilities	51.2%	$2,433	$1,246	52.0%	$3,400	$1,768	7.3%	$160.00	$120.00	$140.00	1.980	22.24	25.00	2.37%
3	New Jersey Resources	41.8%	$4,759	$1,989	45.0%	$6,300	$2,835	7.3%	$70.00	$50.00	$60.00	2.116	97.57	100.00	0.49%
4	NiSource Inc.	45.5%	$21,192	$9,642	45.0%	$27,500	$12,375	5.1%	$50.00	$35.00	$42.50	1.545	446.38	450.00	0.16%
5	Northwest Natural	47.4%	$2,709	$1,284	45.0%	$3,900	$1,755	6.4%	$75.00	$55.00	$65.00	1.667	37.63	45.00	3.64%
6	ONE Gas, Inc.	56.2%	$4,926	$2,769	49.0%	$7,000	$3,430	4.4%	$105.00	$75.00	$90.00	1.495	56.55	57.00	0.16%
7	Southwest Gas	42.6%	$8,025	$3,418	44.0%	$10,000	$4,400	5.2%	$85.00	$65.00	$75.00	1.279	71.56	75.00	0.94%
8	Spire Inc.	41.3%	$6,471	$2,673	45.0%	$9,100	$4,095	8.9%	$100.00	$75.00	$87.50	1.325	53.20	62.00	3.11%

(a) The Value Line Investment Survey (Nov. 22, 2024).
(b) "b" is the retention ratio, computed as (EPS-DPS)/EPS.
(c) "r" is the rate of return on book equity, computed as EPS/BVPS.
(d) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(e) Product of year-end "r" for 2028 and Adjustment Factor.
(f) Product of change in common shares outstanding and M/B Ratio.
(g) Computed as 1 - B/M Ratio.
(h) Product of total capital and equity ratio.
(i) Five-year rate of change.
(j) Average of High and Low expected market prices divided by 2028 BVPS.

GAS GROUP

		(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 CAPM**	**Market Cap**	**Size Adjustment**	**Adjusted CAPM**
1	Atmos Energy Corp.	1.6%	10.3%	11.9%	4.3%	7.6%	0.90	11.1%	$22,700	0.46%	11.6%
2	Chesapeake Utilities	1.6%	10.3%	11.9%	4.3%	7.6%	0.85	10.8%	$2,900	1.21%	12.0%
3	New Jersey Resources	1.6%	10.3%	11.9%	4.3%	7.6%	1.00	11.9%	$4,700	0.64%	12.5%
4	NiSource Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	0.95	11.5%	$16,900	0.46%	12.0%
5	Northwest Natural	1.6%	10.3%	11.9%	4.3%	7.6%	0.85	10.8%	$1,600	1.39%	12.2%
6	ONE Gas, Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	0.85	10.8%	$4,300	0.95%	11.7%
7	Southwest Gas	1.6%	10.3%	11.9%	4.3%	7.6%	0.95	11.5%	$5,500	0.64%	12.2%
8	Spire Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	0.90	11.1%	$3,800	0.95%	12.1%
	Average							**11.2%**			**12.0%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Nov. 3, 2024)

(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 Nov. 3, 2024), www.valueline.com (retrieved Nov. 3, 2024), and www.zacks.com (retrieved Nov. 3, 2024).

(c) Average yield on 30-year Treasury bonds for six-months ended Nov. 2024 based on data from https://fred.stlouisfed.org/.

(d) The Value Line Investment Survey, Summary & Index (Nov. 22, 2024).

(e) The Value Line Investment Survey (Nov. 22, 2024).

(f) Kroll, 2023 CRSP Deciles Size Premium, Cost of Capital Navigator (2024).

GAS GROUP

		(a)	(b)		(c)	(d)			(e)	(d)				(f)	(g)	
		Market Return (R_m)														
	Company	**Div Yield**	**Proj. Growth**	**$R_{(m)}$**	**Risk-Free Rate**	**Risk Premium**	**Unadjusted RP Weight**	**RP^1**	**Beta**	**Beta Adjusted RP Weight**	**RP^2**	**Total RP**	**Unadjusted ECAPM**	**Market Cap**	**Size Adjustment**	**Adjusted ECAPM**
1	Atmos Energy Corp.	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.90	75%	5.1%	7.0%	11.3%	$22,700	0.46%	11.8%
2	Chesapeake Utilities	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.85	75%	4.8%	6.7%	11.0%	$2,900	1.21%	12.3%
3	New Jersey Resources	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	1.00	75%	5.7%	7.6%	11.9%	$4,700	0.64%	12.5%
4	NiSource Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.95	75%	5.4%	7.3%	11.6%	$16,900	0.46%	12.1%
5	Northwest Natural	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.85	75%	4.8%	6.7%	11.0%	$1,600	1.39%	12.4%
6	ONE Gas, Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.85	75%	4.8%	6.7%	11.0%	$4,300	0.95%	12.0%
7	Southwest Gas	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.95	75%	5.4%	7.3%	11.6%	$5,500	0.64%	12.3%
8	Spire Inc.	1.6%	10.3%	11.9%	4.3%	7.6%	25%	1.9%	0.90	75%	5.1%	7.0%	11.3%	$3,800	0.95%	12.3%
	Average												**11.4%**			**12.2%**

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (retrieved Nov. 3, 2024)

(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 Nov. 3, 2024), www.valueline.com (retrieved Nov. 3, 2024), and www.zacks.com (retrieved Nov. 3, 2024).

(c) Average yield on 30-year Treasury bonds for six-months ended Nov. 2024 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 (Nov. 22, 2024).

(f) The Value Line Investment Survey (Nov. 22, 2024).

(g) Kroll, 2023 CRSP Deciles Size Premium, Cost of Capital Navigator (2024).

CURRENT BOND YIELDS

Current Equity Risk Premium	
(a) Average Yield over Study Period	7.53%
(b) Average Single-A Utility Bond Yield	5.47%
Change in Bond Yield	-2.06%
(c) Risk Premium/Interest Rate Relationship	-0.4744
Adjustment to Average Risk Premium	0.98%
(a) Average Risk Premium over Study Period	3.81%
Adjusted Risk Premium	**4.79%**
Implied Cost of Equity	
(b) Baa Utility Bond Yield	5.68%
Adjusted Equity Risk Premium	4.79%
Risk Premium Cost of Equity	**10.47%**

(a) KSG Direct Exhibit AMM-8, page 4.
(b) Yields on 'A' and 'Baa' utility bonds for six-months ending Nov. 2024 based on data from Moody's Investors Service at www.credittrends.com.
(c) KSG Direct Exhibit AMM-8, page 5.

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%
	4	11.56%	7.37%	4.19%
1996	1	11.45%	7.44%	4.01%
	2	10.88%	7.98%	2.90%
	3	11.25%	7.96%	3.29%
	4	11.32%	7.62%	3.70%
1997	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

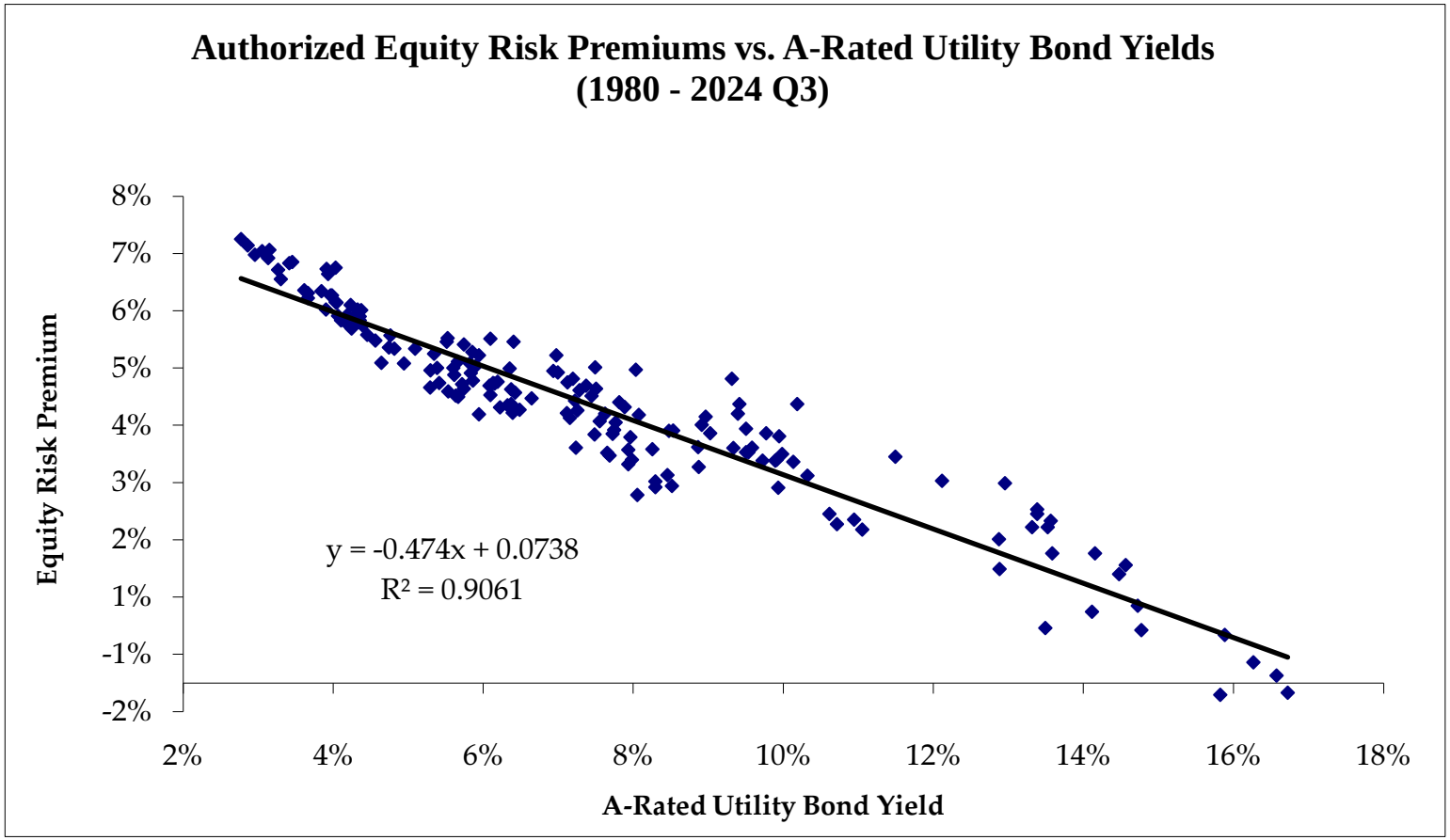
		(a)	(b)	
Year	**Qtr.**	**Allowed ROE**	**Single-A Utility Bond Yield**	**Risk Premium**
2020	1	9.35%	3.30%	6.05%
	2	9.55%	3.13%	6.42%
	3	9.52%	2.77%	6.75%
	4	9.50%	2.86%	6.64%
2021	1	9.71%	3.15%	6.56%
	2	9.48%	3.26%	6.22%
	3	9.43%	2.95%	6.48%
	4	9.59%	3.05%	6.54%
2022	1	9.38%	3.66%	5.72%
	2	9.23%	4.64%	4.59%
	3	9.52%	4.94%	4.58%
	4	9.65%	5.63%	4.02%
2023	1	9.75%	5.29%	4.46%
	2	9.45%	5.29%	4.16%
	3	9.66%	5.66%	4.00%
	4	9.63%	5.94%	3.69%
2024	1	9.62%	5.53%	4.09%
	2	9.93%	5.71%	4.22%
	3	9.65%	5.41%	4.24%
Average		**11.34%**	**7.53%**	**3.81%**

(a) S&P Global Market Intelligence, *Major Rate Case Decisions*, (Oct. 30, 2024; Oct. 31, 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



GAS GROUP

	Company	(a) Expected Return on Common Equity	(b) Adjustment Factor	(c) Adjusted Return on Common Equity
1	Atmos Energy Corp.	9.5%	1.0361	9.8%
2	Chesapeake Utilities	10.0%	1.0350	10.3%
3	New Jersey Resources	12.5%	1.0354	12.9%
4	NiSource Inc.	8.0%	1.0249	8.2%
5	Northwest Natural	8.0%	1.0312	8.2%
6	ONE Gas, Inc.	8.5%	1.0214	8.7%
7	Southwest Gas	7.0%	1.0252	7.2%
8	Spire Inc.	8.5%	1.0426	8.9%
	Average (d)	**9.3%**		**9.6%**

(a) The Value Line Investment Survey (Nov. 22, 2024).
(b) Adjustment to convert year-end return to an average rate of return from KSG Direct Exhibit AMM-5.
(c) (a) x (b).
(d) Excludes highlighted values.

DIVIDEND YIELD

	Company	Industry Group	(a) Price	(b) Dividends	Yield
1	Abbott Labs.	Med Supp Non-Invasive	$116.39	$ 2.20	1.9%
2	AbbVie Inc.	Drug	$ 183.18	$ 6.20	3.4%
3	Air Products & Chem.	Chemical (Diversified)	$ 320.55	$ 7.08	2.2%
4	Alphabet Inc.	Internet	$ 174.38	$ 0.84	0.5%
5	Amdocs Ltd.	IT Services	$ 87.73	$ 1.92	2.2%
6	Amgen	Biotechnology	$ 298.71	$ 9.30	3.1%
7	Apple Inc.	Computers/Peripherals	$ 230.73	$ 1.00	0.4%
8	AptarGroup	Packaging & Container	$ 171.20	$ 1.80	1.1%
9	Becton, Dickinson	Med Supp Invasive	$ 228.66	$ 3.96	1.7%
10	Bristol-Myers Squibb	Drug	$ 56.95	$ 2.40	4.2%
11	Brown & Brown	Financial Svcs. (Div.)	$ 109.54	$ 0.60	0.5%
12	Brown-Forman 'B'	Beverage	$ 42.57	$ 0.96	2.3%
13	Church & Dwight	Household Products	$ 107.12	$ 1.14	1.1%
14	Cisco Systems	Telecom. Equipment	$ 57.79	$ 1.60	2.8%
15	CME Group	Brokers & Exchanges	$ 229.62	$ 4.60	2.0%
16	Coca-Cola	Beverage	$ 63.95	$ 2.02	3.2%
17	Colgate-Palmolive	Household Products	$ 94.04	$ 2.00	2.1%
18	Comcast Corp.	Cable TV	$ 43.11	$ 1.24	2.9%
19	Conagra Brands	Food Processing	$ 27.98	$ 1.44	5.1%
20	Costco Wholesale	Retail Store	$ 931.64	$ 4.92	0.5%
21	Danaher Corp.	Med Supp Non-Invasive	$ 239.76	$ 1.17	0.5%
22	Electronic Arts	Entertainment Tech	$ 160.07	$ 0.80	0.5%
23	Gallagher (Arthur J.)	Financial Svcs. (Div.)	$ 295.91	$ 2.50	0.8%
24	Gen'l Mills	Food Processing	$ 65.84	$ 2.46	3.7%
25	Gilead Sciences	Drug	$ 91.28	$ 3.08	3.4%
26	Hershey Co.	Food Processing	$ 176.82	$ 5.72	3.2%
27	Home Depot	Retail Building Supply	$ 410.16	$ 9.00	2.2%
28	Hormel Foods	Food Processing	$ 30.93	$ 1.13	3.7%
29	IDEX Corp.	Machinery	$ 225.13	$ 2.85	1.3%
30	Int'l Business Mach.	Computer Software	$ 217.08	$ 6.71	3.1%
31	Johnson & Johnson	Drug	$ 155.51	$ 5.06	3.3%
32	Kimberly-Clark	Household Products	$ 135.51	$ 4.88	3.6%
33	Lilly (Eli)	Drug	$ 804.40	$ 5.20	0.6%
34	Lockheed Martin	Aerospace/Defense	$ 539.83	$ 13.20	2.4%
35	Marsh & McLennan	Financial Svcs. (Div.)	$ 225.03	$ 3.26	1.4%
36	McDonald's Corp.	Restaurant	$ 294.84	$ 7.08	2.4%
37	McKesson Corp.	Med Supp Non-Invasive	$ 586.66	$ 2.84	0.5%
38	Merck & Co.	Drug	$ 100.98	$ 3.08	3.1%
39	Microsoft Corp.	Computer Software	$ 423.00	$ 3.41	0.8%
40	Mondelez Int'l	Food Processing	$ 65.99	$ 1.88	2.8%
41	NewMarket Corp.	Chemical (Specialty)	$ 541.85	$ 10.00	1.8%
42	Northrop Grumman	Aerospace/Defense	$ 501.90	$ 8.65	1.7%
43	PepsiCo, Inc.	Beverage	$ 163.43	$ 5.50	3.4%
44	Procter & Gamble	Household Products	$ 170.53	$ 4.03	2.4%
45	Progressive Corp.	Insurance (Prop/Cas.)	$ 256.34	$ 0.40	0.2%
46	Republic Services	Environmental	$ 209.99	$ 2.32	1.1%
47	Roper Tech.	Computer Software	$ 556.59	$ 3.32	0.6%
48	Smucker (J.M.)	Food Processing	$ 114.43	$ 4.32	3.8%
49	Texas Instruments	Semiconductor	$ 204.30	$ 5.44	2.7%
50	Thermo Fisher Sci.	Med Supp Non-Invasive	$ 534.78	$ 1.56	0.3%
51	Travelers Cos.	Insurance (Prop/Cas.)	$ 256.83	$ 4.20	1.6%
52	UnitedHealth Group	Medical Services	$ 590.02	$ 8.40	1.4%
53	Verizon Communic.	Telecom. Services	$ 42.08	$ 2.71	6.4%
54	Walmart Inc.	Retail Store	$ 86.92	$ 0.83	1.0%
55	Waste Management	Environmental	$ 220.64	$ 3.00	1.4%
	Average				**2.1%**

(a) Average of closing prices for 30 trading days ended Dec. 6, 2024.
(b) The Value Line Investment Survey, *Summary & Index* (Dec. 13, 2024).

GROWTH RATES

		(a)	(b)	(c)
		Earnings Growth Rates		
	Company	**V Line**	**IBES**	**Zacks**
1	Abbott Labs.	4.00%	8.30%	9.10%
2	AbbVie Inc.	4.00%	6.80%	7.99%
3	Air Products & Chem.	8.50%	6.30%	7.79%
4	Alphabet Inc.	13.50%	21.90%	17.83%
5	Amdocs Ltd.	7.00%	8.00%	9.69%
6	Amgen	4.50%	5.60%	5.75%
7	Apple Inc.	8.50%	14.20%	13.74%
8	AptarGroup	12.50%	10.80%	10.79%
9	Becton, Dickinson	6.50%	8.70%	9.31%
10	Bristol-Myers Squibb	1.00%	-3.90%	4.00%
11	Brown & Brown	12.50%	10.40%	11.62%
12	Brown-Forman 'B'	14.00%	-0.11%	3.78%
13	Church & Dwight	6.50%	9.00%	7.93%
14	Cisco Systems	3.50%	4.00%	4.52%
15	CME Group	6.00%	4.60%	4.24%
16	Coca-Cola	7.00%	5.30%	5.77%
17	Colgate-Palmolive	11.50%	8.90%	7.80%
18	Comcast Corp.	7.50%	7.90%	6.21%
19	Conagra Brands	3.00%	1.60%	3.76%
20	Costco Wholesale	10.00%	9.80%	9.13%
21	Danaher Corp.	2.00%	6.40%	7.25%
22	Electronic Arts	14.00%	12.90%	13.11%
23	Gallagher (Arthur J.)	15.50%	11.20%	11.61%
24	Gen'l Mills	4.50%	3.30%	4.27%
25	Gilead Sciences	2.50%	6.20%	7.37%
26	Hershey Co.	7.00%	-1.80%	4.61%
27	Home Depot	5.50%	3.70%	9.52%
28	Hormel Foods	5.00%	6.20%	5.61%
29	IDEX Corp.	5.00%	12.00%	12.00%
30	Int'l Business Mach.	5.00%	3.80%	4.40%
31	Johnson & Johnson	3.50%	3.00%	5.67%
32	Kimberly-Clark	7.50%	7.20%	6.55%
33	Lilly (Eli)	28.50%	71.70%	20.00%
34	Lockheed Martin	9.50%	4.30%	4.55%
35	Marsh & McLennan	10.00%	9.70%	9.57%
36	McDonald's Corp.	8.50%	4.50%	6.39%
37	McKesson Corp.	10.00%	14.40%	14.14%
38	Merck & Co.	15.50%	90.30%	9.00%
39	Microsoft Corp.	14.50%	14.00%	14.58%
40	Mondelez Int'l	7.50%	5.30%	6.36%
41	NewMarket Corp.	7.50%	n/a	n/a
42	Northrop Grumman	7.50%	8.40%	19.11%
43	PepsiCo, Inc.	12.50%	6.40%	6.58%
44	Procter & Gamble	7.50%	6.50%	6.66%
45	Progressive Corp.	5.00%	40.40%	27.36%
46	Republic Services	24.50%	10.00%	10.48%
47	Roper Tech.	11.00%	8.50%	10.50%
48	Smucker (J.M.)	9.00%	4.50%	3.64%
49	Texas Instruments	7.00%	-2.70%	9.00%
50	Thermo Fisher Sci.	3.00%	6.10%	6.98%
51	Travelers Cos.	6.00%	16.40%	11.20%
52	UnitedHealth Group	12.00%	11.70%	12.34%
53	Verizon Communic.	11.50%	1.10%	2.98%
54	Walmart Inc.	0.50%	10.70%	8.52%
55	Waste Management	9.50%	13.00%	12.98%

(a) www.valueline.com (retrieved Nov. 26, 2024).
(b) LSEG Stock Reports Plus, as provided by fidelity.com (retrieved Nov. 26, 2024).
(c) www.zacks.com (retrieved Nov. 26, 2024).

DCF COST OF EQUITY ESTIMATES

	Company	(a) V Line	(a) IBES	(a) Zacks
1	Abbott Labs.	5.9%	10.2%	11.0%
2	AbbVie Inc.	7.4%	10.2%	11.4%
3	Air Products & Chem.	10.7%	8.5%	10.0%
4	Alphabet Inc.	14.0%	22.4%	18.3%
5	Amdocs Ltd.	9.2%	10.2%	11.9%
6	Amgen	7.6%	8.7%	8.9%
7	Apple Inc.	8.9%	14.6%	14.2%
8	AptarGroup	13.6%	11.9%	11.8%
9	Becton, Dickinson	8.2%	10.4%	11.0%
10	Bristol-Myers Squibb	5.2%	0.3%	8.2%
11	Brown & Brown	13.0%	10.9%	12.2%
12	Brown-Forman 'B'	16.3%	2.1%	6.0%
13	Church & Dwight	7.6%	10.1%	9.0%
14	Cisco Systems	6.3%	6.8%	7.3%
15	CME Group	8.0%	6.6%	6.2%
16	Coca-Cola	10.2%	8.5%	8.9%
17	Colgate-Palmolive	13.6%	11.0%	9.9%
18	Comcast Corp.	10.4%	10.8%	9.1%
19	Conagra Brands	8.1%	6.7%	8.9%
20	Costco Wholesale	10.5%	10.3%	9.7%
21	Danaher Corp.	2.5%	6.9%	7.7%
22	Electronic Arts	14.5%	13.4%	13.6%
23	Gallagher (Arthur J.)	16.3%	12.0%	12.5%
24	Gen'l Mills	8.2%	7.0%	8.0%
25	Gilead Sciences	5.9%	9.6%	10.7%
26	Hershey Co.	10.2%	1.4%	7.8%
27	Home Depot	7.7%	5.9%	11.7%
28	Hormel Foods	8.7%	9.9%	9.3%
29	IDEX Corp.	6.3%	13.3%	13.3%
30	Int'l Business Mach.	8.1%	6.9%	7.5%
31	Johnson & Johnson	6.8%	6.3%	8.9%
32	Kimberly-Clark	11.1%	10.8%	10.2%
33	Lilly (Eli)	29.1%	72.3%	20.6%
34	Lockheed Martin	11.9%	6.7%	7.0%
35	Marsh & McLennan	11.4%	11.1%	11.0%
36	McDonald's Corp.	10.9%	6.9%	8.8%
37	McKesson Corp.	10.5%	14.9%	14.6%
38	Merck & Co.	18.6%	93.4%	12.1%
39	Microsoft Corp.	15.3%	14.8%	15.4%
40	Mondelez Int'l	10.3%	8.1%	9.2%
41	NewMarket Corp.	9.3%	n/a	n/a
42	Northrop Grumman	9.2%	10.1%	20.8%
43	PepsiCo, Inc.	15.9%	9.8%	9.9%
44	Procter & Gamble	9.9%	8.9%	9.0%
45	Progressive Corp.	5.2%	40.6%	27.5%
46	Republic Services	25.6%	11.1%	11.6%
47	Roper Tech.	11.6%	9.1%	11.1%
48	Smucker (J.M.)	12.8%	8.3%	7.4%
49	Texas Instruments	9.7%	0.0%	11.7%
50	Thermo Fisher Sci.	3.3%	6.4%	7.3%
51	Travelers Cos.	7.6%	18.0%	12.8%
52	UnitedHealth Group	13.4%	13.1%	13.8%
53	Verizon Communic.	17.9%	7.5%	9.4%
54	Walmart Inc.	1.5%	11.7%	9.5%
55	Waste Management	10.9%	14.4%	14.3%
	Average (b)	**10.5%**	**10.8%**	**10.5%**

(a) Sum of dividend yield (p. 1) and respective growth rate (p. 2).

(b) Excludes highlighted figures.

HISTORICAL

		Average		9/30/2024		6/30/2024		3/31/2024		12/31/2023	
	Company	**Long-term Debt**	**Common Equity**	**Long-term Debt**	**Common Equity**	**Long-term Debt**	**Common Equity**	**Long-term Debt**	**Common Equity**	**Long-term Debt**	**Common Equity**
1	Atmos Energy Corp.	39.2%	60.8%	39.0%	61.0%	39.0%	61.0%	39.1%	60.9%	39.8%	60.2%
2	Chesapeake Utilities	48.1%	51.9%	46.9%	53.1%	48.0%	52.0%	48.4%	51.6%	49.2%	50.8%
3	New Jersey Resources	58.1%	41.9%	58.2%	41.8%	58.3%	41.7%	56.9%	43.1%	58.9%	41.1%
4	NiSource Inc.	53.6%	45.9%	52.0%	48.0%	56.7%	43.3%	54.5%	45.5%	51.1%	46.7%
5	Northwest Natural	54.2%	45.8%	53.7%	46.3%	53.9%	46.1%	54.0%	46.0%	55.1%	44.9%
6	ONE Gas, Inc.	45.9%	54.1%	45.9%	54.1%	43.2%	56.8%	43.1%	56.9%	51.5%	48.5%
7	Southwest Gas	57.2%	42.8%	54.8%	45.2%	58.1%	41.9%	58.2%	41.8%	57.7%	42.3%
8	Spire Inc.	51.6%	45.0%	51.9%	44.8%	51.1%	45.6%	50.7%	46.1%	52.9%	43.6%
	Low	**39.2%**	**41.9%**	**39.0%**	**41.8%**	**39.0%**	**41.7%**	**39.1%**	**41.8%**	**39.8%**	**41.1%**
	High	**58.1%**	**60.8%**	**58.2%**	**61.0%**	**58.3%**	**61.0%**	**58.2%**	**60.9%**	**58.9%**	**60.2%**
	Average	**50.5%**	**48.5%**	**50.3%**	**49.3%**	**51.0%**	**48.6%**	**50.6%**	**49.0%**	**52.0%**	**47.3%**

Source: Company Form 10-K and 10-Q Reports. The capital structures of NiSource and Spire include preferred stock not included here.

PROJECTED

	Company	Debt	Preferred	Common Equity
1	Atmos Energy Corp.	40.0%	0.0%	60.0%
2	Chesapeake Utilities	48.0%	0.0%	52.0%
3	New Jersey Resources	55.0%	0.0%	45.0%
4	NiSource Inc.	55.0%	0.0%	45.0%
5	Northwest Natural	55.0%	0.0%	45.0%
6	ONE Gas, Inc.	51.0%	0.0%	49.0%
7	Southwest Gas	56.0%	0.0%	44.0%
8	Spire Inc.	51.0%	4.0%	45.0%
	Low	**40.0%**	**0.0%**	**44.0%**
	High	**56.0%**	**4.0%**	**60.0%**
	Average	**51.4%**	**0.5%**	**48.1%**

Source: The Value Line Investment Survey (Nov. 22, 2024).