BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK HILLS NEBRASKA GAS, LLC, D/B/A BLACK HILLS ENERGY, RAPID CITY, SOUTH DAKOTA, SEEKING APPROVAL OF A GENERAL RATE INCREASE	**)**	**APPLICATION NO. NG-124**

REBUTTAL TESTIMONY OF ADRIEN M. MCKENZIE, CFA

ON BEHALF OF BLACK HILLS NEBRASKA GAS, LLC

Date: September 15, 2025

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TABLE OF ABBREVIATIONS AND ACRONYMS

BH Nebraska Gas or Company	Black Hills Nebraska Gas LLC d/b/a Black Hills Energy
BHC	Black Hills Corporation
CAPM	Capital Asset Pricing Model
Chesapeake Utilities	Chesapeake Utilities Corporation
Commission	Nebraska Public Service Commission
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.
GDP	Gross Domestic Product
Moody's	Moody's Investors Service
PA	Nebraska Public Advocate
ROE	Return on Equity
RRA	S&P Global Market Intelligence, *RRA Regulatory Focus*
S&P	S&P Global Ratings
Value Line	The Value Line Investment Survey
Zacks	Zacks Investment Research, Inc.

REBUTTAL TESTIMONY OF ADRIEN M. MCKENZIE, CFA

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 Street, 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 BH Nebraska Gas.

Q. ARE YOU THE SAME ADRIEN M. MCKENZIE THAT PREVIOUSLY SUBMITTED PREFILED DIRECT TESTIMONY IN THIS CASE?

A. Yes, I am.

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

A. My testimony addresses the testimony of Dr. S. Keith Berry, submitted on behalf of the PA, concerning a just and reasonable ROE applicable to BH Nebraska Gas. In addition, I address Dr. Berry's capital structure comments.

Q. HOW IS YOUR REBUTTAL TESTIMONY ORGANIZED?

A. After summarizing my findings and conclusions, I discuss Dr. Berry's ROE recommendation in a basic common-sense framework and present comparable ROE benchmarks that provide a basis to gauge the reasonableness of his recommendation. My discussion addresses recent changes in capital market conditions—in particular, the significant increase in interest rates—and the implications of these developments in evaluating the reasonableness of Dr. Berry's recommendation. My testimony then addresses the methodological shortcomings

associated with the ROE analyses of Dr. Berry. Finally, I discuss Dr. Berry's capital structure comments.

A. Overview and Summary

Q. PLEASE SUMMARIZE DR. BERRY'S ROE RECOMMENDATION.

A. PA witness Berry recommends an ROE of 9.42% for BH Nebraska Gas.[1] He arrives at his recommendation by considering the results of DCF models that produce an average ROE of 8.68%, CAPM analyses that yield an average ROE of 10.11%, an application of the risk premium approach which generates ROE estimates in a range of 10.41% to 10.64%, and an expected earnings model that indicates an ROE of 8.85%.[2] PA witness Berry weights his ROE results by 50% (DCF), 25% (CAPM), 20% (risk premium) and 5% (expected earnings) in order to arrive at his final ROE recommendation of 9.42%.[3]

Q. WHAT ARE THE PRINCIPAL CONCLUSIONS OF YOUR REBUTTAL TESTIMONY?

A. Dr. Berry's ROE recommendation falls below a fair and reasonable level for the Company's utility operations. My rebuttal testimony demonstrates that:

- Dr. Berry's ROE recommendation falls below accepted benchmarks.
- Despite the fact that capital costs have increased since BH Nebraska Gas's last rate proceeding, PA is recommending a reduction in the Company's ROE, which would violate economic and regulatory standards.
- BH Nebraska Gas must be granted an opportunity to earn a return that is competitive with other utilities and reflects a significant increase in long-term capital costs. Consideration of current interest rates and allowed ROEs demonstrates that Dr. Berry's ROE recommendation is far too low as evidenced by the following:

[1] Berry Direct at 5.
[2] *Id.* at 13, 15-16, 18.
[3] *Id.* at 19.

- Significantly higher bond yields indicate that the cost of equity is higher now than in January 2021 when BH Nebraska Gas's current ROE of 9.50% was established.
- Adjusting national average allowed ROEs for 2020-2025Q2 to account for the recent rise in bond yields implies a current cost of equity of 10.36%.
- Consideration of authorized ROEs during 2004 to 2007 and 2010 when utility bond yields were comparable to current levels implies an ROE of 10.42% for BH Nebraska Gas.
- Adjusting Dr. Berry's recommendation in the Company's last Nebraska rate proceeding to reflect the increase in bond yields implies a current ROE of 10.85%.
- Adjusting BH Nebraska Gas's currently authorized ROE to recognize that interest rates are now higher implies a current cost of equity of 11.09%.
- Expected earned returns for the utilities in Dr. Berry's proxy group suggest an average ROE of 10.06% for BH Nebraska Gas.

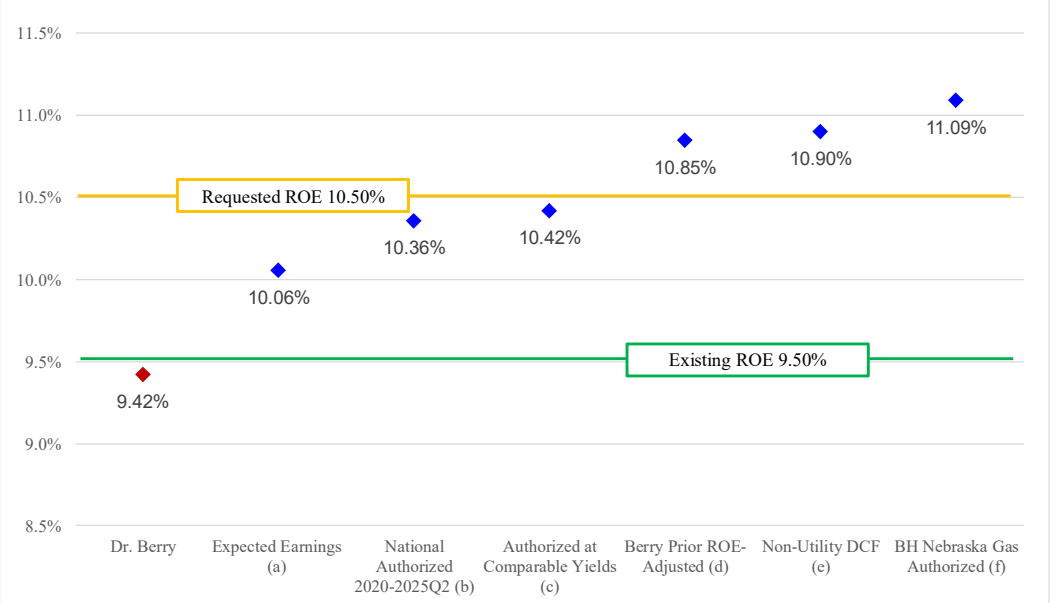
- Numerous flaws undermine the ROE analyses of PA witness Berry, including:
  - Reliance on data that fails to reflect investors' expectations and current capital market conditions;
  - Application of financial models in a manner that is inconsistent with their underlying assumptions;
  - Reference to long-term forecasts of GDP in developing his expectations for utilities; and
  - Applications of the CAPM that fail to capture a realistic appraisal of investors' forward-looking expectations and ignore the implications of firm size, which biases the resulting cost of equity estimates downward.

Taken as a whole, these shortcomings ensure that Dr. Berry's recommended ROE falls well below a fair and reasonable level for BH Nebraska Gas. Finally, Dr. Berry's criticisms of my DCF growth rates, illogical ROE screen, CAPM size adjustment, market return calculation, ECAPM and non-utility DCF benchmark are without merit.

Q. CAN YOU SUMMARIZE HOW DR. BERRY'S ROE RECOMMENDATION STACKS UP AGAINST COMPARABLE BENCHMARKS?

A. Yes. Figure 1 below compares Dr. Berry's 9.42% recommendation to key benchmarks supported in my rebuttal testimony.

FIGURE 1
PA RECOMMENDATION VS. COMPARABLE BENCHMARKS



(a) Expected earned rates of return for proxy group used by Dr. Berry from Exhibit AMM-15.
(b) Average of national authorized ROEs for 2020-2025Q2 adjusted for current interest rates from Exhibit AMM-13.
(c) Average authorized ROE under comparable capital market conditions from Table 3.
(d) Dr. Berry's ROE recommendation from Application No. NG-109 adjusted for changes in bond yields from Exhibit AMM-12.
(e) Average DCF cost of equity for Non-Utility Group from Exhibit AMM-10.
(f) Commission approved ROE from Application No. NG-109 adjusted for current interest rates from Exhibit AMM-14.

These benchmarks illustrate that Dr. Berry's ROE recommendation is simply too low and violates the economic and regulatory standards underlying a fair ROE.

B. Dr. Berry's Recommended ROE Violates Economic Logic

Q. WHAT IS THE BASIC CONCEPTUAL FRAMEWORK UNDERLYING THE COST OF CAPITAL?

A. The cost of equity is an "opportunity cost," meaning that investors look at other options they have in the capital markets in order to determine the cost they require to invest in common equity, including gas utilities like BH Nebraska Gas. When the returns available from other opportunities—like utility bonds—move higher, investors naturally demand a higher return for common stocks as well. The cost of equity is higher than the yield on utility bonds because the risks of common stocks are much higher than bonds, but the cost of equity and the cost of long-term debt move in the same direction.[4]

Q. ARE THERE AVAILABLE BENCHMARKS FOR GENERAL CHANGES IN CAPITAL COSTS?

A. Yes. Yields on 30-year Treasury bonds are generally accepted as a guide to the risk-free rate. While yields on long-term Treasury bonds can be impacted by monetary policy (*e.g.*, quantitative easing) or a flight to safety in times of turmoil, they provide an observable benchmark for underlying trends in capital costs. Similarly, utility bonds are actively traded in the debt markets and the resulting yields offer a touchstone for the direction and magnitude of the return utilities must offer to attract capital. Although not specific to long-term capital costs, the target range for the Federal Funds rate established by the Federal Reserve is also widely followed by investors as a metric for monetary policies and underlying capital market conditions.

Finally, while there is no single expected inflation rate that applies to all financial assets, investors' long-term inflation expectations can be inferred from the

[4] This is no different than the interest rates on car loans or home mortgages, which generally move in the same direction as market yields on other financial instruments, such as Treasury bonds.

published yields on Treasury Inflation-Protected Securities ("TIPS"). Whereas yields on conventional Treasury bonds must compensate investors for any expected erosion in purchasing power due to inflation, buyers of TIPS need not worry about future inflation, because the principal and interest payments are both indexed to inflation. As a result, the yield difference between conventional and inflation-protected Treasuries of a given maturity provides a gauge of the future inflation rate expected by market participants.

Q. HOW HAVE THESE KEY INDICATORS OF CAPITAL COSTS TRENDED SINCE THE COMPANY'S LAST BASE-RATE PROCEEDING?

A. Table 1 below illustrates the changes in key capital cost indicators that have taken place since the Commission approved BH Nebraska Gas's current ROE of 9.50% in 2021.[5]

TABLE 1
KEY CAPITAL COST INDICATORS

	Jan. 2021	Jul. 2025	Change (bp)
Bond Yields			
10-Yr. Treasury Yield	1.08%	4.39%	331
30-Yr. Treasury Yield	1.82%	4.92%	310
Baa Utility Bond Yield	3.18%	6.08%	290
Average	**2.03%**	**5.13%**	**310**
Federal Funds Rate	**0.13%**	**4.38%**	**425**
TIPS Implied Inflation	**2.34%**	**2.65%**	**31**

Sources: https://fred.stlouisfed.org/; Moody's Investors Service; https://www.federalreserve.gov/monetarypolicy.htm.

As shown above, key interest rate benchmarks indicate that investors' required return on debt securities has increased on the order of 290 to 331 basis

[5] *In the Matter of the Application of Black Hills Nebraska Gas, LLC, d/b/a Black Hills Energy, Rapid City, South Dakota Seeking Approval of a General Rate Increase*, Application No. NG-109, Order Approving Stipulation and Settlement Agreement (Jan. 26, 2021).

points. The midpoint of the Federal Reserve's target range for the Federal Funds rate has increased by 425 basis points, while the expected long-term inflation rate has increased 31 basis points.

Q. WHAT IS THE OBVIOUS CONCLUSION FROM THIS OBSERVABLE EVIDENCE?

A. This objective evidence conclusively demonstrates that the cost of capital—both debt and equity—has increased significantly since BH Nebraska Gas's last base-rate proceeding. Indeed, the yield on Baa-rated utility bonds is now 290 basis points higher than over the time period in which BH Nebraska Gas's current 9.50% ROE was decided.

Q. HAS THERE BEEN ANY CHANGE IN THE RISKS OF UTILITIES OR BH NEBRASKA GAS THAT MIGHT OFFSET THIS CLEAR UPWARD MOVE IN THE COST OF CAPITAL?

A. No. My direct testimony documented the increasing challenges faced by electric and gas utilities,[6] with S&P revising its outlook on the utility sector to "negative" in February 2024, 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."[7] Similarly, Fitch concluded that its "deteriorating outlook" for the utility sector "reflects continuing macroeconomic headwinds and elevated capex that are putting pressure on credit metrics in the high-cost funding environment."[8] There is no evidence that the significant increase in capital costs since Application No. NG-109 has been mitigated by declining risk in the utility industry generally, or for BH Nebraska Gas specifically.

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[6] McKenzie Direct at 6-12.

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

[8] Fitch Ratings, Inc., *North American Utilities, Power & Gas Outlook 2024* (Dec. 6, 2023).

Q. DOES DR. BERRY'S ROE RECOMMENDATION FOR BH NEBRASKA GAS MAKE SENSE IN LIGHT OF THE INCREASE IN CAPITAL COSTS?

A. No. Despite observable evidence documenting a significant increase in capital costs, PA is recommending that the Company's authorized ROE should be lowered. It is inconceivable that BH Nebraska Gas's ROE could have *fallen* 8 basis points over a period when yields on Baa-rated utility bonds have *increased* 290 basis points. If 9.50% was a fair ROE for BH Nebraska Gas in January 2021, then it stands to reason that a just and reasonable ROE for the Company is now significantly higher. While the cost of equity does not move one-for-one in lockstep with interest rates, all available evidence indicates that utility ROEs exhibit a strong positive correlation with bond yields.[9] The fact that Dr. Berry is recommending a decrease in BH Nebraska Gas's ROE when capital costs have substantially increased indicates that his recommendation violates fundamental principles of finance and the basic, common-sense relationship between interest rates, inflation, and the cost of equity.

Q. DO DR. BERRY'S ROE APPROACHES CONFIRM THAT BOND YIELDS AND THE COST OF EQUITY MOVE TOGETHER?

A. Yes. Dr. Berry references risk premium models based on authorized ROEs and utility and Treasury bond yields. In each of his models, as utility bond yields increase, so does the implied cost of equity.[10] Also, in the CAPM model used by Dr. Berry, long-term Treasury yields and the resulting cost of equity from this model are positively correlated. In other words, when Treasury yields increase, the ROE from Dr. Berry's CAPM models increases, all else equal. Dr. Berry clearly recognizes that the cost of equity and bond yields are directly linked.

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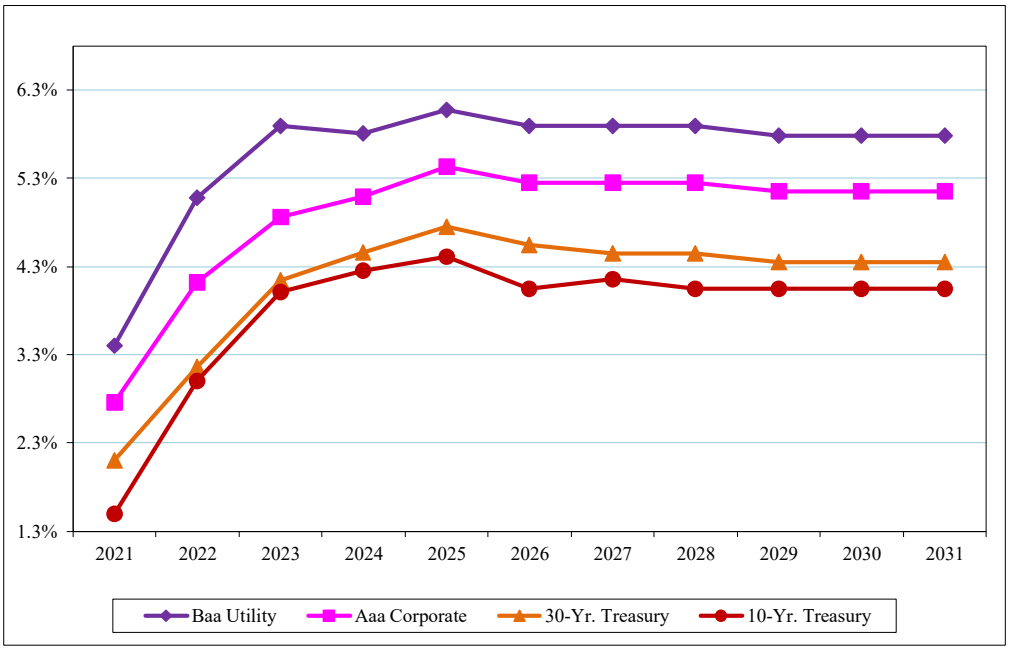
[9] This fact is confirmed by my utility risk premium study, as well as PA's risk premium analysis. *See* Exhibit AMM-8; Berry Direct at 16.

[10] Berry Direct at 15-16. When Dr. Berry's RP_1, RP_2 and Morin RP equations are substituted into his equation (7), it can be seen that the cost of equity (K_e) increases with bond yields.

Q. DO INVESTORS EXPECT BOND YIELDS TO FALL OVER THE NEAR TERM?

A. No. As illustrated in Figure 2 below, the most recent long-term consensus projections from top economists published by Blue Chip document that bond yields are expected to remain elevated when compared to recent historical levels.

FIGURE 2
HISTORIC AND PROJECTED INTEREST RATES



Source: Wolters Kluwer, Blue Chip Financial Forecasts (Jun. 2, 2025); Moody's Investors Service; https://fred.stlouis.org/.

This evidence shows that long-term capital costs—including the ROE—have increased substantially and that investors can reasonably expect capital costs to be sustained at least through 2031. Dr. Berry's ROE recommendation fails to account for these realities.

Q. THE FEDERAL RESERVE IS EXPECTED TO LOWER THE TARGET RANGE FOR THE FEDERAL FUNDS RATE AT ITS MEETING IN SEPTEMBER, 2025. DOES THIS CHANGE YOUR CONCLUSION THAT THE COST OF EQUITY IS NOW SIGNIFICANTLY HIGHER THAN IT WAS IN JANUARY 2021?

A. No. Current bond yields embody the market's expectations of future events, including Federal Reserve monetary policy and inflation trends. For example, 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.[11]

Consistent with the expectations documented in the reporting above, bond yields showed no signs of substantial movement around the time of the rate cuts last year, as would otherwise be expected if the Federal Reserve's actions were not anticipated. Similarly, the forecasts of leading economists presented in Figure 2 also consider expectations for future changes in Federal Reserve monetary policies.

Long-term interest rates and capital cost are also influenced by a host of considerations beyond the Federal Funds rate, which is an overnight lending rate between banks. For example, Moody's noted the potential for higher broad-based tariffs on imports and deficit-financed tax cuts to "result in some combination of higher inflation and interest rates."[12] There is no indication that a possible cut in the Federal Funds rate will lead to a significant reduction in long-term capital costs,

[11] 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).

[12] Moody's Investors Service, *Trump Take Two (Take Two)*, Economic View (Nov. 19, 2024).

but in any event the impact would be dwarfed by the increase in key interest rate benchmarks documented in Table 1.

Q. WHAT DO THE FACTS INDICATE WITH REGARD TO MR. BERRY'S ROE RECOMMENDATION?

A. In light of trends in recognized capital cost benchmarks, Dr. Berry's ROE recommendation is demonstrably insufficient. BH Nebraska Gas is currently authorized an ROE of 9.50%. But, despite the fact that interest rates have increased 310 basis points on average, and inflation has also increased since Application No. NG-109—which means the cost of equity has climbed—Dr. Berry is arguing that BH Nebraska Gas's ROE has declined 8 basis points. Such an outcome defies common sense and violates accepted principles of finance. The Commission should reject Dr. Berry's ROE recommendation on this basis.

Q. DOES REFERENCE TO DR. BERRY'S PRIOR ROE TESTIMONY DRIVE HOME THIS POINT?

A. Yes. The table below compares Dr. Berry's 2020 ROE recommendation for BH Nebraska Gas with his recommendation in this case.

TABLE 2
COMPARISON OF BERRY ROE RECOMMENDATIONS

Date	Berry ROE	Baa Utility Yield	30-Year Gov't Yield
Sep-20	8.97%	3.06%	1.36%
Aug-25	9.42%	6.08%	4.92%
Change	**0.45%**	**3.02%**	**3.56%**

Note: Utility and Treasury bond yields are from the month prior to Dr. Berry's ROE recommendations. Moody's Investors Service; https://fred.stlouisfed.org/.

As shown above, in September 2020 Dr. Berry recommended an 8.97% ROE for BH Nebraska Gas when the average yield on Baa utility bonds was 3.06%

and the average yield on 30-year Treasury bonds was 1.36%.[13] Despite the fact that utility and Treasury bond yields have increased 302 and 356 basis points, respectively, Dr. Berry's ROE recommendation for BH Nebraska Gas is only 45 basis points higher. This further illustrates that Dr. Berry's ROE recommendation in this case is untethered from basic principles of economic logic and should be rejected.

Q. DOES REFERENCE TO DR. BERRY'S RISK PREMIUM MODELS FURTHER ILLUSTRATE THE DISCONNECT BETWEEN HIS ROE RECOMMENDATION AND BOND YIELDS?

A. Yes. For example, Dr. Berry presents three risk premium equations demonstrating that the cost of equity increases with bond yields,[14] but by a fraction of the bond yield change, which is consistent with my analysis. In Rebuttal Exhibit AMM-12, I use Dr. Berry's own risk premium models to adjust his prior 8.97% recommendation for BH Nebraska Gas in order to account for the increase in interest rates that has occurred since he made his recommendation in September 2020. Starting with Dr. Berry's recommendation of 8.97% for BH Nebraska Gas in September 2020 and then adjusting that recommendation to account for higher interest rates, Dr. Berry's own risk premium models imply current ROEs in a range of 10.60% to 11.14%. The analysis in Rebuttal Exhibit AMM-12 demonstrates that Dr. Berry's recommended ROE of 9.42% in this case is far too low, and it supports my 10.50% recommendation for BH Nebraska Gas.

[13] *In the Matter of the Application of Black Hills Nebraska Gas, LLC, d/b/a Black Hills Energy, Rapid City, South Dakota Seeking Approval of a General Rate Increase*, Application No. NG-109, Direct Testimony and Exhibits of S. Keith Berry, PhD (Sep. 14, 2020).

[14] Berry Direct at 16.

C. Dr. Berry's Recommended ROE Violates Regulatory Standards

Q. DO ALLOWED ROES PROVIDE A BENCHMARK TO EVALUATE WHETHER DR. BERRY'S ROE RECOMMENDATION IS SUFFICIENT TO MEET REGULATORY STANDARDS?

A. Yes. Allowed ROEs provide a gauge of reasonableness for the outcome of a cost of equity analysis. In considering utilities with comparable risks, investors will always seek to provide capital to the opportunity with the highest expected return. If a utility is unable to offer a return similar to that available from other investment opportunities of comparable risks, investors will become unwilling to supply the utility with capital on reasonable terms.

Q. DO HISTORICAL ALLOWED ROES PROVIDE A DIRECT GUIDE TO A FAIR ROE FOR BH NEBRASKA GAS UNDER CURRENT CAPITAL MARKET CONDITIONS?

A. No. Prior ROE findings must be viewed in the context of the capital market conditions that existed at the time those cases were before the respective regulators. As noted earlier, when bond yields move higher, investors naturally demand a higher return for common stocks as well. Looking backwards to historical allowed ROEs that were established when long-term bond yields were significantly lower ignores accepted financial principles. Value Line recently highlighted this disconnect:

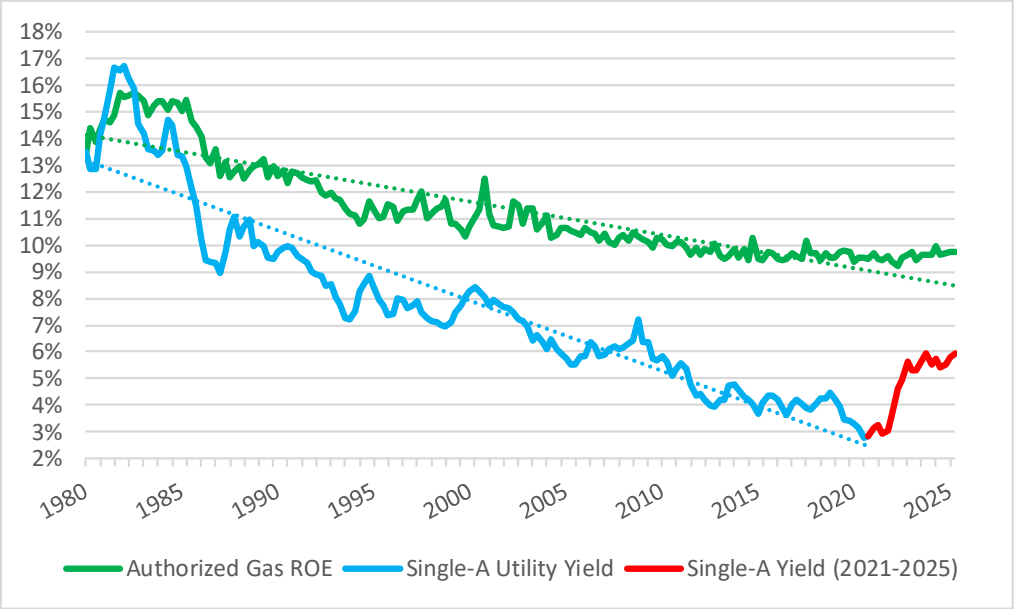
> Another difficulty is the level of authorized return on equity (ROE) that's set by politically motivated regulators. Commissioners are often looking back to a time of historically low interest rates and using that period to set present returns.[15]

The disconnect between historically allowed ROEs and the recent increase in capital costs observed by Value Line is illustrated in the figure below. As shown there, authorized ROEs declined steadily until 2020, in line with falling interest

[15] The Value Line Investment Survey, *Electric Utility (East) Industry* (Feb. 7, 2025).

rates. While the decline in ROEs was more gradual than the decrease in bond yields, this is to be expected. As noted in my direct testimony and discussed in greater detail below, financial research supports the conclusion that equity risk premiums rise as bond yields decline, which partially offsets the decline in capital costs measured by changes in interest rates.[16]

FIGURE 3
TRENDS IN AUTHORIZED GAS ROES AND BOND YIELDS



Source: Allowed ROEs from Exhibit AMM-8, pages 2-4, updated to reflect data through Q2 2025. Single-A utility bond yields from Moody's Investors Service.

As the chart above demonstrates, the upward shift in capital costs that began in 2022 has been swift and dramatic. While it took 22 years for interest rates to fall by one-half,[17] the single-A utility bond yield more than doubled in just 22 months.[18] Figure 3 also clearly shows that although allowed ROEs have made a modest move

[16] This is also consistent with the findings of Dr. Berry's risk premium analyses. *See,* Berry Direct at 16.
[17] In 1990 the average yield on single-A utility bonds was 9.86%. It wasn't until 2012 that the average yield fell below 4.93%.
[18] During December 2021, the yield on single-A utility bonds averaged 3.04%, while in October 2023 they averaged 6.34%.

upward, they do not yet reflect the sharp increase in utility bond yields that has occurred since early 2022.

The investment community has highlighted this disparity. As S&P Global Market Intelligence noted:

> The first nine months of 2024 saw a slight uptick in the average authorized ROEs for electric and gas utilities, influenced by the higher-interest-rate environment. However, the effect of interest rate increases on authorized returns has not been proportional, as regulators are slower to adjust ROEs upward than downward. Additionally, affordability concerns persist as regulators navigate customer rate hikes due to significant but necessary capital investment in the energy transition amid inflationary pressures.[19]

Similarly, a Wall Street Journal article highlighted the cost pressures faced by utilities and noted that, "Investors should exercise caution when picking up utility stocks."[20] As the article observed, "[h]igher interest rates haven't only increased debt-financing costs for utility companies but also raised the cost of capital that they are expected to deliver." Meanwhile, Value Line noted that historical allowed ROEs are "based on a historically low and now out-of-date cost of capital."[21] Value Line recently advised electric utility investors that, "We recommend that new commitments only be made on individual stocks when the midpoint of our annual total return projection is at 11% or better."[22]

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[19] S&P Global Market Intelligence, *Major energy rate case decisions in the US – January-September 2024*, Regulatory Focus (Oct. 30, 2024).

[20] Jinjoo Lee, *Utilities Get an Inflation Shock,* Wall Street Journal (Jan. 3, 2024). https://www.wsj.com/finance/investing/utilities-get-an-inflation-shock-cb821c4e (last visited Aug. 28, 2025).

[21] The Value Line Investment Survey, *Electric Utility (East) Industry* (May 10, 2024).

[22] The Value Line Investment Survey, *Electric Utility (East) Industry* (May 9, 2025).

Q. WHAT IS THE OBVIOUS CONCLUSION FROM THIS OBSERVABLE EVIDENCE?

A. This objective evidence conclusively demonstrates that the cost of capital—both debt and equity—has increased significantly, and that allowed ROEs have failed to keep pace.

Nonetheless, S&P Global Market Intelligence recently reported that authorized ROEs for all gas utilities averaged 9.72% during 2024 in the first half of 2025.[23] In considering utilities with comparable risks, investors will always seek to provide capital to the opportunity with the highest expected return. If a utility is unable to offer a return similar to that available from other investment opportunities of equivalent risks, investors will become unwilling to supply the utility with capital on reasonable terms. Recent authorized returns for other natural gas utilities demonstrate that Dr. Berry's ROE recommendation is too low.

Q. AFTER ADJUSTING FOR CURRENT FINANCIAL MARKET CONDITIONS, WHAT DOES A COMPARISON WITH RECENT ALLOWED ROES INDICATE WITH RESPECT TO DR. BERRY'S RECOMMENDATIONS?

A. It demonstrates that his 9.42% ROE recommendation significantly understates BH Nebraska Gas's cost of equity in today's capital markets. This is shown on Rebuttal Exhibit AMM-13. There I subtract the average Single-A utility bond yield corresponding to the average ROEs approved nationally for natural gas utilities from 2020 to 2025 Q2 to compute the implied risk premium. As discussed in my direct testimony, the equity risk premium expands as interest rates decline and contracts as interest rates rise,[24] and this finding is corroborated by Dr. Berry.[25]

[23] S&P Global Market Intelligence, *Major energy rate case decisions in US* (Jul. 25, 2025).
[24] McKenzie Direct at 45-46.
[25] Berry Direct at 16.

Accordingly, I adjusted the historical risk premium downward to reflect the fact that interest rates are now higher than those corresponding to the average allowed ROEs.

As shown on Rebuttal Exhibit AMM-13, adjusting historical average allowed ROEs from 2020 to 2025Q2 to reflect current capital market conditions results in an implied cost of equity of 10.36% for all gas utilities. This confirms that Dr. Berry's ROE recommendation is insufficient.

Q. BH NEBRASKA GAS IS CURRENTLY AUTHORIZED AN ROE OF 9.50%.[26] WHAT WOULD THIS AUTHORIZED ROE EQUATE TO IN TODAY'S CAPITAL MARKETS?

A. After adjusting for current financial market conditions, BH Nebraska Gas's currently approved ROE of 9.50%, which was authorized in January 2021, would be substantially higher. The calculation supporting this conclusion is presented on Rebuttal Exhibit AMM-14. The average yield on single-A utility bonds during BH Nebraska Gas's last base-rate proceeding was 2.86%, and it is now 5.88%. Adding the adjusted risk premium of 5.21% to the average single-A utility bond yield in July 2025 of 5.88% results in an implied cost of equity of 11.09% for BH Nebraska Gas in today's capital markets.[27] This benchmark calculation further reinforces the point that PA's ROE recommendation for the Company is below a reasonable level, and it supports my 10.50% recommended ROE.

[26] *In the Matter of the Application of Black Hills Nebraska Gas, LLC, d/b/a Black Hills Energy, Rapid City, South Dakota Seeking Approval of a General Rate Increase*, Application No. NG-109, Order Approving Stipulation and Settlement Agreement (Jan. 26, 2021).

[27] Considering that BHC is rated triple-B, reference to single-A utility bond yields understates the cost of equity to the Company.

Q. SINGLE-A UTILITY BOND YIELDS AVERAGED 5.88% IN JULY 2025. WHAT ROES WERE AUTHORIZED HISTORICALLY WHEN UTILITY BOND YIELDS WERE AT PRESENT LEVELS?

A. As shown in the Table 3 below, single-A utility bonds averaged 5.87% in various quarters during 2004 to 2007 and 2010, and the average authorized ROE for gas utilities was 10.42% over these same quarters.

TABLE 3
ELECTRIC ROES AND UTILITY BOND YIELDS

Year	Qtr.	Average Authorized Gas ROE	Average Single-A Utility Bond
2004	4	10.66%	5.94%
2005	4	10.40%	5.82%
2006	1	10.63%	5.85%
2006	4	10.14%	5.86%
2007	1	10.44%	5.90%
2010	1	10.24%	5.83%
Average		**10.42%**	**5.87%**

Source: McKenzie Direct, Exhibit AMM-8 at 3; Moody's Investors Service.

This evidence supports my 10.50% ROE recommendation and further demonstrates that Dr. Berry's recommended ROE is understated.

Q. WHAT OTHER BENCHMARK INDICATES THAT DR. BERRY'S ROE RECOMMENDATION IS TOO LOW?

A. Expected earned rates of return for other utilities provide another useful benchmark of reasonableness. The expected earnings approach is predicated on the comparable earnings test, which was developed as a direct result of the Supreme Court decisions in *Bluefield*[28] and *Hope*.[29] This test recognizes that investors

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

compare the allowed ROE with returns available from other alternatives of comparable risk.[30]

Importantly, the expected earnings approach explicitly recognizes that regulators do not set the returns that investors earn in the capital markets. Regulators can only establish the allowed return on the value of a utility's investment, as reflected on its accounting records. As a result, the expected earnings approach provides a direct guide to ensure that the allowed ROE is similar to what other utilities of comparable risk will earn on invested capital. This opportunity cost 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. HAS THE EXPECTED EARNINGS (OR COMPARABLE EARNINGS) APPROACH BEEN RECOGNIZED AS A VALID ROE BENCHMARK?

A. Yes. This method predominated before the DCF model was widely adopted by academic experts, and it has long been referenced and relied on in regulatory proceedings.[31] For example, in approving an ROE for electric utility operations, the North Carolina Utilities Commission concluded that:

> In prior cases, the Commission has given significant weight to the results of the Expected Earnings methodology, which stands separate and apart from the market-based methodologies (e.g., the

[30] I refer to the comparable earnings and expected earnings methods interchangeably in this testimony. While comparable earnings methods tend to rely on historical data and expected earnings methods rely on projected data, the underlying principles are similar in both approaches.

[31] *See, e.g.,* Nat'l Ass'n of Regulatory Util. Comm'rs, *Utility Regulatory Policy in the U.S. and Canada, 1995-1996* (Dec. 1996).

DCF or CAPM) also used by ROE experts. The Commission chooses to do so again in this case.[32]

Similarly, the Ohio Public Utility Commission is required by statute to consider prospective earned rates of return in evaluating the impact of electric security plans.[33]

As S&P observed, "[h]istorically, there have been two approaches in calculating ROE in regulatory proceedings, a comparable earnings approach and a market analysis. In a comparable earnings approach, similar investments with similar risks are analyzed to determine an appropriate ROE."[34] A textbook prepared for the Society of Utility and Regulatory Financial Analysts points out that the comparable earnings method is firmly anchored in the regulatory tradition of the *Bluefield* and *Hope* cases, as well as sound regulatory economics.[35] Similarly, *New Regulatory Finance* concludes that, "because the investment base for ratemaking purposes is expressed in book value terms, a rate of return on book value, as is the case with Comparable Earnings, is highly meaningful."[36]

Q. WHAT ROES ARE IMPLIED BY THE EXPECTED EARNINGS APPROACH FOR DR. BERRY'S PROXY GROUPS?

A. As shown on Rebuttal Exhibit AMM-15, reference to expected earnings implies an annual average cost of equity for Dr. Berry's proxy group of 10.1%, once adjusted to a mid-year basis. This ROE value provides another indication that Dr. Berry's recommendation is inadequate.

[32] North Carolina Utilities Commission, Docket No. E-7, SUB 1187, *et al.*, *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* (Mar. 31, 2021) at 94.
[33] Ohio R.C. 4928.143(E).
[34] S&P Global Market Intelligence, *The rate case process: establishing a fair return for regulated utilities*, RRA Regulatory Focus (Jun. 29, 2020).
[35] David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (2010) at 115-16.
[36] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 395.

Q. WHAT OTHER EVIDENCE INDICATES THAT DR. BERRY'S RECOMMENDED ROES FAIL TO MEET REGULATORY STANDARDS?

A. As discussed in my direct testimony,[37] expected rates of return for firms in the competitive sector of the economy are also relevant in determining an appropriate allowed ROE for rate-setting purposes. The idea that investors evaluate utilities against the returns available from other investment alternatives—including the low-risk companies in my non-utility proxy group—is a fundamental cornerstone of modern financial theory. Aside from this theoretical underpinning, any casual observer of stock market commentary and the investment media quickly realizes that investors' choices are almost limitless. It follows that utilities must offer a return that can compete with other risk-comparable alternatives, or capital will simply go elsewhere.

In fact, returns in the competitive sector of the economy form the very foundation for utility ROEs, because regulation purports to serve as a substitute for the actions of competitive markets. The Supreme Court has recognized in *Hope* that the degree of risk, not the nature of the business, is relevant in evaluating an allowed ROE for a utility.[38] The cost of capital is an opportunity cost based on the returns that investors could realize by putting their money in other alternatives, and the total capital invested in utility stocks is only the tip of the iceberg of total common stock investment.

Q. WHAT WERE THE RESULTS OF YOUR ROE ANALYSIS FOR THE NON-UTILITY GROUP?

A. As shown on page 3 of Exhibit AMM-10 to my direct testimony, the ROEs for the Non-Utility Group reported in my direct testimony range from 10.4% to 11.5% and

[37] McKenzie Direct at 49-53.

[38] *Hope*, 320 U.S. at 603 ("[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.").

average 10.9%. Considering that a comparison of objective risk indicators shows my Non-Utility Group to be less risky than the Gas Group and BHC,[39] this guideline also confirms that Dr. Berry's ROE recommendation is too low.

Q. WHAT DO THESE BENCHMARKS YOU DISCUSS IMPLY WITH RESPECT TO DR. BERRY'S ROE RECOMMENDATION?

A. Based on these comparisons, Dr. Berry's ROE recommendation is well below a reasonable estimate of BH Nebraska Gas's cost of equity.

II. RESPONSE TO PA WITNESS BERRY'S ROE ANALYSES

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

A. My purpose here is to address Dr. Berry's evaluation of a fair ROE for BH Nebraska Gas.

Q. WHAT ARE YOUR PRINCIPAL CONCLUSIONS REGARDING THE RECOMMENDATION OF DR. BERRY?

A. I demonstrate that Dr. Berry's ROE 9.42% ROE recommendation is severely downward-biased and should be ignored. As discussed in my rebuttal testimony:

- BH Nebraska Gas must be granted an opportunity to earn a return that is competitive with other utilities and reflects a significant increase in long-term capital costs. Consideration of current interest rates and the ROE for other utilities demonstrate that Mr. Berry's ROE recommendation is far too low.
    - Significantly higher bond yields indicate that the cost of equity is higher now than at the time of BH Nebraska Gas' last rate proceeding.
    - Adjusting national average allowed ROEs for 2020-2025Q2 to account for the rise in bond yields implies a current cost of equity on the order of 10.4%.

[39] McKenzie Direct at Table AMM-5.

- Adjusting the Company's prior ROE authorized by the Commission for current bond yields implies a cost of equity of 11.1%.
- Reference to prior authorized ROEs during periods of comparable bond yields implies a fair ROE of 10.4%.

- There is no basis to assume that investors reference long-term forecasts of GDP in developing their expectations for gas utilities and Dr. Berry's reliance on this data undermines the reliability of his DCF results.
- The growth rates used in Dr. Berry's DCF analysis contains several additional flaws, including an improper focus on historical results, reference to DPS growth rates, a failure to convert his "br+sv" analysis to an average-equity basis.
- Dr. Berry makes no attempt to eliminate illogical data in applying the DCF model. As a result, his conclusions are downward biased, unreliable, and should be ignored.
- Dr. Berry's CAPM results are unreliable and downwardly biased due to his reliance on flawed, backward looking data in one application, and GDP growth as a limiting factor in determining the market return component in the other. His rejection of a legitimate size adjustment further weakens his CAPM analysis.
- The weights Dr. Berry assigns to his model results are arbitrary and unsupported.

Dr. Berry's analyses are also deficient because he ignores the ECAPM and his expected earnings approach is misapplied. His criticisms of my non-utility DCF analysis are without merit. Taken as a whole, these shortcomings ensure that Dr. Berry's recommended ROE falls well below a fair and reasonable level for BH Nebraska Gas's utility operations.

Q. HOW DOES PA WITNESS BERRY ARRIVE AT HIS 9.42% RECOMMENDED ROE FOR BH NEBRASKA GAS?

A. Dr. Berry conducts DCF, CAPM, risk premium and expected earnings analyses that support ROE estimates of 8.68%, 10.11%, 10.54% and 8.85%, respectively.[40] Dr. Berry weights these results by 50% (DCF), 25% (CAPM) 20% (risk premium) and

[40] Berry Direct at Table 3.

5% (expected earnings) in order to arrive at his 9.42% ROE recommendation for the Company.[41] Dr. Berry states that, "I put more weight on the DCF method because my opinion is that its inputs are more reliable than the CAPM, RP and EE methods."[42]

Q. DOES DR. BERRY CITE ANY OBJECTIVE EVIDENCE THAT WOULD SUPPORT HIS CLAIM THAT DCF INPUTS ARE MORE RELIABLE THAN THE INPUTS FOR HIS OTHER MODELS?

A. No. Beyond the statement quoted above, Dr. Berry does not explain why he considers DCF model inputs to be more reliable than CAPM, risk premium or expected earnings model inputs, and he also presents no evidence to support his assertion.

Q. HAVE OTHER REGULATORS AND RESEARCHERS RECOGNIZED THAT THE DCF MODEL IS NOT INHERENTLY MORE ACCURATE THAT OTHER METHODS?

A. Yes. As noted in my direct testimony,[43] the Indiana Utility Regulatory Commission concluded that that "we find it difficult to regard the results of a DCF computation as any more than suggestive."[44] FERC has also recognized the potential for any application of the DCF model to produce unreliable results.[45]

Similarly, *New Regulatory Finance*, which Dr. Berry cites as an authoritative source,[46] notes that, "There is no guarantee that a single DCF result is necessarily the ideal predictor of the stock price and of the cost of equity reflected in that price, just as there is no guarantee that a single CAPM or Risk Premium

[41] *Id.*
[42] *Id*. at 19.
[43] McKenzie Direct at 27.
[44] *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).
[45] *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).
[46] Berry Direct at 11, fn. 1; 16, fn. 4.

result constitutes the perfect explanation of that stock price."[47] Contradicting Dr. Berry's decision to place primary emphasis on his DCF results, *New Regulatory Finance* advised that:

> 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.[48]

Dr. Berry's decision to give greater weight to his DCF results is unsupported and results in a downward bias to his ROE recommendation.

A. Discounted Cash Flow Model

Q. PLEASE SUMMARIZE DR. BERRY'S DCF ANALYSES.

A. Dr. Berry presents the results of four constant growth DCF analyses using (1) a weighted short-term and long-term expected growth rate, (2) consensus analysts' EPS growth rates, (3) consensus analysts' DPS growth rates, as well as (4) "sustainable" $br + sv$ growth rates.[49] Dr. Berry averages the ROE results from each of his approaches, and arrives at an 8.68% DCF cost of equity.[50]

Q. DR. BERRY REPEATEDLY CLAIMS THAT GROWTH RATES INCLUDED IN THE DCF AND CAPM APPROACHES MUST BE "SUSTAINABLE" AND ARE, THUS, LIMITED BY LONG-TERM GROWTH IN THE ECONOMY.[51] DO YOU AGREE WITH THIS ASSESSMENT?

A. No. Dr. Berry hangs his hat on the mathematical certitude that if a piece of pie grows faster into perpetuity than the overall pie itself, the piece will eventually

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[47] Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 429.
[48] *Id.*
[49] Dr. Berry's DCF models differ only by their growth rates. Berry Direct at 10.
[50] Exhibit SKB-3.
[51] See, for instance, Berry Direct at 10-11, 22, 24-26. DCF growth rates also have relevance in the context of the CAPM because the DCF model is used in the derivation of the market return component of the model.

engulf the whole pie. This is simple math; I do not argue this obvious relationship. However, it completely misses the point. There is no evidence supporting Dr. Berry's claim that investors expect each company's growth rate to converge to a single "sustainable" growth rate, as proxied by projected U.S. GDP growth of 3.95%. There is no link between the GDP growth rate "ceiling" presumed by Dr. Berry and the actual expectations of investors in the capital markets. There are several reasons why GDP growth is not relevant in applying the DCF model:

- Practical application of the DCF model does not require a long-term growth estimate—it requires a growth estimate that matches investors' expectations.
- Evidence supports a conclusion that investors do not reference long-term GDP growth in evaluating expectations for individual common stocks, including those in the natural gas utility industry.
- The theoretical proposition that growth rates for all firms converge to overall growth in the economy over a very long horizon does not guide investors' views, and growth rates for individual stocks can and do exceed GDP growth.

Because gas utilities are mature companies, provide a basic service, are regulated utilities, have well-defined service areas, and follow established managerial and financial policies, security analysts' projections of near-term growth also reasonably reflect investor expectations for longer-run growth. Accordingly, they are best suited for use in the DCF model to estimate investors' required rate of return. There is no evidence that investors assume all utilities will revert to a long-term GDP growth rate in forming their expectations for gas utility common stocks.[52] The growth assumptions underlying Mr. Berry's DCF analysis do not match investor expectations and should be given no weight.

[52] Dr. Berry was unable to cite a single investment advisory report published in the last ten years that discusses an expectation that growth for utilities will converge to GDP. Response to Request No. BHNEG-PA-1. Dr. Berry was also unable to cite to a single securities analysts' publications or investment advisory reports published in the last ten years that discusses the use of a DCF model that incorporates GDP growth in the context of evaluating the common stocks of natural gas utilities. Response to Request No. BHNEG-1-2.

Q. THE DCF MODEL IS BASED ON THE ASSUMPTION OF AN INFINITE STREAM OF CASH FLOWS. WHY WOULDN'T A TRANSITION TO GDP GROWTH NOT MAKE SENSE?

A. This confuses the theory underlying the DCF model with its practical application in the real world. Analytical approaches such as the DCF model are simplified representations of actual investor behavior. The underlying theory requires any number of assumptions, many of which differ considerably from the situation that confronts actual investors in the capital markets. For example, apart from a constant growth rate into perpetuity, the theory underlying the DCF model also requires that dividends, earnings, and stock prices grow at exactly the same rate forever.

These strict assumptions are never met in practice. While this notion of long-term growth should presumably relate to the specific firm at issue, or at the very least to a particular industry, there are no long-term growth projections available for the companies in Dr. Berry's proxy group or for the gas utility industry as a whole. Rather than applying the DCF model in a way that is consistent with the information that is available to investors and how they use it, the use of GDP growth seeks to mold investor behavior around the theoretical assumptions of a financial model. The only relevant growth rate is the growth rate used by investors. Investors do not have clarity to see far into the future, and there is little to no evidence to suggest that investors share the view that growth in GDP must be considered a limit on earnings growth over the long-term.

Q. ARE THERE CIRCUMSTANCES THAT MIGHT SUPPORT THE USE OF MULTIPLE GROWTH RATES WITHIN THE DCF APPROACH?

A. Yes. In instances where a firm is expected to undergo phased changes, the use of multiple growth rates might arguably apply. For instance, multiple growth rates may reflect investors' expectations for firms at the early stage of the corporate life

cycle. Pioneering development firms may experience explosive earnings growth in initial years, which might be expected to moderate as the firm matures.

Alternatively, a profound and definable shift in an industry's economics could also warrant consideration of multiple growth rates. For example, in deciding to adopt a two-step model for gas pipelines, the Federal Energy Regulatory Commission ("FERC") was concerned that IBES growth rates were "too influenced by the current position of the industry,"[53] noting:

> Northwest's expert witness testified that the short-term IBES figures were at historic high levels because the pipeline industry was recovering from the deterioration in earnings resulting from the collapse in oil prices and dramatic changes in regulatory framework.[54]

However, these instances are the exception rather than the rule. There is no evidence that the growth transition implied by a two-step model fits the expectations that investors currently build into the stock prices of gas distribution or that investors anticipate a series of discrete, life cycle stages for the companies in the proxy group. As a result, there is nothing that would support reference to GDP growth in this case.[55]

Q. ARE LONG-TERM GDP GROWTH RATES COMMONLY REFERENCED AS A DIRECT GUIDE TO FUTURE EXPECTATIONS FOR SPECIFIC FIRMS, SUCH AS GAS UTILITIES?

A. No. Investors understand the complexities and inherent inaccuracies involved in forecasting, and that such uncertainties are significantly compounded for a long-

[53] *Nw. Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 61,197 (1997).
[54] *Id.*
[55] The magnitude of the disparity between the near-term growth rates for pipelines and growth in GDP that prompted the use of the two-step model bears no similarity to the evidence in this proceeding. For example, in *Transcontinental Gas*, IBES growth rates for the proxy group ranged from 8.0% to 15.0% and averaged 11.3%. *Transcon. Gas Pipe Line Corp.*, Opinion No. 414-A, 84 FERC ¶ 61,084 at Appendix A. In this case, Dr. Berry's EPS growth rates for his proxy group ranged from 4.3% to 8.83% and averaged 6.2%. Berry Direct, DCF Workpaper..xlsx at tab "DCF."

term time horizon. Certainly, investors consider broad secular trends in economic activity as one foundation for their expectations for a particular industry or firm. But the idea that investment advisory services view GDP growth as a direct guide to long-term expectations for a particular firm—much less every firm in an entire industry—is not borne out by evidence.

On the contrary, the financial media typically refers to three-to-five year EPS growth forecasts for individual companies and rarely mentions long-term GDP forecasts. For example, Value Line reports are routinely relied on as an important guide to apply the DCF model.[56] But despite Dr. Berry's suggestion that GDP has a fundamental role in shaping investors' growth estimates, Value Line does not even mention trends in GDP in its evaluation of the firms in the gas utility industry. Value Line's singleness of purpose is to inform investors of the pertinent factors that impact future expectations specific to each of the common stocks it covers. If the long-term trajectory of GDP growth was relevant in investors' evaluation of gas utility common stocks, Value Line and other securities analysts would highlight this in their analyses.

Q. ARE THERE ACADEMIC STUDIES THAT RECOGNIZE THE SHORTCOMINGS OF ADOPTING A GENERIC LONG-TERM GROWTH RATE, SUCH AS GDP GROWTH?

A. Yes. Professor Myron J. Gordon, who pioneered the application of the DCF approach, concluded that reference to a generic long-term growth rate, such as Dr. Berry advocates, was unsupported.[57] More specifically, Dr. Gordon concluded that any assumption of a single time horizon for a transition to a generic long-term growth rate was highly questionable and failed to reduce error in DCF estimates.

[56] As noted in *New Regulatory Finance*, "Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors." Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 71.

[57] Myron J. Gordon, *The Cost of Capital to a Public Utility*, MSU Pub. Util. Studies (1974) at 100-01.

Instead, Dr. Gordon specifically recognized that, "it is the growth that investors expect that should be used" in applying the DCF model, and he concluded: "A number of considerations suggest that investors may, in fact, use earnings growth as a measure of expected future growth."[58] Similarly, a subsequent paper co-authored by Dr. Gordon concluded that:

> Analysts do not predict earnings beyond five years, which suggests that any consensus of opinion among investors probably deteriorates quickly after five years.[59]

Dr. Gordon further concluded that "the consensus among investors is that the future has a finite horizon of approximately seven years."[60] Meanwhile, a study reported in the *Journal of Investing* determined that there is no correlation between stock market returns or earnings growth and GDP, suggesting that investors' expectations built into observable share prices are driven by valuation measures, and not expected economic growth.[61] In other words, reference to long-term forecasts of GDP growth in applying the DCF model is inconsistent with investor behavior.

Q. DR. BERRY CITES DR. ROGER MORIN AS SUPPORT FOR THE THEORETICAL PROPOSITION THAT COMPANY GROWTH RATES WILL CONVERGE TO THAT OF THE AGGREGATE ECONOMY.[62] DOES DR. MORIN AGREE THAT GDP GROWTH RATES ARE RELEVANT IN APPLYING THE DCF MODEL TO UTILITIES?

A. No. Dr. Morin notes that, "I am not aware of any financial literature supporting the notion that that [sic] utility earnings per share are expected to grow at the average

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[58] *Id.* at 89.

[59] Joseph R. Gordon and Myron T. Gordon, *The Finite Horizon Expected Return Model*, Financial Analysts Journal (May-Jun. 1997) at 52-61.

[60] *Id*.

[61] Joachim Klement, *What's Growth Got to Do with It? Equity Returns and Economic Growth*, Journal of Investing, Vol. 24, No. 2 (Summer 2015): 74:78.

[62] Berry Direct at 11.

growth of the economy; or GDP."[63] Contradicting Dr. Berry's DCF approach, Dr. Morin goes on to observe that "[t]he investment community does not look to GDP growth over the next several decades when evaluating an investment in utility stocks."[64] Instead, *Modern Regulatory Finance* states that "the use of GDP growth as a proxy for expected growth in earnings is highly questionable as an input in a DCF analysis,"[65] and concludes that "current earnings growth forecasts are the appropriate growth rates to use in a DCF analysis."[66] This is consistent with my testimony.

Q. IS THERE EVIDENCE THAT USING DR. BERRY'S LONG-TERM GDP GROWTH RATES WILL UNDERSTATE INVESTORS' EXPECTATIONS?

A. Yes. Actual historical growth rates for individual firms in Dr. Berry's proxy group again refute the notion that long-term growth is constrained by GDP. For example, Value Line reports that Atmos Energy, Chesapeake Utilities, New Jersey Resources, ONE Gas, and Spire achieved earnings growth over the last 10 years of 9.5%, 8.5%, 5.5%, 7.0% and 5.5%, respectively.[67] These values for Dr. Berry's own proxy firms indicate that gas utilities can and do achieve long-term growth far in excess of the 3.95% GDP growth rate suggested by Dr. Berry.

Q. WHAT OTHER EVIDENCE CONTRADICTS THE PATTERN OF GROWTH ASSUMED IN DR. BERRY'S DCF APPROACH?

A. According to the rationale underlying Dr. Berry's DCF model, at some point in the intermediate future all the companies in the gas utility industry are assumed to grow at a constant rate equal to the economy as a whole. This assumption is contradicted by the expectations of real-world investors in the capital markets.

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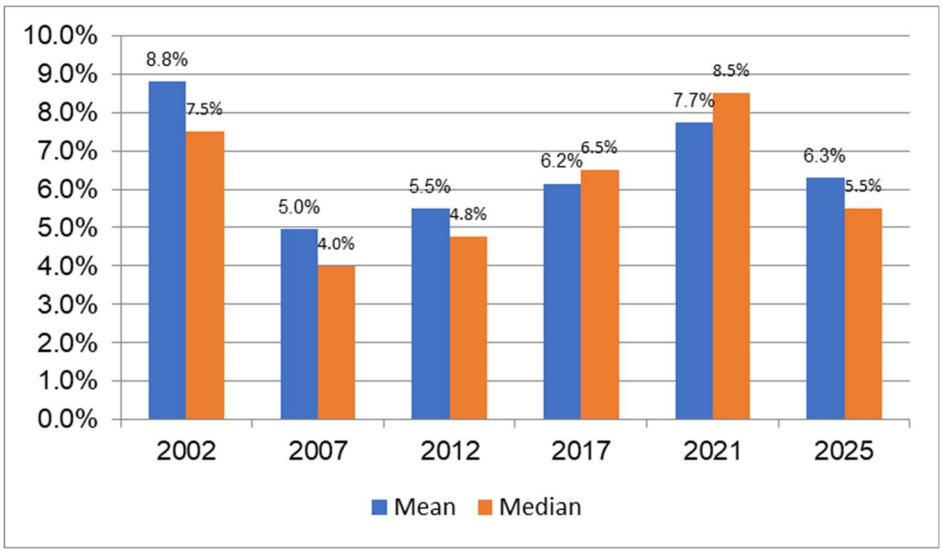
[63] Roger A. Morin, *Modern Regulatory Finance*, PUR Books (2021) at 486.
[64] *Id.*
[65] *Id.* at 488.
[66] *Id.* at 486.
[67] Value Line Investment Survey (May 23, 2025).

For example, Figure 4 compares Value Line's forecasted EPS growth rates for natural gas utilities at five-year intervals over the period 2002 to 2025.

FIGURE 4
GAS UTILITY INDUSTRY EPS GROWTH PROJECTIONS



Under Dr. Berry's theory that growth rates for natural gas utilities are trending towards GDP growth, expected growth in EPS should have gradually moved towards his artificial 3.95% growth ceiling over the past two decades. In fact, however, there has been no observable trend towards GDP growth observed over the last twenty-three years. This provides another indication that the 3.95% figure used in Dr. Berry's DCF analysis falls below investors' growth expectations for gas utilities.

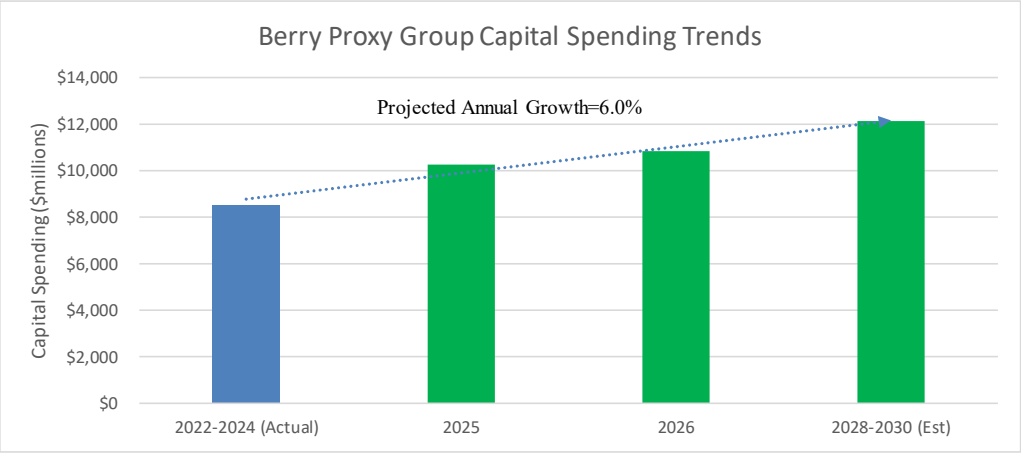
Q. IS THE GDP GROWTH RATE USED BY DR. BERRY CONSISTENT WITH EXPECTATIONS FOR THE UTILITY INDUSTRY?

A. No. At least in part, growth in the utility industry is created by additional infrastructure investment. Contrary to Dr. Berry's assertion that growth trends for gas utilities will somehow mirror GDP, investors recognize that the industry has entered a long-term cycle of significant capital spending on utility infrastructure. Consistent with this view, RRA concluded that:

> The nation's electric and gas utilities are investing in updating aging transmission and distribution, or T&D, systems; building new gas, solar and wind generation; and implementing new technologies, such as those associated with smart meter deployment, smart grid systems, cybersecurity measures and battery storage.[68]

Figure 5 illustrates this trend for the natural gas utilities in Dr. Berry's proxy group:

FIGURE 5



The Value Line Investment Survey (Aug. 22, 2025).

RRA noted that, "Natural gas capex will continue to be driven by the need to replace mature gas distribution infrastructure over the long term, in line with state and federal safety mandates."[69] The report further concluded that "[t]hese considerable levels of spending are expected to serve as the basis for solid profit expansion in the sector *for the foreseeable future*."[70]

Q. DR. BERRY REFERENCES A NUMBER OF CITATIONS ON THE SUBJECT OF "SUSTAINABLE" GROWTH.[71] HOW DO YOU RESPOND?

A. Rather than cite demonstrable evidence that investors' growth expectations for gas distribution utilities are directly linked to long-term trends in GDP, Dr. Berry simply

[68] S&P Capital IQ, *Energy utility capex projected to eclipse $790B from 2025 through 2028*, Financial Focus (Dec. 30, 2024).
[69] *Id.* (emphasis added).
[70] *Id*. (emphasis added).
[71] Berry Direct at 22-25.

points to broad-brush observations regarding the relationship between overall corporate profits and economic growth. For example, he cites a Forbes article quoting Warren Buffett as saying, "[w]hen you begin to expect the growth of a component factor to forever outpace that of the aggregate, you get into certain mathematical problems."[72] This vague statement is hardly concrete evidence that investors anticipate growth for all gas utilities to coalesce at a 3.95% growth projection for GDP. The gas utility industry is relatively mature and stable, and as discussed above, there is no indication that generalized conceptual assumptions regarding the relationship between corporate profits and GDP are driving investors' views for this specific sector.

To the extent that professional security analysts feel that trends in GDP affect a company's growth expectations in the time frame relevant to investors, it is already incorporated into their published EPS growth forecasts. In addition, companies differ in the degree to which growth is impacted by the national economy. Utilities vary in their exposure as some service territories are more sensitive to national economic conditions than others. These inherent differences are obviously reflected in security analysts' growth projections for individual companies, which are indicative of the expectations that underlie stock prices.

Moreover, the time necessary for any company to grow to the magnitude of the entire economy is so long that no investors are likely to include this horizon in their decision to buy stock today. The present value of any cash flows so far in the future would also be so miniscule that it would not move the needle in stock valuation. For example, consider Dr. Berry's 6.17% average EPS growth rate for the firms in his proxy group,[73] which have a total market capitalization of

[72] *Id.* at 24.

[73] Berry Direct, DCF Workpaper.xlsx at tab "DCF."

approximately $65.7 billion. In 2024, GDP was $29,184.9 billion.[74] Assuming Dr. Berry's GDP growth rate of 3.95%, the firms in his proxy group would not collectively surpass the value of the rest of the economy until the year 2316—more than 290 years after the Value Line growth forecasts were published. The fact that such a time horizon is so far beyond the plausible consideration of investors highlights the gap between Dr. Berry's theoretical arguments and practical application of the DCF model.

Q. PLEASE SUMMARIZE YOUR OBJECTION TO DR. BERRY'S REFERENCE TO GDP GROWTH RATES IN APPLYING THE DCF MODEL.

A. Dr. Berry presents no meaningful evidence to suggest that earnings growth rates of utilities are limited to the growth rate in GDP. There is no link between the 3.95% growth rate used in Dr. Berry's "g1" DCF study and the actual expectations of investors in the capital markets, which is the determining factor in any analysis of a fair ROE.

Q. HOW ELSE DOES DR. BERRY MISAPPLY THE DCF MODEL?

A. Dr. Berry's "g2" application of the DCF model calculates a compound annual growth rate in EPS over the ten year period 2018 to 2028. Dr. Berry provides no support for referencing historical results from 2018 as the basis to establish investors' future expectations. Moreover, to the extent historical trends for utilities are meaningful, they are already captured in projected growth rates, including those published by Value Line, IBES, and Zacks since securities analysts also routinely examine and assess the impact and continued relevance (if any) of historical trends.

Dr. Berry's "g3" version of the DCF model is based on growth in DPS between 2018 and 2028. Apart from the same unsupported reference to historical

[74] https://www.bea.gov/sites/default/files/2025-03/gdp4q24-3rd.xlsx (last visited May 16, 2025).

data from 2018, as discussed in my direct testimony, evidence supports the contention that investors rely primarily on EPS growth projections in forming their expectations.[75] The continued success of investment services such as IBES, Value Line, and Zacks, and the fact that projected EPS growth rates from such sources are widely referenced provides strong evidence that investors give considerably weight to analysts' earnings projections in evaluating future growth. Future trends in EPS, which provide the source for dividends and ultimately support share prices, play a pivotal role in determining investors' long-term growth expectations. The importance of EPS 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 earnings are far more influential than DPS.[76] As *New Regulatory Finance* observed:

> The sheer volume of earnings forecasts available from the investment community relative to the scarcity of dividend forecasts attests to their importance. The fact that these investment information providers focus on growth in earnings rather than growth in dividends indicates that the investment community regards earnings growth as a superior indicator of future long-term growth. Surveys of analytical techniques actually used by analysts reveal the dominance of earnings and conclude that earnings are considered far more important than dividends.[77]

Dr. Berry's "g4" DCF application is also problematic, as his internal growth rates are downward biased because of a key computational omission. Dr. Berry's calculations of the internal, "br" retention growth rate uses data from Value Line. These are end-of-period results. If the rate of return, or "r" component of the internal growth rate, is based on end-of-year book values, such as those reported by Value Line, it will understate actual returns because of growth in common equity

[75] McKenzie Direct at 31.
[76] Stanley B. Block, *A Study of Financial Analysts: Practice and Theory*, Financial Analysts Journal (July/August 1999).
[77] *Id.* at 302-303.

over the year. Accordingly, these year-end values must be converted to average returns using the same adjustment factor referenced in my direct testimony and developed on Exhibit AMM-5.

Q. DR. BERRY ASSERTS THAT ANALYSTS' EPS GROWTH RATES ARE TOO OPTIMISTIC AND LEAD TO UNRELIABLE DCF RESULTS.[78] IS THERE ANY MERIT TO THIS POSITION?

A. No. Comparisons between forecasts of future growth expectations and historical trends in actual earnings—like those referenced in the studies cited by Dr. Berry—are largely irrelevant in evaluating the use of analysts' projections in the DCF model. Investors, just like securities analysts and others in the investment community, do not know how the future will actually turn out. They can only make investment decisions based on their best estimate of what the future holds in the way of long-term growth for a particular stock, and securities prices are constantly adjusting to reflect their assessment of available information. Projections of securities analysts may be proven optimistic or pessimistic in hindsight, but this is irrelevant in assessing the expected growth that investors have incorporated into current stock prices, and any bias in analysts' forecasts—whether pessimistic or optimistic—is irrelevant if investors share analysts' views. As *New Regulatory Finance* concluded, "The accuracy of these forecasts in the sense of whether they turn out to be correct is not an issue here, as long as they reflect widely held expectations."[79] Expectations for earnings growth are instrumental in investors' evaluation and the fact that analysts' projections deviate from actual results provides no basis to ignore this relationship.

In using the DCF model to estimate investors' required returns, the purpose is not to prejudge the accuracy or rationality of investors' growth expectations.

[78] Berry Direct at 22-23.
[79] *Id.*

Instead, to accurately estimate the cost of equity the analysis must rely on the growth expectations investors actually used to determine stock prices—even if we do not agree with their assumptions. As Robert Harris and Felicia Marston noted in their article in *Journal of Applied Finance*:

> …Analysts' optimism, if any, is not necessarily a problem for the analysis in this paper. If investors share analysts' views, our procedures will still yield unbiased estimates of required returns and risk premia.[80]

Similarly, there is no logical foundation for criticisms such as those raised by Dr. Berry that the purported upward bias of analysts' growth rates limits their usefulness in applying the DCF model. If investors base their expectations on these growth rates, then they are useful in inferring investors' required returns, even if the analysts' forecasts prove to be wrong in hindsight. As FERC concluded in rejecting a similar argument:

> The Commission has also rejected the suggestion that the IBES analysts are biased and stated that "in fact the analysts have a significant incentive to make their analyses as accurate as possible to meet the needs of their clients since those investors will not utilize brokerage firms whose analysts repeatedly overstate the growth potential of companies."[81]

Q. ARE THERE PUBLISHED RESEARCH STUDIES THAT CONTRADICT DR. BERRY'S FINDINGS?

A. Yes. Peer-reviewed empirical studies do not uniformly support his contention that analysts' growth projections are optimistically biased. For example, a study reported in *Analyst Forecasting Errors: Additional Evidence* found no optimistic bias in earnings projections for large firms (market capitalization of $500-$3,000 million), with data for the largest firms (market capitalization > $3,000 million)

[80] Robert S. Harris and Felicia C. Marston, *The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts*, Journal of Applied Finance 11 (2001) at 8.
[81] *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted).

demonstrating a *pessimistic* bias.[82] Similarly, a 2005 article that examined analyst growth forecasts over the period 1990 through 2001 illustrated that Wall Street's forecasting is not inherently optimistic:

> The pessimism associated with profit firms is astonishing. Near the end of the sample period, almost three quarters of the quarterly forecasts for profit firms are pessimistic.[83]

Other research on this topic also concludes that there is no clear support for the contention that analyst forecasts contain upside bias:

> Our examples do demonstrate how some widely held beliefs about analysts' proclivity to commit systematic errors (e.g., the common belief that analysts generally produce optimistic forecasts) are not well supported by a broader analysis of the distribution of forecast errors. After four decades of research on the rationality of analysts' forecasts it is somewhat disconcerting that the most definitive statements observers and critics of earnings forecasters are willing to agree on are ones for which there is only tenuous empirical support.[84]

Q. DOES DR. BERRY MAKE ANY ATTEMPT TO ELIMINATE ILLOGICAL DATA FROM HIS DCF RESULTS?

A. No. For instance, in the "k1", "k2" and "k3" portions of his DCF analysis, Dr. Berry retains ROE outcomes of 6.88% (Chesapeake Utilities), 5.46% (Southwest Gas), 6.38% (New Jersey Resources), 6.75% (Spire), 5.23% (Northwest Natural), 5.69% (Southwest Gas) and 6.87% (NiSource) in his final results.[85] Considering that Baa utility bond yields averaged 6.08% in July 2025, DCF values ranging from

[82] Lawrence D. Brown, *Analyst Forecasting Errors: Additional Evidence*, Financial Analysts Journal (November/December 1997).
[83] Stephen Ciccone, *Trends in analyst earnings forecast properties*, International Review of Financial Analysis, 14:2-3 (2005).
[84] Jeffery Abarbanell and Lehavy Reuven, *Biased forecasts or biased earnings? The role of reported earnings in explaining apparent bias and over/under reaction in analysts' earnings forecasts*, Journal of Accounting and Economics, 36: 142 (2003).
[85] Exhibit SKB-3.

5.23% to 6.88% provide little guidance as to the returns investors require from utility common stocks and should be excluded.[86]

Q. DR. BERRY TAKES ISSUE WITH YOUR OUTLIER REMOVAL PROCESS.[87] WOULD YOU LIKE TO COMMENT?

A. Yes. The fact that there are illogical results at the low end of the range of results says nothing about the validity of estimates at the upper end. I excluded two low-end values of 7.1% and 7.2%.[88] In my opinion, ROEs in the 7.1% to 7.2% range are illogically low given that the current (July 2025) average yield on Baa rated public utility bonds is 6.08%. It is inconceivable that a reasonable investor would take on equity risk to earn an ROE in the 7.1% to 7.2% range, not to mention low-end DCF values in the 5.23% to 6.88% that were retained by Dr. Berry.

Q. IS YOUR EVALUATION OF ILLOGICAL VALUES CONSISTENT WITH THE METHODOLOGY APPLIED BY FERC?

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.[89] FERC's current practice is to exclude low-end cost of equity estimates that fall below the six-month average yield on Baa-rated utility bonds, plus 20% of the CAPM market risk premium. Based on the six-month average yield of 6.08% at July 2025 and the 8.1% market risk premium shown on Exhibit AMM-6 to my direct testimony, this implies a current low-end threshold of approximately 7.7%. Both of the DCF estimates I excluded fall below this cutoff.

[86] Excluding these values would raise Dr. Berry's DCF result by 66 basis points.
[87] Berry Direct at 26-27.
[88] Exhibit AMM-4 at 3.
[89] *See, e.g.*, *Southern California Edison Co*., 131 FERC ¶ 61,020, at P 55 (2010).

But the fact that there were two results that fail this test of reasonableness says nothing about the validity of estimates at the upper end of the range of results, and there is no basis to discard an equal number of values from the top of the range. While the upper end cost of equity estimate of 13.5% from my Exhibit AMM-4 may exceed expectations for most utilities, remaining low-end estimates in the 7.4% to 7.8% range are assuredly far below investors' required rate of return. Taken together and considered along with the balance of the DCF estimates, this value provides a reasonable basis on which to evaluate investors' required rate of return.

B. Capital Asset Pricing Model

Q. WHAT ARE THE PRIMARY DEFECTS IN DR. BERRY'S CAPM ANALYSIS?

A. Dr. Berry's "CAPM Model 1" analysis is based entirely on historical data. As a result, Dr. Berry's methodology is inconsistent with the assumptions of the CAPM, which are predicted on investors' forward-looking expectations.

Meanwhile, Dr. Berry's "CAPM Model 2" analysis inappropriately introduces long-term GDP growth into the DCF model that is used to estimate the market rate of return. As I explained earlier, long-term GDP growth has no role in attempting to replicate investors' return estimation process.

Q. IS THERE GOOD REASON TO QUESTION THE RESULTS OF HISTORICAL CAPM ANALYSES, SUCH AS DR. BERRY'S "CAPM MODEL 1" APPROACH?

A. Yes. Dr. Berry's reliance on historical data incorrectly assumes that investors' required return on common stocks is constant and equal to some historical average. The primacy of current expectations has been recognized by Morningstar, which noted that "[t]he cost of capital is always an expectational or forward-looking concept," and that "the expectations of future events are the only factors that

actually determine cost of capital."[90] Similarly, the Indiana Utility Regulatory Commission has previously concluded that:

> Relying on historic market returns introduces some highly questionable assumptions, which must be taken on faith. Specifically [sic], one must assume that marketplace returns experienced historically are what investors were expecting to receive and continue to guide investor expectations today. It also assumes that asset relationships prevailing over the past 62 years continue today unchanged.[91]

FERC has also concluded that historical applications of the CAPM are subject to bias "because of the potential impact on the historical relationship between the market returns for government debt and common equities."[92] Dr. Berry's historical "CAPM Model 1" approach is inconsistent with the assumptions of the CAPM, which is predicated on the forward-looking expectations of investors. The Commission should ignore this 9.16% CAPM result.

Q. ARE THERE OTHER FLAWS THAT UNDERMINE DR. BERRY'S "CAPM MODEL 1" ANALYSIS AND LEAD TO UNDERSTATED RESULTS?

A. Yes. As Dr. Berry explained, the 4.9% market risk premium used in his "CAPM Model 1" study was based on "the difference between the geometric means of total returns for Large Cap Stocks (10.1%) and Long Term U.S. Treasury Bonds (5.2%)."[93] First, the 2016 source cited by Dr. Berry is stale and fails to reflect more recent data.[94]

Second, the 5.2% return on Treasury bonds used by Dr. Berry represents the total return on long-term government bonds, which includes annual capital gains

[90] Morningstar, *Ibbotson SBBI, 2012 Valuation Yearbook* at 21 (emphasis added).

[91] Indiana Utility Regulatory Commission, *Indiana Michigan Power Co.*, Cause No. 38728 (Aug. 24, 1990).

[92] *New York Indep. Sys. Operator, Inc.*, 146 FERC ¶ 61,043 at P 105 (2014).

[93] Berry Direct at 14.

[94] Dr. Berry cites Duff & Phelps, "2016 Valuation Handbook-Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3. Exhibit SKB-4, footnote (f). While Dr. Berry cites a 2016 publication, his data is consistent with information reported by Kroll for the period 1926-2022. In either case, it does not include the most recent data available from this source.

and losses. This is incorrect and inconsistent with the findings of his own source. As Duff & Phelps noted, "We measure the realized risk premium by comparing the stock market returns during the specified period to the *income return* on long-term U.S. government bonds."[95] As Ibbotson Associates explained:

> Price changes in bonds due to unanticipated changes in yields introduce price risk into the total return. Therefore, the total return on the bond series does not represent the riskless rate of return. The income return better represents the unbiased estimate of the purely riskless rate of return, since an investor can hold a bond to maturity and be entitled to the income return with no capital loss.[96]

In other words, using only the *income* component of the long-term government bond return provides a more reliable estimate of the expected risk premium because investors do not anticipate capital losses for a risk-free security. Dr. Berry, however, calculated his equity risk premium using the *total* return for Duff & Phelps' (now Kroll's) long-term government bond series. As a result, his 4.9% market risk premium and the resulting CAPM cost of equity estimates are understated.

Q. IN CALCULATING HIS 4.9% HISTORICAL MARKET RISK PREMIUM, DR. BERRY REFERENCES GEOMETRIC MEAN RETURNS. IS THIS CORRECT?

A. No. While both the arithmetic and geometric means are legitimate measures of average return, they provide different information. Each may be used correctly, or misused, depending upon the inferences being drawn from the numbers. The geometric mean of a series of returns measures the constant rate of return that would yield the same change in the value of an investment over time. The arithmetic mean measures what the expected return would have to be each period to achieve the realized change in value over time.

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[95] Duff & Phelps, *2018 Valuation Handbook – U.S. Guide to Cost of Capital* at 39 (emphasis original).
[96] Morningstar, *Ibbotson SBBI 2008 Valuation Yearbook* at 77.

In estimating the cost of equity, the goal is to replicate what investors expect going forward, not to measure the average performance of an investment over an assumed holding period. When referencing realized rates of return in the past, investors consider the realized returns in each year independently, with the arithmetic average of these annual results providing the best estimate of what investors might expect in future periods. *New Regulatory Finance* affirmed this principle:

> The best estimate of expected returns over a given future holding period is the arithmetic average. Only arithmetic means are correct for forecasting purposes and for estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of returns as a measure of the appropriate discount rate in computing the cost of capital or in computing present values.[97]

Similarly, Morningstar concluded that:

> For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. … The geometric average is more appropriate for reporting past performance, since it represents the compound average return.[98]

Q. WHAT DOES THIS IMPLY WITH RESPECT TO DR. BERRY'S "CAPM MODEL 1" ANALYSIS?

A. For a variable series, such as stock returns, the geometric average will always be less than the arithmetic average. This confirms the downward bias built in to Dr. Berry's CAPM results.

[97] Roger A. Morin, *New Regulatory Finance,* Pub. Util. Reports, Inc. (2006) at 116-117 (emphasis added).
[98] Morningstar, *Ibbotson SBBI 2013 Valuation Yearbook* at 56.

Q. WHAT MARKET RISK PREMIUM IS REPORTED BY KROLL, THE CURRENT SOURCE FOR THE HISTORICAL RETURNS CITED BY DR. BERRY?

A. In contrast to the 4.9% value that Dr. Berry used in his "CAPM 1 Model", as of December 31, 2024, Kroll reports a long-horizon equity risk premium of 7.31% for the period 1926-2024.[99] Using this corrected value increases the result of Dr. Berry's "CAPM 1 Model" from 9.16% to 11.37%.[100]

Q. DR. BERRY SAYS THAT YOUR CAPM RISK PREMIUM CALCULATION IS "BIASED UPWARD" BECAUSE YOU DID NOT CONSIDER GDP GROWTH.[101] IS HIS POSITION ANY MORE RELEVANT WHEN ESTIMATING THE MARKET RATE OF RETURN USED IN THE CAPM?

A. No. I addressed the fallacy underlying Dr. Berry's reference to GDP growth earlier, and his "CAPM 2 Model" suffers from the same failings. Moreover, arguments concerning the sustainability of any individual growth rate for a single firm in the S&P 500 miss the point. We are not calculating the cost of equity for an individual firm and assuming that growth rate will be constant for perpetuity. Rather, the growth rate underlying the market cost of equity represents a weighted average of investors' expectations for the dividend paying firms in the S&P 500 *index*.

Within this large group of firms, growth expectations for some firms may be extremely anemic (or even negative), while projections for other firms are considerably more optimistic. In addition, growth rates for one company may moderate over time, while for others they may increase. Finally, the composition of the S&P 500 is not static. As a result, formerly successful firms are supplanted by new firms with potential for high growth (*e.g.,* Sears is supplanted by Amazon,

[99] Kroll, *Cost of Capital Navigator*.
[100] (0.91 x 7.31%) + 4.72% = 11.37%.
[101] Berry Direct at 29.

or Blockbuster is supplanted by Netflix). This same understanding was expressed in an academic article which noted that:

> Importantly, however, the approach is applied to portfolios of stocks rather than to individual securities, since future growth patterns may be expected to have drastic changes for some specific securities.[102]

Similarly, the United States Court of Appeals for the District of Columbia has also rejected the same "sustainability" argument raised by Dr. Berry, noting that "the S&P 500 includes companies at all stages of growth, so older companies with lower growth potential will balance out younger companies with higher growth potential."[103] In other words, the growth rates used to determine the market risk premium in my CAPM analysis are representative of the consensus expectations for the dividend paying firms in the S&P 500 as a whole. This contradicts Dr. Berry's position that investors' growth expectations for any single firm should be constrained by a GDP threshold.

Q. IS THE METHODOLOGY USED TO COMPUTE THE MARKET RETURN UNDER YOUR CAPM APPROACH ALSO SUPPORTED BY ACADEMIC RESEARCH?

A. Yes. Recognized research studies reported in the financial literature support and adopt the exact same methodology to estimate the market rate of return. For instance, *Harris and Marston* notes that "a 'market' required rate of return is calculated using each dividend paying stock in the S&P 500 index for which data are available."[104] In describing this process, the authors state:

> This expectational approach employs the dividend growth model (hereafter referred to as the discounted cash flow or DCF model) in

[102] Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Fin. Mgmt. (Spring 1986).
[103] *MISO TOs v. FERC*, 45 F.4th at 260.
[104] Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Fin. Mgmt. (Summer 1992) ("*Harris and Marston*").

> which a consensus measure of financial analysts' forecasts (FAF) of earnings is used as a proxy for investor expectations.[105]
>
> * * *
>
> For each month, a "market" required rate of return is calculated using each dividend paying stock in the S&P 500 index for which data are available. The DCF model in Equation (2) is applied to each stock and the results weighted by market value of equity to produce the market required return.[106]

Consistent with the CAPM approach that I use, *Harris and Marston* noted that "[t]he mean value of individual analysts' forecasts of five-year growth rate in EPS will be used as a proxy for *g* in the DCF model,"[107] with IBES being relied on as the source of these growth rates. Moreover, *Harris and Marston* contradicts the arguments of the Dr. Berry, noting that "[t]he five-year horizon is the longest horizon over which such forecasts are available from IBES *and often is the longest horizon used by analysts*."[108]

This widely-recognized research paper confirms the veracity of the market return calculation underlying my CAPM approach, establishing that (1) application of the constant growth (not two-stage) DCF model to individual dividend paying members of the S&P 500 Index is a dependable approach, (2) five-year analysts' earnings forecasts (not GDP) is a valid basis to determine the long-term growth component of the DCF model, and (3) use of analysts' consensus growth rates conforms to the methodology used in the investment community.

Q. ARE THESE CONCLUSIONS CONFIRMED BY OTHER PUBLISHED RESEARCH?

A. Yes. A 1993 study published in the *Financial Review* noted that, "[f]ollowing prior research," the authors evaluated the expected market rate of return by applying the

[105] *Id.*
[106] *Id.*
[107] *Id.*
[108] *Id.* (emphasis added).

same constant growth DCF approach that I propose, including reliance on "consensus financial analysts' forecasts (FAF) of five-year growth in earnings per share," which were obtained from IBES.[109]

Similarly, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return* reiterated support for the same approach used to estimate the market cost of equity in the CAPM, including reliance on analysts' consensus growth estimates as the best proxy for investors' expectations. The article specifically rejected making "alternate assumptions about growth after five years," pointing out that "there is no source for obtaining market estimates of this expected growth."[110] This article warned against the practice advocated by the Dr. Berry, finding that reliance on consensus analysts' growth rates, such as those provided by IBES, "avoids the introduction of *ad hoc* assumptions about future growth."[111]

Q. HAVE OTHER REGULATORS RELIED ON A FORWARD-LOOKING CAPM SIMILAR TO YOUR APPROACH?

A. Yes. The CAPM approach that I rely on is consistent with methods that have been used by the Staff at the Illinois Commerce Commission, for example, whose witnesses relied on estimates of a forward-looking market rate of return to apply the CAPM. The Illinois Staff employed an expected market return based on an analysis directly analogous to my approach:

> Q. How was the expected rate of return on the market portfolio estimated?
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> A. The expected rate of return on the market was estimated by conducting a DCF analysis on the firms composing the S&P 500 Index ("S&P 500"). . . . Firms not paying a dividend as of June 28, 2001, or for which neither Zacks nor IBES growth rates were

[109] Felicia Marston and Robert S. Harris, *Risk and Return: A Revisit Using Expected Returns*, Fin. Review (Feb. 1993).
[110] Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Fin. Mgmt. (Spring 1986).
[111] *Id.* (emphasis supplied).

> available were eliminated from the analysis. The resulting company-specific estimates of the expected rate of return on common equity were then weighted using market value data from Salomon Smith Barney, *Performance and Weights of the S&P 500: Second Quarter 2001*. The estimated weighted averaged expected rate of return for the remaining 365 firms composing 78.31% of the market capitalization of the S&P 500 equals 15.31%.[112]

FERC has also adopted a similar approach.[113]

Contrary to the assertions of Dr. Berry, the methodology used to estimate the forward-looking market rate of return underlying my CAPM application is consistent with investors' views, supported by recognized financial literature, and used by other financial researchers and practitioners.

Q. WHAT ELSE IS WRONG WITH DR. BERRY'S CAPM APPROACH?

A. Dr. Berry fails to include a size adjustment in his CAPM analysis.

Q. IS THE SIZE ADJUSTMENT NECESSARY WHEN APPLYING THE CAPM?

A. Yes. A size adjustment is necessary in order to account for the portion of the return to small stocks that is not accounted for by beta. As discussed in my direct testimony, empirical findings demonstrate that beta does not fully account for the higher returns of smaller companies and specific size adjustments have been quantified to adjust CAPM results to account for this size premium.[114]

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[112] *Direct Testimony of Rochelle Langfeldt*, Illinois Commerce Commission, Docket No. 01-0432 (2001), at 23-24.

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

[114] McKenzie Direct at 38-40.

Q. DR. BERRY CLAIMS THAT "DUE TO THE NATURE OF REGULATION" RELATIVELY SMALL UTILITIES DO NOT FACE TO THE SAME PRESSURES THAT WOULD NECESSITATE A SIZE ADJUSTMENT.[115] DO YOU AGREE WITH THIS ASSERTION?

A. No. There is no credible basis to conclude that CAPM or ECAPM estimates for utilities are immune from the well-documented relationship between smaller size and higher realized rates of return. The size adjustment required in applying the CAPM and ECAPM 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. Of course, there are any number of specific factors that distinguish a utility's risks from other firms in the non-regulated sector, just as there are important distinctions between the circumstances faced by airlines and drug manufacturers. But under the assumptions of modern capital market theory on which the CAPM rests, these considerations are reduced to a single risk measure—beta—which captures stock price volatility relative to the market.

Within the CAPM paradigm, the degree of regulation, the nature of competition in the industry, the competence of management, and every other firm-specific consideration is boiled down to a single question; namely, how much does the stock's price fluctuate in relation to the market as a whole? Beta is the measure of that variability, and research demonstrates that beta does not fully account for the impact of firm size. The Duff & Phelps publication referenced by Dr. Berry for his historical risk premium concluded that:

> Examination of market evidence shows that within the context of the CAPM, beta does not fully explain the difference between small company returns and large company returns. In other words, the *actual* (historical) excess return smaller companies earn tends to be

[115] Berry Direct at 28.

> greater than the excess return *predicted* by the CAPM for these companies. This 'premium over CAPM' is commonly known as a 'beta-adjusted size premium' or simply "size premium."[116]

Contradicting the incorrect inference Dr. Berry draws regarding the relative risk of utilities, Duff & Phelps notes that its size premia "have been adjusted to remove the portion of excess return that is attributable to beta, leaving only the size effect's contribution to excess return."[117] In other words, the impact of risk differences between utilities and non-regulated firms is already accounted for through beta and there is no justification to remove the size adjustment on this basis.

Q. IS THE SIZE ADJUSTMENT CONSISTENT WITH HOW FERC APPLIES THE CAPM?

A. Yes. FERC previously concluded that "[t]his type of size adjustment is a generally accepted approach to CAPM analyses,"[118] and includes the size adjustment in the CAPM under its ROE methodology for electric utilities and natural gas and oil pipelines.[119] FERC has affirmed its practice of including a size adjustment, concluding that "the size adjustment is necessary to correct for the CAPM's inability to fully account for the impact of firm size when determining the cost of equity."[120]

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[116] Duff & Phelps, *2016 Valuation Handbook, Guide to Cost of Capital*, John Wiley & Sons (2016) at 8-1. Duff & Phelps now publishes the study of historical returns formerly owned by Morningstar, and previously published by Ibbotson Associates.

[117] Duff & Phelps, 2017 *Valuation Handbook, U.S. Guide to Cost of Capital*, John Wiley & Sons (2017) at 2-10.

[118] *Coakley v. Bangor-Hydro-Elec. Co.*, Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

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

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

Q. DR. BERRY POINTS TO CERTAIN FINDINGS THAT "IMPLY THAT A SIZE ADJUSTMENT IS NOT APPROPRIATE FOR COST OF EQUITY RESULTS APPLIED TO UTILITIES."[121] HOW DO YOU RESPOND?

A. Dr. Berry cites to a 1993 study by Annie Wong,[122] but a closer examination of this research reveals that it is largely inconclusive and inconsistent with the CAPM. In fact, her results demonstrate no material difference between utilities and industrial firms with respect to size premiums, and her study finds no significant relationship between beta and returns, which contradicts modern portfolio theory and the CAPM. A more recent study published in the Quarterly Review of Economics and Finance reconsiders Wong's evidence and concludes that "new information . . . indicates there is a small firm effect in the utility sector."[123] As Duff & Phelps concluded:

> [O]bservation of the size effect is consistent with a modification of the pure CAPM. Studies have shown the limitations of beta as a sole measure of risk. The size premium is an empirically derived correction to the pure CAPM.[124]

Q. DR. BERRY POINTS TO FINDINGS FROM ASWATH DAMODARAN THAT SEEM TO INDICATE THAT THERE IS NOT A UNIFORM UNDERSTANDING OF WHAT GIVES RISE TO THE THE SIZE ADJUSTMENT.[125] IS THAT A REASON TO IGNORE IT?

A. No. A 2018 article published in *Business Valuation Review* refuted similar criticisms raised by Dr. Berry, concluding that "the size premium critique . . . is not warranted."[126] In contrast to Dr. Berry's assertions, the *Grabowski* article noted

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[121] Berry Direct at 28.

[122] *Id.*

[123] Thomas M. Zepp, *Utility stocks and the size effect—revisited*, Quarterly Review of Economics and Finance, 43 (2003) 578-582.

[124] Duff & Phelps, *2016 Valuation Handbook, Guide to Cost of Capital* at 4-27.

[125] Berry Direct at 28-29.

[126] Roger A. Grabowski, *The Size Effect Continues To Be Relevant When Estimating the Cost of Capital*, Business Valuation Review (Fall 2018) at 93-109.

that "none of the academic papers throughout the last three decades have qualified the [size premium] as a statistical error," and a recent publication available from the National Association of Certified Valuators and Analysts documented the continued relevance of the size adjustment in applying the CAPM:

> [A] beta-adjusted size premium is also an indication of the relative market performance of small-cap versus large-cap stocks, but is typically used for a very specific purpose: as a "size" adjustment within the context of the capital asset pricing model (CAPM) when developing cost of equity capital estimates. A size adjustment is typically applied to the CAPM to make up for the fact that the betas of smaller companies do not fully explain their observed returns. Because the CAPM already includes a beta input in its textbook specification, the size premium is then "beta adjusted" to remove the portion of realized excess return that is attributable to beta, thereby isolating the size effect's contribution to realized excess return and avoiding double counting the impact of each factor.
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> * * *
>
> Another way of saying this is that within the context of the CAPM, the betas of small-cap companies do not fully account for (or explain) their actual returns. Because the amount of this difference (what actually happened versus what CAPM predicted) varies with "size" (in this case, as measured by market capitalization) we call it a "size premium". [127]

This article went on to conclude that "valuation professionals typically add a 'size premium' to the base CAPM equation. . ."[128]

Q. WHAT WOULD BE THE IMPACT OF CORRECTING DR. BERRY'S CAPM ANALYSES TO INCORPORATE THE SIZE ADJUSTMENT?

A. The average of the size adjustments corresponding to the companies included in Dr. Berry's proxy group is 0.75%. PA's CAPM results should be increased accordingly.

[127] *Using a Non-Beta-Adjusted Size Premium in the Context of the CAPM Will Likely Overstate Risk and Understate Value* (Jan. 30, 2019), available at http://quickreadbuzz.com/2019/01/30/business-valuation-grabowski-harringtonsing-a-non-beta-adjusted-size-premium/.
[128] *Id.*

C. Risk Premium Model

Q. DR. BERRY'S RISK PREMIUM ANALYSIS YIELDS A COST OF EQUITY OF 10.54%. IS THIS A REASONABLE OUTCOME?

A. Yes. This result is similar to my recommended ROE for BH Nebraska Gas. I agree with Dr. Berry's use of ROEs authorized by regulatory commissions relative to contemporaneous interest rates. I also concur with his incorporation of the inverse relationship between interest rates and the risk premiums into his analysis.

Q. DO YOU AGREE WITH DR. BERRY'S DECISION TO GIVE HIS RISK PREMIUM RESULTS LESS WEIGHT THAN HIS DCF AND CAPM ROE ESTIMATES?

A. No. As was already discussed, Dr. Berry does not support his proposition that DCF inputs are more reliable than the inputs associated with his other approaches. Dr. Berry's decision to give significantly less weight to his risk premium results is also at odds with his own published research. For example, in a previous academic publication, he stated that the risk premium approach "is especially useful when other methods, such as the capital asset pricing model and the discounted cash flow (DCF) model exhibit less reliability," and he noted that "the risk premium method provides a useful check on the DCF results."[129] Dr. Berry's comments support giving his risk premium results equal weight, which is consistent with the guidance of Dr. Morin, who Dr. Berry cites repeatedly as an authoritative source.

[129] S. Keith Berry, *Interest Rate Risk and Utility Risk Premia During 1982-93*, Managerial and Decision Economics. (1998).

D. Expected Earnings Model

Q. HOW DOES DR. BERRY IMPLEMENT THE EXPECTED EARNINGS APPROACH?

A. Dr. Berry calculates projected earned returns for 2025 and 2028 by dividing Value Line's projected EPS by the corresponding book value per share for each firm in his proxy group.

Q. WHAT IS THE PROBLEM WITH THIS CALCULATION?

A. This calculation understates the expected returns on book value. As explained earlier in response to Dr. Berry's "g4" DCF application, Value Line's book values are reported on an end-of-year basis. Calculating the rate of return using end-of-year book values understates actual expected returns because of growth in common equity over the year. Accordingly, these year-end values must be converted to average returns using the same adjustment factor referenced in my direct testimony and developed on Exhibit AMM-5. As discussed earlier and shown on Rebuttal Exhibit AMM-15, a correct application of this method using Value Line's most recent projections results in an indicated ROE of 10.1%.

Q. DR. BERRY RECOMMENDS GIVING LITTLE CONSIDERATION TO THE EXPECTED EARNINGS APPROACH, PRIMARILY BECAUSE IT IS NOT "MARKET-BASED."[130] HOW DO YOU RESPOND?

A. Dr. Berry's argument that the expected earnings approach is not "market-based" does not undermine its relevance. While market-based models are certainly important tools in estimating investors required rate of return, this in no way invalidates the usefulness of the expected earnings approach. In fact, the distinction between financial models, which are dependent on the interpretation of market data

[130] Berry Direct at 18.

under certain theoretical assumptions, and the expected earnings approach is one of its advantages.

Q. HOW COULD THE LACK OF A MARKET-BASED CONSTRUCT FURNISH AN ADVANTAGE TO THE EXPECTED EARNINGS APPROACH?

A. While a utility's cost of equity is established in the capital markets based on investors' expectations of the returns available from other investment opportunities of comparable risk, the limitations of all theoretical models of investor behavior—including those associated with the DCF and CAPM approaches—greatly complicate our ability to infer investors' true return requirements from observable market data. The underlying assumptions of market-based financial models strain credulity,[131] and many elements of a market-based financial analysis are disputed.

Against this backdrop, the expected earnings approach relies on the straight-forward concept that when evaluating two investments of comparable risk, investors will choose the alternative with the higher expected return. As I discuss in my direct testimony,[132] evidence demonstrates that the expected earnings approach offers a meaningful benchmark in assessing the return necessary for a firm to maintain financial integrity and attract capital. The fact that this approach is not "market based" does not discount its usefulness as a meaningful approach for investors and regulators to compare expected returns in one utility over another, which is consistent with the requirements of *Hope* and *Bluefield*. The expected earnings approach serves as a direct measure of the expected returns on equity that investors associate with companies of comparable risk, which provides regulators

[131] For example, the standard DCF model assumes that dividends, earnings, and stock price grow at a constant rate to infinity, while the CAPM assumes a world where there are no transactions costs, no taxes, and investors have the unlimited ability to borrow and lend at the risk-free rate.
[132] McKenzie Direct at 47-49.

with a meaningful guide to the corresponding return the utility should be expected to earn on its book equity investment.

The traditional regulatory paradigm explicitly recognizes the validity of book value of equity by choosing to measure rate base and capital structure components based on book value, rather than market value. Moreover, the financial integrity standards enshrined in *Hope* and *Bluefield* are directly related to the book value of a utility's equity and expected earnings. Such accounting-based measures directly underpin published credit ratings, which are widely accepted as a guide to a utility's financial integrity and ability to attract capital. For example, rating agencies' standard criteria include an evaluation of the ratio of debt to capitalization (including common equity), as measured on the basis of book values. Similarly, cash flow-related credit metrics depend directly on net income which, under the revenue requirements model used in the traditional regulatory paradigm, derives directly from the return on the book value of equity.[133] The expected earnings approach is uniquely matched to the financial integrity standard and complements the use of market-based methods to ensure that the end-result of the Commission's ROE findings satisfies the requirements of *Hope* and *Bluefield*. As S&P observed:

> Many commissions consider the results of a comparable earnings analysis when establishing an authorized ROE. This approach assumes that a given investment should earn a return similar to that of investments with similar risk characteristics.[134]

[133] *See,* Moody's Investors Service, *Rating Methodology, Regulated Electric and Gas Utilities* (June 23, 2017) at 4.

[134] S&P Global Market Intelligence, *Frequently Asked Questions*, RRA Regulatory Focus (Jul. 15, 2020).

E. Other ROE Issues

Q. DR. BERRY TAKES ISSUE WITH YOUR ECAPM ANALYSIS.[135] HOW DO YOU RESPOND?

A. Dr. Berry criticizes my use of the ECAPM because he says it amounts to double counting when used with Value Line adjusted betas.[136] This is not correct. As I state in my direct testimony, the ECAPM is simply a variant of the traditional CAPM approach that is designed to correct for an observed bias in the CAPM result.[137] The modification reflected in the ECAPM is distinct from the Value Line adjustment of estimated betas for the demonstrated tendency to regress toward the mean.

As illustrated in Figure AMM-2 to my direct testimony, the ECAPM reflects a refinement to adjust for a systematic tendency of low beta portfolios to over-earn and high beta portfolios to under-earn relative to the predictions of the CAPM capital market line. While reference to "raw" or "Blume adjusted" betas has implications when evaluating the predicted return for any particular security or portfolio, it does not change the actual returns that form the basis of the correction to the traditional CAPM that is captured in the ECAPM.[138] The ECAPM and the

[135] Berry Direct at 30-31.

[136] *Id.* at 30.

[137] McKenzie Direct at 41-43.

[138] Furthermore, there is academic support for the use of adjusted betas in alternative versions of the CAPM. For example, *On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital* noted that "[t]he assertion that risk premiums are proportional to NYSE betas is shown to result in downward (upwards) biased predictions of the cost of equity for a public utility having a NYSE beta that is less (greater) than unity," and concluded that adjusted betas, such as those published by Value Line, are "better predictors than are unadjusted betas." Robert Litzenberger, Krishna Ramaswamy, and Howard Sosin, *On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital*, 369-393 Journal of Finance (May 1980).

use of adjusted betas represent two separate and distinct issues in estimating returns, and both are useful for improving the traditional CAPM results.[139]

Q. DR. BERRY CRITICIZES YOUR USE OF A LOW-RISK GROUP OF NON-UTILITY COMPANIES AS AN ROE CHECK OF REASONABLENESS.[140] ARE HIS CRITICISMS JUSTIFIED?

A. Not at all. The implication that an estimate of the required return for firms in the competitive sector of the economy is not useful in determining the appropriate return to be allowed for rate-setting purposes is incorrect and inconsistent with finance principles, investor behavior, and the *Bluefield* and *Hope* decisions. In fact, returns in the competitive sector of the economy form the underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets.

The cost of capital is an opportunity cost based on the returns that investors could realize by putting their money in other alternatives, which include all other securities available in the stock, bond, or money markets. True enough, utilities are sheltered from competition, but they undertake other obligations and lose the ability to set their own prices and decide when to exit a market. The Supreme Court has recognized that it is the degree of risk, not the nature of the business, which is relevant in evaluating an allowed ROE for a utility.[141]

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[139] *New Regulatory Finance* also addresses Dr. Berry's argument that the use of a long-term Treasury yield partially offsets the distortion addressed by the ECAPM. As this treatise observed, the equation referenced in my analysis "incorporates a conservative alpha adjustment" in order to address this issue. Roger A. Morin, *New Regulatory Finance*, Pub. Utils. Reports, Inc. (2006) at 190-191.

[140] Berry Direct at 31-32.

[141] *Fed. Power Comm'n v. Hope Natural Gas Co*., 320 U.S. 591 (1944).

Q. DOES DR. BERRY PRESENT ANY OBJECTIVE EVIDENCE THAT YOUR NON-UTILITY PROXY GROUP IS RISKIER THAN THE COMPANIES IN YOUR GAS GROUP?

A. No. Dr. Berry simply alludes to a general assertion that companies in the non-utility proxy group "are inherently riskier than regulated utilities because they are exposed to market volatility."[142] But my direct testimony does not contend that the specific operations or risk considerations of the companies in the Non-Utility Group are the same as those for utilities. Clearly, operating a worldwide enterprise in the beverage, pharmaceutical, retail, or food industry involves unique circumstances that are as distinct from one another as they are from a gas utility.

But as the Supreme Court recognized, investors consider the expected returns available from all these opportunities in evaluating where to commit their scarce capital. The simple observation that a firm operates in non-utility businesses says nothing at all about the overall investment risks perceived by investors, which is the basis for a fair rate of return. Regulatory standards governing a fair ROE are based on comparable risk, not the nature of the business.[143] So long as the risks associated with the Non-Utility Group are comparable to the Company and other utilities the resulting DCF estimates provide a meaningful benchmark for the cost of equity. As demonstrated in my direct testimony, a comparison of objective risk measures demonstrates that the Non-Utility Group is generally regarded as less risky than the Company, making it a conservative benchmark for the ROE in this case.[144]

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[142] Berry Direct at 32.

[143] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

[144] McKenzie Direct at Table AMM-5.

Q. DOES THE FACT THAT UTILITIES ARE REGULATED SOMEHOW INVALIDATE THIS COMPARISON OF OBJECTIVE RISK INDICATORS?

A. Absolutely not. While I agree that utilities operate under a regulatory regime that differs from firms in the competitive sector, any risk-reducing benefit of regulation is already incorporated in the overall indicators of investment risk presented in Table AMM-5 to my direct testimony. The impact of regulation on a utility's investment risks is one of the key elements considered by credit rating agencies and investment advisory services, such as Moody's, S&P, and Value Line, when establishing corporate credit ratings and other risk measures. Meanwhile, the beta values supported by modern financial theory are premised on stock price volatility relative to the market as a whole and are not dependent on an assessment of firm-specific considerations. As a result, the impact of regulatory differences on investment risk is accounted for in the published risk indicators relied on by investors and cited in my direct testimony.

Q. DR. BERRY OBSERVES THAT PA WITNESS SOLGANICK RECOMMENDS DENYING THE COMPANY'S REQUESTED WNA AND HE ARGUES THAT NO ADJUSTMENT TO THE COMPANY'S ROE IS NECESSARY.[145] IS THIS A LOGICAL CONCLUSION?

A. No. As discussed in my direct testimony,[146] BH Nebraska Gas does not currently benefit from many of the regulatory mechanisms, such as revenue decoupling and WNAs, that are available to the utilities included in the proxy group. Similarly, Dr. Berry recognizes that the proxy group includes operating utilities that benefit from a WNA.[147] Dr. Berry also indicates that a WNA would be expected to moderate

[145] Berry Direct at 19-20.
[146] McKenzie Direct at 18-23.
[147] Berry Direct at 19.

risk by reducing the impact of weather variability on a gas utility's ability to earn its authorized ROE.[148]

Dr. Berry's observations are consistent with my conclusion that denying the WNA would continue to expose BH Nebraska Gas to the uncertainties associated with the impact of weather and other fluctuations in customer usage, which would imply a greater level of risk than is faced by the firms in the proxy group. In other words, the risk mitigation associated with the ability to adjust revenues and attenuate the risk of cost recovery under decoupling and a WNA is already reflected in the cost of equity results determined from the Gas Group analyses. This supports a finding that ROE estimates for the proxy group understate the cost of equity for the Company. It also conflicts with Dr. Berry's conclusion, as denying the WNA would mean that the ROE for BH Nebraska Gas should be increased to account for higher cost recovery uncertainty from abnormal weather.

III. CAPITAL STRUCTURE

Q. WHAT CAPITAL STRUCTURE DOES DR. BERRY RECOMMEND FOR BH NEBRASKA GAS?

A. PA witness Berry recommends a ratemaking capital structure consisting of 50% long-term debt and 50% common equity.[149]

Q. WHAT IS THE BASIS OF HIS CAPITAL STRUCTURE RECOMMENDATION?

A. Dr. Berry states that his recommendation "is based on the 50%/50% ratio used in the Settlement of the 2020 BHE proceeding … as well as the historical common equity ratios shown in Company Exhibit AMM-11."[150] Dr. Berry also points to the

[148] *Id.* at 20.
[149] Berry Direct at 20-21.
[150] *Id.* at 20.

direct testimony of Company witness Stevens, which notes that "The Company targets a 50% to 52% equity-to-capitalization level."[151]

Q. HOW DOES THE EQUITY RATIO REQUESTED BY BH NEBRASKA GAS COMPARE WITH INDUSTRY PEERS?

A. As discussed in my direct testimony,[152] the common equity ratio of 50.52% requested by BH Nebraska Gas falls well within the historical and projected ranges for the gas utility proxy group companies used in my analyses. I also referenced recent findings in terms of common equity ratios approved for other gas utilities in 2023 and 2024.[153] Table 4 below updates these findings.

TABLE 4
GAS UTILITY ALLOWED COMMON EQUITY RATIOS

	Low		High	Average
Q3-23	48.00%	--	51.20%	51.20%
Q4-23	48.00%	--	51.31%	51.31%
Q1-24	50.87%	--	59.07%	53.11%
Q2-24	50.00%	--	60.61%	53.07%
Q3-24	48.00%	--	62.38%	51.49%
Q4-24	45.30%	--	83.18%	54.30%
Q1-25	48.00%	--	52.50%	50.13%
Q2-25	43.17%	--	60.97%	53.04%
Average	**47.67%**	--	**60.15%**	**52.21%**

Source: S&P Global Market Intelligence, *Major Rate Case Decisions*, RRA Regulatory Focus (Feb. 4 and Jul. 25, 2025; Feb. 6, 2024). Excludes Limited Issuer Riders and capital structures that include cost-free items.

As shown above, the Company's requested 50.52% common equity ratio falls well within the range of capital structures recently approved for other gas utilities, and below the average of 52.21%.

[151] *Id*., citing Stevens Direct at 12:3-4.
[152] McKenzie Direct at 61.
[153] *Id.* at Table AMM-7.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

IMPLIED COST OF EQUITY

BERRY ROE RECOMMENDATIONS

		Berry RP_1	Berry RP_2	Morin RP
1	Berry Prior ROE Recommendation Date	9/14/2020	9/14/2020	9/14/2020
1	Berry Prior ROE Recommendation	8.97%	8.97%	8.97%
2	Average Bond Yield	2.73%	1.36%	1.36%
3	Implied Risk Premium	6.24%	7.61%	7.61%
4	July 2025 Bond Yield	5.88%	4.92%	4.92%
5	Change in Bond Yield	3.15%	3.56%	3.56%
6	Risk Premium/Interest Rate Relationship	-0.4839	-0.3910	-0.4833
7	Adjustment to Risk Premium	-1.52%	-1.39%	-1.72%
8	Adjusted Risk Premium	4.72%	6.22%	5.89%
9	**Adjusted ROE**	**10.60%**	**11.14%**	**10.81%**

1 *Dakota Seeking Approval of a General Rate Increase* , Application No. NG-109, Direct Testimony and Exhibits of S. Keith Berry, PhD (Sep. 14, 2020).
2 Average yield on single-A utility bonds for Berry RP_1, or average yield on 30 year Treasury bonds for Berry RP_2 and Morin RP, in the month prior to Dr. Berry's ROE recommendation in Application No. NG-109.
3 (1) - (2).
4 Moody's Credit Trends; https://fred.stlouisfed.org/.
5 (4) - (2).
6 Berry Direct at 16.
7 (5) x (6).
8 (3) + (7).
9 (4) + (8).

IMPLIED COST OF EQUITY

NATIONAL AUTHORIZED ROES

		All Gas
1	Allowed ROE (2020 - 2025Q2)	9.61%
2	Average Single-A Utility Yield (2020 - 2025Q2)	4.45%
3	Implied Risk Premium	5.15%
4	July 2025 Single-A Utility Yield	5.88%
5	Change in Bond Yield	1.43%
6	Risk Premium/Interest Rate Relationship	-0.4738
7	Adjustment to Risk Premium	-0.68%
8	Adjusted Risk Premium	4.48%
9	**Adjusted ROE**	**10.36%**

1 S&P Global Market Intelligence, *Major energy rate case decisions in the US* (Jul. 25, 2025).
2 Moody's Credit Trends.
3 (1) - (2).
4 Moody's Credit Trends.
5 (4) - (2).
6 Exhibit AMM-8 at 5.
7 (5) x (6).
8 (3) + (7).
9 (4) + (8).

IMPLIED COST OF EQUITY

BH NEBRASKA GAS ALLOWED ROE

		Application No. NG-109
1	Filed Date	6/1/2020
1	Order Date	1/26/2021
1	Approved ROE	9.50%
2	Average Single-A UtilityYield	2.86%
3	Implied Risk Premium	6.64%
4	July 2025 Single-A Utility Yield	5.88%
5	Change in Bond Yield	3.02%
6	Risk Premium/Interest Rate Relationship	-0.4738
7	Adjustment to Risk Premium	-1.43%
8	Adjusted Risk Premium	5.21%
9	**Adjusted ROE**	**11.09%**

1 PSC Application No. NG-109, *In the Matter of the Application of Black Hills Nebraska Gas, LLC, d/b/a Black Hills Energy, Rapid City, South Dakota, seeking approval of a genreal rate increase,* PUC Order
2 Average yield on Baa utility bonds over the pendancy of the proceeding from Moody's Credit Trends.
3 (1) - (2).
4 Moody's Credit Trends.
5 (4) - (2).
6 Exhibit AMM-8 at 5.
7 (5) x (6).
8 (3) + (7).
9 (4) + (8).

EXPECTED EARNINGS APPROACH

BERRY GROUP

		(a)	(b)	(c)
	Company	**Expected Return on Common Equity**	**Mid-Year Adjustment Factor**	**Adjusted Return on Common Equity**
1	Atmos Energy Corp.	9.5%	1.0393	9.9%
2	Chesapeake Utilities	10.5%	1.0371	10.9%
3	New Jersey Resources	14.0%	1.0277	14.4%
4	NiSource Inc.	8.5%	1.0343	8.8%
5	Northwest Natural	8.5%	1.0376	8.8%
6	ONE Gas, Inc.	9.5%	1.0244	9.7%
7	Southwest Gas	8.5%	1.0176	8.6%
8	Spire Inc.	9.0%	1.0331	9.3%
	Average (d)	9.8%		**10.1%**

(a) The Value Line Investment Survey (Aug. 22, 2025).
(b) Computed using the formula 2*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
(c) (a) x (b).
(d) Excludes highlighted values.

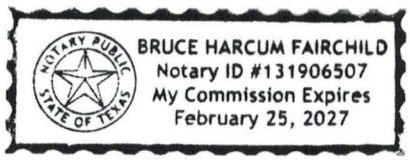
STATE OF TEXAS)
) SS.
COUNTY OF TRAVIS)

I, Adrien M. McKenzie, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony, and I am familiar with its contents, and that the facts set forth are true to the best of my knowledge, information and belief.

Adrien M. McKenzie

Subscribed and sworn to before me this 6th day of September, 2025.

(SEAL)



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My Commission Expires: 2/25/2027