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-109**

REBUTTAL TESTIMONY AND EXHIBITS OF

ADRIEN M. MCKENZIE

ON BEHALF OF

BLACK HILLS NEBRASKA GAS, LLC

October 13, 2020

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REBUTTAL TESTIMONY OF ADRIEN M. MCKENZIE

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 Financial Concepts and Applications, Inc. ("FINCAP"), a firm providing financial, economic, and policy consulting services to business and government.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of Black Hills Nebraska Gas, Inc. ("BH Nebraska Gas" or the "Company"). BH Nebraska Gas is the natural gas utility resulting from the recent internal consolidation of the Nebraska gas utility assets and operations of Black Hills Corporation's ("BHC") two former Nebraska gas utility subsidiaries, Black Hills/Nebraska Gas Utility Company, LLL. ("BH Gas Utility") and Black Hills Gas Distribution, LLC ("BH Gas Distribution").

BH Nebraska Gas is a wholly owned subsidiary of Black Hills Utility Holdings, Inc. ("BHUH"). BHUH is a wholly owned subsidiary of BHC. BH Nebraska Gas conducts business in Nebraska under the trade name of Black Hills Energy.

Q. DID YOU FILE DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, my Direct Testimony was filed in this proceeding on June 1, 2020.

A. Overview

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my testimony before the Nebraska Public Service Commission (the "Commission") is to respond to the testimony of S. Keith Berry, submitted on behalf of the Nebraska Public Advocate, concerning the fair rate of return on equity ("ROE") that BH Nebraska Gas should be authorized to earn on its investment in providing gas utility service

in Nebraska. Dr. Berry accepts the Company's proposed capital structure (containing 50% equity and 50% debt) so, for this reason, I do not address this issue further.

Finally, in light of significant changes in capital market conditions since the time the analyses presented in my direct testimony were prepared, I also present updated quantitative analyses using current inputs.

Q. PLEASE SUMMARIZE ROE RECOMMENDATION OF DR. BERRY.

A. Dr. Berry recommends an ROE for BH Nebraska Gas of 8.97%.[1] This recommendation is based on Discounted Cash Flow ("DCF"), Capital Asset Pricing Model ("CAPM"), and risk premium analyses. His DCF result is 8.86%; his CAPM result is 8.81%; and his risk premium result is 9.37%.[2] He applies greater weight to the DCF method (50%) and lesser weight to the CAPM and risk premium methods (25% each) in reaching his final proposal. His recommended ROE range is 8.2% to 9.6%.

Q. PLEASE SUMMARIZE YOUR RESPONSE TO DR. BERRY' ROE RECOMMENDATION.

A. His recommendation is extreme and should be rejected on its face. It is below the reasonable range for BH Nebraska Gas and fails to reflect the risk perceptions and return requirements of real-world investors in the capital markets. Based on a review of major rate case decisions reported by RRA, his recommendation would be the lowest ROE allowed in a regular gas utility rate case in recent history.[3]

[1] Berry Direct at 26.
[2] The result of Dr. Berry's own risk premium analysis is 9.56%. He modifies my analysis and arrives at an ROE estimate of 9.18%. The average of these two results is 9.37%. As I discuss later, I do not agree with the modifications he makes to my risk premium analysis.
[3] There have been a number of gas cases in New York with reported ROEs of around 9.0%. These outcomes are not comparable to the return at issue here because the cases involve multi-year rate plans and earnings sharing mechanisms. Beyond these cases, all authorized gas ROEs for at least the last five years have exceeded 9.0%.

B. Comparison of ROE Recommendation to Accepted Benchmarks

Q. CAN ALLOWED ROES BE USED TO EVALUATE WHETHER DR. BERRY'S RECOMMENDED ROE IS SUFFICIENT TO MEET REGULATORY STANDARDS?

A. Yes. Allowed ROEs provide a gauge of the reasonableness of the outcome of a particular analysis or decision, but ROE values do not exist in a vacuum. In considering utilities with comparable risks, investors will always prefer 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 posing equivalent risks, investors will become unwilling to supply the utility with capital on reasonable terms.

Q. HOW DOES DR. BERRY'S RECOMMENDATION COMPARE TO ROES AUTHORIZED BY OTHER STATE COMMISSIONS?

A. The recommendation of Dr. Berry is significantly below this standard. The table below indicates that the average ROE allowed by other state commissions in recent years has been 9.61% for gas utilities:

TABLE 1
AVERAGE ALLOWED ROE BY STATE COMMISSIONS

Year	Gas
2017	9.72%
2018	9.59%
2019	9.71%
2020*	9.40%
Average	**9.61%**

*Through June 30, 2020.

Source: S&P Global Market Intelligence, RRA Regulatory Focus, Major Rate Case Decisions – January – June 2020, Regulatory Research Associates (Jul. 22, 2020).

As shown on pages 3-4 of Exhibit AMM-19, at no time during the 40-year period referenced in my risk premium study has the average authorized ROE for gas utilities been as low as the value recommended by Dr. Berry in this case.

Similarly, the ROE recommendation of Dr. Berry is below the current allowed returns reported to investors for the companies in his proxy group, which average 9.80%. These results are presented on Exhibit AMM-13 and summarized in the table below:

TABLE 2
PROXY GROUP ALLOWED ROES

	Company	(a) Allowed ROE		
1	Atmos Energy Corp.	9.90%		
2	Chesapeake Utilities	10.50%		
3	New Jersey Resources	9.60%		
4	Nisource Inc.	10.02%		
5	Northwest Natural Gas	9.75%		
6	ONE Gas, Inc.	9.50%		
7	South Jersey Industries	9.60%		
8	Southwest Gas	9.53%		
9	Spire Inc.	9.80%		
	Range of Reasonableness	**9.50%**	--	**10.50%**
	Midpoint	**10.00%**		
	Average	**9.80%**		

(a) Regulatory Research Associates, "Major Rate Case Decisions" (through June 20, 2020).

Of course, the ROEs approved in other jurisdictions do not constrain the Commission's decision-making in this proceeding. However, it is important to understand that there would be a disincentive for investors to provide equity capital if the Commission were to apply a lower ROE to BH Nebraska Gas, compared to entities of comparable risk.

Q. WHAT OTHER BENCHMARK INDICATES THAT THE DR. BERRY'S RECOMMENDED ROE 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 developed as a direct result of the United States Supreme Court ("Supreme Court") decisions in *Bluefield*[4] and *Hope*.[5] This test recognizes that investors compare the allowed ROE with returns available from other alternatives of comparable risk.

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 ("MTB") ratios, debates over growth rates, or the limitations inherent in any theoretical model of investor behavior.

Q. HAS THE EXPECTED EARNINGS APPROACH BEEN RECOGNIZED AS A VALID ROE BENCHMARK?

A. Yes. This method predominated before the DCF model became fashionable with academic experts. A textbook prepared for the Society of Utility and Regulatory Financial Analysts labels the comparable earnings approach the "granddaddy of cost of equity methods" and points out that the amount of subjective judgment required to implement this method is

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

"minimal," particularly when compared to the DCF and CAPM methods.[6] The *Practitioner's Guide* notes that the comparable earnings method is "easily understood" and firmly anchored in the regulatory tradition of the *Bluefield* and *Hope* cases, as well as sound regulatory economics.[7] 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."[8]

Q. WHAT ROES ARE IMPLIED BY THE EXPECTED EARNINGS APPROACH FOR THE PROXY GROUP OF GAS UTILITIES REFERENCED BY DR. BERRY?

A. The average returns on common equity projected by Value Line Investment Survey ("Value Line") over its forecast horizon for the firms in Dr. Berry's proxy group are presented on Exhibit AMM-20 and summarized in the table below:

TABLE 3
PROXY GROUP EXPECTED EARNINGS APPROACH

	Company	Expected Earnings
1	Atmos Energy Corp.	9.5%
2	Chesapeake Utilities	10.2%
3	New Jersey Resources	10.0%
4	NiSource Inc.	11.4%
5	Northwest Natural	8.6%
6	ONE Gas, Inc.	8.8%
7	South Jersey Industries	12.5%
8	Southwest Gas	10.5%
9	Spire Inc.	7.3%
	Average	**9.9%**

Source: Exhibit AMM-20.

[6] David C. Parcell, *The Cost of Capital—A Practitioner's Guide*, Society of Utility Regulatory Financial Analysts (2010) at 115-116.
[7] *Id.*
[8] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 395.

As shown above, reference to the expected earnings approach implies an annual average cost of equity of 9.9% for the utilities in Dr. Berry's proxy group. This book return estimate is an "apples to apples" comparison to his ROE recommendations.

Q. WHAT ARE THE IMPLICATIONS OF SETTING AN ALLOWED ROE THAT IS BELOW THE RETURNS AVAILABLE FROM OTHER INVESTMENTS OF COMPARABLE RISK?

A. If the utility is unable to offer a return similar to the returns available from other opportunities of comparable risk, investors will become unwilling to supply capital to the utility on reasonable terms. For existing investors, denying the utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their cost of capital. Both of these outcomes violate regulatory standards.

Q. WHAT OTHER PITFALLS ARE ASSOCIATED WITH AN ROE THAT FALLS BELOW THOSE AUTHORIZED FOR OTHER COMPARABLE COMPANIES?

A. Adopting an ROE for BH Nebraska Gas that is well below the returns for comparable utilities could lead investors to view the Commission's regulatory framework as unsupportive, an outcome that would undermine investors' willingness to support future capital availability for investment in Nebraska. Security analysts study regulatory orders in order to advise investors where to invest their money. Moody's Investors Service ("Moody's") noted that, "[f]undamentally, the regulatory environment is the most important driver of our outlook."[9] Similarly, Standard & Poor's ("S&P") concluded that "[t]he regulatory framework/regime's influence is of critical importance when assessing regulated utilities' credit risk because it defines the environment in which a utility operates and has a significant bearing on a utility's financial performance."[10] Value Line summarizes these sentiments:

[9] Moody's Investors Service, *Regulation Will Keep Cash Flow Stable As Major Tax Break Ends*, Industry Outlook (Feb. 19, 2014).
[10] Standard & Poor's Corporation, *Key Credit Factors For The Regulated Utilities Industry*, RatingsDirect (Nov. 19, 2013).

> As we often point out, the most important factor in any utility's success, whether it provides electricity, gas, or water, is the regulatory climate in which it operates. Harsh regulatory conditions can make it nearly impossible for the best run utilities to earn a reasonable return on their investment.[11]

If Commission actions instill confidence that the regulatory environment is supportive, investors will provide the necessary capital, even in times of turmoil in the financial markets. In evaluating the Company's ROE in this case, the Commission has an opportunity to show that it recognizes the importance of continuity and a balanced regulatory regime. It is only rational for potential investors to consider the regulatory treatment afforded to BH Nebraska Gas in evaluating whether to commit new capital to Nebraska jurisdictional utilities, and at what cost. As Dr. Berry notes:

> On the other hand, if the return is set materially too low, the financial position of the shareholders will be eroded, and the utility will be unable to adequately attract necessary capital.[12]

Q. DO CUSTOMERS BENEFIT WHEN INVESTORS HAVE CONFIDENCE THAT THE REGULATORY ENVIRONMENT IS STABLE AND CONSTRUCTIVE?

A. Yes. When investors are confident that a utility has supportive regulation, they will make funds available on more reasonable terms, and even in times of turmoil in the financial markets. As noted above, regulatory signals are a primary driver of investors' risk assessment for utilities, and changing course from the path of financial strength would be extremely short-sighted. Customers and the service area economy enjoy the benefits that come from ensuring that the utility has the financial wherewithal to take whatever actions are required to ensure reliable service. Dr. Berry's recommended ROE falls outside the norms established for other utilities, fails to meet regulatory standards, and would be viewed negatively by investors.

[11] Value Line Investment Survey, *Water Utility Industry* (Jan. 13, 2017) at p. 1780.
[12] Berry Direct at 8.

Q. WHAT OTHER EVIDENCE INDICATES THAT DR. BERRY'S ROE RECOMMENDATION FAILS TO MEET REGULATORY STANDARDS?

A. As discussed in my direct testimony,[13] expected rates of return for firms in the competitive sector of the economy are also relevant in determining the appropriate return to be allowed 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 comes to the realization that investors' choices are almost limitless. It is simple, common sense 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 that the degree of risk, not the nature of the business, is relevant in evaluating an allowed ROE for a utility.[14] 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. My reference to a low-risk group of non-utility companies is consistent with the guidance of the Supreme Court and Dr. Berry's acknowledgement that a utility's cost of equity should be "comparable to the return they could expect to realize by instead making a present investment in a different stock that bears a comparable level of risk."[15]

[13] McKenzie Direct at 59-62.
[14] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
[15] Berry Direct at 37.

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

A. As shown on page 3 of Exhibit AMM-11, the average ROEs for the non-utility group reported in my direct testimony range from 9.5% to 10.5%, and average 9.8%.[16]

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

A. As set forth above, objective consideration of regulatory standards and alternative benchmarks demonstrate that the ROE recommended by Dr. Berry is too low and violates the economic and regulatory standards underlying a fair ROE.

C. Implications of Current Capital Market Conditions

Q. DOES DR. BERRY RECOGNIZE THE RECENT DISLOCATIONS THAT HAVE CHARACTERIZED THE ECONOMY AND CAPITAL MARKETS AS A RESULT OF COVID-19?

A. No, he essentially ignores the turmoil and uncertainty experienced since the onset of the crisis. In a brief mention of the COVID-19 pandemic, he claims that utility stocks "have not been significantly impacted."[17] He overlooks the threat posed by the coronavirus pandemic which has led to extreme volatility in the capital markets as investors adapt their risk perceptions and return requirements in the face of the severe disruptions to commerce and the world economy.

Q. HAVE UTILITIES AND THEIR INVESTORS FACED SIMILAR TURMOIL?

A. Yes. As of March 23, 2020, the Dow Jones Utility Average ("DJUA") had fallen approximately 36% from the previous high reached on February 18, 2020, demonstrating the fact that regulated utilities and their investors are not immune from the impact of financial market turmoil. As with the broader market, utility stock prices have recovered

[16] As shown on page 3 of Exhibit AMM-21, updating this analysis results in average cost of equity estimates in the 9.5% to 10.5% range, with an average of 9.9%.
[17] Berry Direct at 49-50.

from these lows,[18] but the pronounced selloff and heightened volatility evidences a significant upward revision in investors' perceptions of risk.

As noted earlier, concerns over weakening credit quality prompted S&P to revise its outlook for the regulated utility industry from "stable" to "negative."[19] As S&P explained:

> Even before the current downturn and COVID-19, a confluence of factors, including the adverse impacts of tax reform, historically high capital spending, and associated increased debt, resulted in little cushion in ratings for unexpected operating challenges.[20]

While recognizing regulatory protections that should mitigate the impact of the coronavirus pandemic, S&P noted that "the timing and extent of these protections adds uncertainty to already stretched financial profiles."[21] S&P warned investors that pressure on utility finances "sets the stage for downgrades."[22] Meanwhile Moody's noted that utilities were forced to seek alternatives to volatile commercial paper markets in order to fund operations, and emphasized the importance of maintaining adequate liquidity in the sector to weather a prolonged period of financial volatility and turbulent capital markets.[23]

Q. WHAT ACTIONS HAS THE FEDERAL RESERVE TAKEN IN RESPONSE TO THE ECONOMIC THREAT POSED BY THE CORONAVIRUS PANDEMIC?

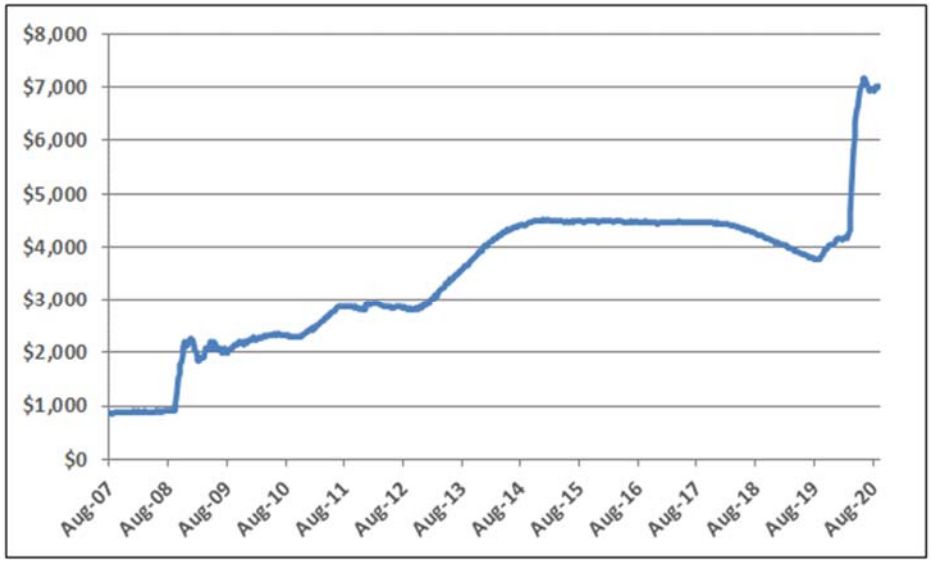
A. In early 2020, the Federal Reserve quickly lowered its policy rate to close to zero to support economic activity, stabilize markets and bolster the flow of credit to households, businesses, and communities. In addition, the Federal Reserve reintroduced the quantitative easing ("QE") measures initially adopted in response to the 2008 financial crisis and implemented a broad range of unprecedented programs designed to support

[18] As of September 30, 2020, the DJUA remained 15% below the high reached in February 2020.
[19] S&P Global Ratings, *COVID-10: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr. 2, 2020).
[20] S&P Global Ratings, *North American Regulated Utilities Face Tough Financial Policy Tradeoffs To Avoid Ratings Pressure Amid The COVID-19 Pandemic*, RatingsDirect (May 11, 2020).
[21] *Id.*
[22] *Id.*
[23] Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar. 26, 2020).

financial market liquidity and economic stability, including credit facilities to support households, businesses, and state and local governments, as well as the purchase of corporate bonds on the secondary market.[24]

As illustrated below, the Federal Reserve's asset holdings exceed $7 trillion, which is an all-time high, and the resulting effect on capital market conditions has likely never been more pronounced. While the Federal Reserve's aggressive monetary stimulus may help to ensure market liquidity and support the economy, these actions also support financial asset prices, which in turn place artificial downward pressure on bond yields.

FIGURE 1
FEDERAL RESERVE BALANCE SHEET
(BILLION $)



https://fred.stlouisfed.org/series/WALCL

[24] *See, e.g., Federal Reserve takes additional actions to provide up to $2.3 trillion in loans to support the economy,* Press Release (Apr. 9, 2020). https://www.federalreserve.gov/newsevents/pressreleases/monetary20200409a.htm.

Q. DR. BERRY ACKNOWLEDGES THE RECENT DECLINES IN YIELDS FOR U.S. TREASURY SECURITIES.[25] IS THIS THE PROPER FOCUS?

A. No. He incorrectly equates trends in Treasury security yields with expected changes in the Company's cost of equity. While Treasury bond yields provide one indicator of capital costs, they do not serve as a direct guide to the magnitude—or even direction—for changes in the cost of equity for utilities.

For example, during times of heightened uncertainty and risk, investors may prefer the relative safety of U.S. government bonds, which can lead to a significant fall in Treasury bond yields at the same time that required returns on common stocks are increasing. Treasury bond yields may also be disproportionally impacted by monetary policies, such as QE, designed with the express intent of artificially suppressing bond yields. FERC has recognized that movements in Treasury bond yields do not provide a reliable guide to changes in required returns for utilities, concluding that, "adjusting ROEs based on changes in U.S. Treasury bond yields may not produce a rational result, as both the magnitude and direction of the correlation may be inaccurate."[26]

Q. DOES THE PROSPECT OF SLOWER ECONOMIC GROWTH, AND POSSIBLY EVEN ECONOMIC RECESSION, NECESSARILY IMPLY LOWER CAPITAL COSTS?

A. No. Investors' required rates of return for BH Nebraska Gas and other financial assets are a function of risk, with greater exposure to uncertainty requiring higher—not lower—rates of return to induce long-term investment. While regulated utilities are favorably positioned relative to other industry sectors, S&P observed that conditions in the credit markets "look set to remain extraordinarily difficult for borrowers at least into the second half of the year,

[25] Berry Direct at 50.
[26] *Coakley v. Bangor Hydro-Elec.*, 147 FERC ¶ 61,234 at P 159 (2014).

with the economic stop associated with coronavirus-containment measures continuing with no clear end in sight."[27]

While expected growth rates may moderate as the economy softens, it is important not to confuse investors' expectations for future growth with their required rate of return. In fact, trends in growth rates say nothing at all about investors' overall risk perceptions. The fact that investors' required rates of return for long-term capital can rise in tandem with expectations of declining growth that might accompany an economic slowdown is demonstrated in the equity markets, where perceptions of greater risks led investors to sharply reevaluate what they are willing to pay for common stocks. While the recent decline in utility stock prices may in part be attributed to somewhat diminished expectations of future cash flows, there is also every indication that investors' discount rate, or cost of common equity, has moved significantly higher to accommodate the greater risks they now associate with equity investments.

II. RESPONSE TO DR. BERRY

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

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

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

A. I demonstrate that Dr. Berry's ROE 8.97% ROE recommendation is severely downward-biased and should be ignored. As discussed in my rebuttal testimony:

- Dr. Berry's focus on "sustainable" growth rates, limited by gross domestic product ("GDP") growth, is misguided and not relevant to the determination of a reasonable ROE in this case.

[27] S&P Global Ratings, *Credit Conditions North America: Unprecedented Uncertainty Slams Credit* (Mar. 31, 2020).

- Dr. Berry's exclusion of Value Line growth rates is not consistent and leads to downward biases in his DCF and CAPM approaches.
- His DCF analysis contains several additional flaws, including an improper dividend yield adjustment and 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.
- As with the DCF model, Dr. Berry's CAPM results are rendered meaningless due to his reliance on GDP growth as a limiting factor in determining the market return component of the model. His rejection of a legitimate size adjustment further weakens his CAPM analysis.
- Dr. Berry's adjustments to my risk premium analysis are not valid and should be rejected. The result of his own analysis, showing a risk premium cost of equity of 9.56%, is the most reasonable outcome of his entire analysis.
- Dr. Berry's reference to MTB ratios is misguided and not helpful in setting a fair ROE for the Company.

Dr. Berry's analyses are also deficient because he ignores the ECAPM and expected earnings approaches. His criticisms of my non-utility DCF analysis are without merit. His failure to take into account flotation costs is a further weakness of his analysis. 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' utility operations.

A. Misguided Focus on Long-Term GDP Growth Rate

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.[28] 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 engulf the whole pie. This is simple math; I do not argue this obvious relationship. However, it completely

[28] See, for instance, Berry Direct at 18-19, 21-22, and 28-29. 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.

misses the point. There is no demonstrable evidence for Dr. Berry's claim that each company's growth would converge to the same "sustainable" growth rate assumed for gas utilities, as proxied by projected growth for the U.S. GDP on the order of 4%. 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, in particular, 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 over a horizon of 25 years and beyond – it requires a growth estimate that matches investors' expectations.
- My evidence supports the conclusion that investors do not reference long-term GDP growth in evaluating expectations for individual common stocks.
- The theoretical proposition that growth rates for all firms converge to overall growth in the economy over the very long horizon does not guide investors' views, and growth rates for individual stocks can and do exceed GDP growth.

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

A. First, this view confuses the theory underlying the DCF model with the practicalities of its application in the real world. While the 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 the gas utility industry, or the broader market, as a whole. By applying the DCF model in a way that is inconsistent with the information that is available to investors and how they use it, the use of GDP growth places the theoretical assumptions of a financial model ahead of investor behavior. 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 A TWO-STAGE, OR MULTI-STAGE 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,"[29] 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.[30]

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.[31]

[29] *Nw. Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 61,197 (1997).
[30] *Id.*
[31] 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, the average of the updated IBES EPS growth rates for the proxy group shown on page 2 of Exhibit AMM-15 is 5.8%.

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. 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 earnings per share ("EPS") growth forecasts for individual companies and rarely mentions long-term GDP forecasts in commenting on specific investment prospects. For example, Value Line reports are routinely relied on as an important guide to apply the DCF model,[32] 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 trajectory of GDP growth out to the year 2050 and beyond had any direct relevance in investors' evaluation of gas utility common stocks, Value Line and other securities analysts would highlight this in their analyses.

Q. HOW MUCH CONFIDENCE WOULD INVESTORS BE LIKELY TO PLACE ON LONG-TERM GDP PROJECTIONS?

A. Very little. Investors understand the complexities and inherent inaccuracies involved in forecasting, and that such uncertainties are significantly compounded for a long-term time horizon. Consider the example of IHS Markit, which is perhaps the world's foremost

[32] 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.

econometric forecasting service. IHS Markit currently publishes GDP projections for the U.S. economy for the next thirty years, but for other important economic variables (e.g., bond yields) their forecast simply holds projected values constant after a five-year horizon.

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.[33] 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. 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."[34]

Similarly, a subsequent paper co-authored by Dr. Gordon concluded that "[a]nalysts do not predict earnings beyond five years, which suggests that any consensus of opinion among investors probably deteriorates quickly after five years."[35] Dr. Gordon further concluded that "the consensus among investors is that the future has a finite horizon of approximately seven years."[36] In other words, reference to long-term forecasts of GDP growth in applying the DCF model is inconsistent with investor behavior.

[33] Myron J. Gordon, *The Cost of Capital to a Public Utility*, MSU Pub. Util. Studies (1974) at 100-01.
[34] *Id.* at 89.
[35] Joseph R. Gordon and Myron T. Gordon, *The Finite Horizon Expected Return Model*, Financial Analysts Journal (May-Jun. 1997) at 52-61.
[36] *Id*.

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 Chesapeake Utilities and Southwest Gas achieved earnings growth over the last 10 years of 9.0% and 8.0%, respectively, while Atmos Energy, One Gas, and Spire all had 5-year EPS growth of 9.5%.[37] These values for Dr. Berry's own proxy firms indicate that firms can and do achieve long-term growth far in excess of the GDP growth rates suggested by Dr. Berry.

In addition, the investment community also understands that utilities are facing the prospect of a long-term commitment to infrastructure investment. For example, a report by S&P Global Market Intelligence concluded that:

> Projected 2019 capital expenditures for the 48 gas and electric utilities in the RRA universe are up to $131.1 billion, over 9% higher than the prior forecast of $119 billion in the fall 2018. . . . The nation's electric and gas utilities are investing in infrastructure to upgrade aging transmission and distribution systems, build new natural gas, solar, and wind generation, and implement new technologies, including smart meter deployment, smart grid systems, cybersecurity measures and battery storage.[38]

The report further concluded that "[w]e expect considerable levels of spending to serve as the basis for solid profit expansion *for the foreseeable future*."[39]

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

[37] Value Line Investment Survey, Natural Gas Utility Industry editions (Aug. 28, 2020).
[38] S&P Global Market Intelligence, *RRA Financial Focus – Utility Capital Expenditures Update* (May 1, 2019).
[39] *Id*. (emphasis added).

paying stock in the S&P 500 index for which data are available."[40] 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 which a consensus measure of financial analysts' forecasts (FAF) of earnings is used as a proxy for investor expectations.[41]
>
> * * *
>
> 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.[42]

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,"[43] 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*."[44]

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.

[40] Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Fin. Mgmt. (Summer 1992) ("*Harris and Marston*").
[41] *Id.*
[42] *Id.*
[43] *Id.*
[44] *Id.* (emphasis added).

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 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.[45]

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."[46] 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."[47]

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:

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

Q. How was the expected rate of return on the market portfolio estimated?

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 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%.[48]

FERC has also adopted a similar approach.[49]

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. The Commission should reject arguments to the contrary.

Q. DR. BERRY REFERENCES A NUMBER OF CITATIONS THE SUBJECT OF "SUSTAINABLE" GROWTH.[50] HOW DO YOU RESPOND?

A. Rather than cite to demonstrable evidence that investors' growth expectations for gas distribution utilities are directly linked to long-term trends in GDP, Dr. Berry simply 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."[51] This vague statement is hardly concrete evidence that investors anticipate growth for all gas utilities to coalesce at a -year growth projection for GDP that extends to 2074. The gas utility industry is

[48] *Direct Testimony of Rochelle Langfeldt*, Illinois Commerce Commission, Docket No. 01-0432 (2001), at 23-24.
[49] *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).
[50] Berry Direct at 21-23.
[51] *Id.* at 21.

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.

Similarly, arguments concerning the sustainability of any individual growth rate for a single firm in the S&P 500 are off the mark. The growth rate underlying the market cost of equity represents a weighted average of the expectations for the dividend paying firms in the S&P 500. Within this large group of firms, growth expectations for some firms may be extremely anemic, 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, 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.[52]

In other words, the growth rates used in my CAPM study are representative of the consensus expectations for the dividend paying firms in the S&P 500 Index as a whole. This contradicts Dr. Berry's position that investors' growth expectations should be constrained by a threshold tied to GDP.

Q. PLEASE SUMMARIZE YOUR OBJECTION TO DR. BERRY'S REFERENCE TO GDP GROWTH RATES IN YOUR MARKET DCF ANALYSIS?

A. Dr. Berry presents no meaningful information to suggest that earnings growth rates of companies are limited to the growth rate in GDP. There is no link between Dr. Berry's

[52] Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Fin. Mgmt. (Spring 1986).

GDP growth rate ceiling and the actual expectations of investors in the capital markets, which are the determining factor in any analysis of a fair ROE.[53]

B. Unreasonable Exclusion of Value Line Growth Rates

Q. DR. BERRY MAINTAINS THAT VALUE LINE GROWTH RATES ARE "GENERALLY INFLATED" AND EXCLUDES THEM FROM PORTIONS OF HIS DCF AND CAPM ANALYSES.[54] IS THIS A LEGITIMATE ARGUMENT?

A. No. Dr. Berry provides absolutely no evidence to support his claim. To the contrary, he recognizes that Value Line is "a well-respected and widely disseminated source of information about companies" and relies on Value Line "to develop my array of data for inferring investors' growth expectations."[55] Value Line projection comprise key inputs to his DCF and CAPM approaches.[56] To exclude them where they apparently do not serve his purpose, based on no evidence or support, is arbitrary and unsupported.

Q. IS THERE ANY LOGICAL REASON FOR EXCLUDING VALUE LINE GROWTH RATES FROM THE ROE ANALYSIS?

A. No. As I note in my direct testimony, "Value Line is one of the most widely available sources of investment advisory information"[57] and "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."[58] Value Line is a well-recognized source of expected growth rates and Dr. Berry's DCF and CAPM analyses are significantly weakened because he does not consider them.

[53] Dr. Berry has acknowledged, for example, that he is not aware of any securities analysts' reports that discuss the use of long-term GDP growth projections in the context of analyzing expectations for a specific company. Response to Data Request No. BH-PA 1-3**]**
[54] Berry Direct at 16, 28, 29, and 48.
[55] *Id.* at 12.
[56] Value Line data are used by Dr. Berry as key inputs to his "g2" and "br+vs" DCF methods and for beta in his CAPM approach. See Berry workpaper file, "Black Hills Cost of Equity.xlsx" (sheets "DCF" and "CAPM").
[57] McKenzie Direct at 5.
[58] *Id.* at 8.

Q. BEYOND HIS SPECIFIC CONDEMNATION OF VALUE LINE GROWTH RATES, DR. BERRY GOES ON TO SAY THAT "SHORT-RUN ANALYST GROWTH PROJECTIONS SHOULD NOT BE USED FOR ESTIMATING LONG-TERM EPS OR DPS GROWTH."[59] PLEASE REPLY.

A. In making this claim, Dr. Berry refers to academic studies supposedly demonstrating that short-term EPS growth forecasts by securities analysts are "overly optimistic and upwardly biased."[60] I cover this issue in my direct testimony.[61] While the projections of securities analysts may be proven optimistic or pessimistic in hindsight, this is irrelevant in assessing the expected growth that investors have incorporated into current stock prices, and any bias in analysts' forecasts – whether pessimistic or optimistic – is irrelevant if investors share analysts' views. Earnings growth projections of security analysts provide the most frequently referenced guide to investors' views and are widely accepted in applying the DCF model

Q. IS THERE A BETTER WAY TO DEAL WITH INDIVIDUAL GROWTH RATES THAT MAY LEAD TO EXTREME ROE OUTCOMES THAN TO IGNORE A LEGITIMATE GROWTH RATE SOURCE ALTOGETHER?

A. Yes. If an individual growth rate leads to an ROE estimate that is too low or too high to be considered reasonable, that estimate (and its underlying growth rate) should be removed from the analysis. All other growth rates from the particular growth rate source can remain in the analysis. This is the approach I take in my DCF analysis shown in Exhibits AMM-4 and AMM-15.

[59] Berry Direct at 20.
[60] *Id.*
[61] McKenzie Direct at 32-35.

C. Additional Flaws in DCF Analyses

Q. IN ONE OF DR. BERRY'S DCF METHODS HE DETERMINES AN OVERALL GROWTH RATE BY WEIGHTING SHORT-TERM GROWTH BY TWO-THIRDS AND LONG-TERM GDP GROWTH BY ONE-THIRD. WHAT ARE THE PROBLEMS WITH THIS APPROACH?

A. Of course, as I discuss earlier, the biggest problem with this method is the introduction of long-term GDP growth into the DCF method. Beyond this issue, Dr. Berry does not provide a basis for his two-thirds/one-third weighting scheme. While FERC uses these weights in its so-called "two-step" DCF approach for gas and oil pipelines, in a recent decision, FERC adopted weights of 80% to short-term growth rates and 20% to long-term GDP growth for electric utilities.[62] While the FERC's decision to reduce the weighting of GDP growth from one-third to 20% goes part way to resolving the distortion introduced by reliance on GDP, it does not eliminate it. In view of these facts, I believe the constant growth form of the DCF model, with a weight of 100% to near-term analyst growth estimates and no consideration of long-term GDP growth, provides a superior basis to evaluate a just and reasonable ROE for BH Nebraska Gas.

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

A. In his "g1" version of the model, Dr. Berry states that near-term expected growth rates come only from *Yahoo! Finance*.[63] *Yahoo! Finance* is a common source for growth rates published by IBES. However, a review of Dr. Berry's workpapers reveals that he also considers near-term growth rates from Zacks.[64] Zacks is also a well-recognized source for analysts' growth estimates; I rely on them as well in my ROE analysis. As I state earlier, to complete his analysis, Dr. Berry should also have considered Value Line growth rate estimates.

[62] *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc*., Opinion No. 569-A, 171 FERC ¶ 61,154 (2020).
[63] Berry Direct at 12.
[64] Berry workpaper file, "Black Hills Cost of Equity.xlsx" (sheet "DCF").

The problem with Dr. Berry's application of his "g1" version of the DCF model is that he applies the weighted average growth rate in arriving at his adjusted dividend yield, rather than the short-term growth rate. I assert that the short-term growth rate is far more representative of the growth investors expect over the coming year than is the two-stage growth rate and conclude that investors would be unlikely to place any weight on a long-term GDP estimate for this purpose.[65]

Q. WHAT IS THE PROBLEM WITH DR. BERRY'S "BR+VS" GROWTH RATE VERSION OF THE DCF MODEL?

A. Dr. Berry's internal growth rates are downward biased because of a key computational omission. He bases his calculations of the internal, "br" retention growth rate on 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 over the year. Accordingly, these year-end values must be converted to average returns using the same adjustment factor referenced in my direct and developed on Exhibit AMM-5 or Exhibit AMM-16.

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

A. No. For instance, in the "g2" portion of his DCF analysis, he retains ROE outcomes of 5.30% (NiSource) and 5.91% (Northwest Natural) in his final results.[66] As I discuss in my direct testimony,[67] based on my professional experience and the risk-return tradeoff principle that is fundamental to finance, it is inconceivable that investors are not requiring a substantially higher rate of return for holding common stock. As a result, consistent with

[65] FERC has also rejected the use of GDP growth in adjusting the dividend yield component of the DCF model for growth in the coming year. *Ass'n of Buss. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Opinion No. 569, 169 FERC ¶ 61,129 at P 98 (2019).
[66] Exhibit No. SKB-3.
[67] McKenzie Direct at 37-40.

the threshold established by utility bond yields, the values below the threshold, such as those retained by Dr. Berry, provide little guidance as to the returns investors require from utility common stocks and should be excluded. Removing these illogical outcomes increases Dr. Berry's average "g2" DCF results from 9.03% to 10.01%.

D. Additional Flaws in CAPM Analyses

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

A. Dr. Berry mistakenly introduces long-term GDP growth into the DCF model that serves as the basis for the market return portion of the CAPM. As I explained earlier, long-term GDP growth has no role in attempting to replicate investors' return estimation process. Dr. Berry also failed to consider Value Line growth estimates in his market return calculation. I have addressed this defect in his analysis earlier in this testimony.

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.[68]

Q. DR. BERRY ACCUSES YOU OF "CHERRY PICKING" BECAUSE YOU APPLY A SIZE ADJUSTMENT BUT DO NOT APPLY AN "INDUSTRY PREMIUM ADJUSTMENT."[69] IS THERE ANY MERIT TO DR. BERRY'S CONTENTION?

A. No. Dr. Berry is confusing two distinct concepts discussed by Duff & Phelps. The industry risk premiums cited by Dr. Berry represent an alternative way of considering relative risk that does not rely on beta values. In other words, the analyst may choose to accommodate

[68] *Id.* at 43-44.
[69] Berry Direct at 30.

the risk differences between guideline companies and the market as a whole by reference to beta values, or the analyst can ignore beta values and rely on more generalized industry risk premiums for this purpose. This latter approach is referred to by Duff & Phelps as the "build-up" method. The build-up method and the CAPM are not synonymous and in fact are distinct methods for estimating the cost of equity. As Duff & Phelps noted:

> Because risk premia over the risk-free rate have an embedded measure of market (i.e., "beta") risk, these premia are appropriate for use in "build-up" methods that do not already include a measure of market risk, but are not appropriate for use in models (e.g., CAPM) that already have a measure of market risk.[70]

The "industry premium adjustment" cited by D. Berry is *in lieu of* the more precise beta measure of market risk for each firm in the proxy group that is employed in the CAPM. Dr. Berry is incorrect to suggest that the "industry premium adjustment" and beta are somehow additive, when they are mutually exclusive adjustments pertaining to entirely different analytical approaches.

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.[71] DO YOU AGREE WITH THESE ASSERTIONS?

A. No. There is no credible basis to conclude that CAPM or empirical CAPM ("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-

[70] Duff & Phelps, *2017 U.S. Guide to Cost of Capital*, Wiley (2017) at 10-3.
[71] *Id.* at 31.

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. Duff & Phelps, which is referenced on numerous occasions by Dr. Berry, 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 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."[72]

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."[73] In other words, the impact of risk differences between utilities and non-regulated firms is already accounted for and there is no justification to remove the size adjustment on this basis.

[72] 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.
[73] Duff & Phelps, 2017 *Valuation Handbook, U.S. Guide to Cost of Capital*, John Wiley & Sons (2017) at 2-10.

Q. IS THIS 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,"[74] and includes the size adjustment in the CAPM under its ROE methodology for electric utilities and natural gas and oil pipelines.[75]

Q. DR. BERRY POINTS TO CERTAIN FINDINGS THAT "IMPLY THAT A SIZE ADJUSTMENT IS NOT APPROPRIATE FOR CAPM RESULTS APPLIED TO UTILITIES."[76] HOW DO YOU RESPOND?

A. Dr. Berry cites to a 1993 study by Annie Wong,[77] 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."[78] 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.[79]

[74] *Coakley v. Bangor-Hydro-Elec. Co.*, Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).
[75] *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).
[76] Berry Direct at 31-32.
[77] *Id.*
[78] Thomas M. Zepp, *Utility stocks and the size effect—revisited*, Quarterly Review of Economics and Finance, 43 (2003) 578-582.
[79] Duff & Phelps, *2015 Valuation Handbook, Guide to Cost of Capital* at 4-24.

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 EMPIRICAL FINDINGS UNDERLYING THE SIZE ADJUSTMENT. 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."[80] In contrast to Dr. Berry's assertions, the *Grabowski* article noted 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". [81]

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

[81] *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/.

This article went on to conclude that "valuation professionals typically add a 'size premium' to the base CAPM equation. . ."[82]

Q. DR. BERRY IMPLIES THAT COMBINING A SIZE ADJUSTMENT WITH VALUE LINE BETAS IN YOUR CAPM ANALYSIS CREATES A "MISMATCHING" SITUATION.[83] IS THIS A LEGITIMATE ARGUMENT?

A. No. Setting aside any potential inaccuracy associated with Dr. Berry's characterization,[84] just as it is not possible to precisely define the growth expectations necessary to apply the DCF model directly to utilities, forward-looking market returns and beta values are also unobservable. Reference to Value Line's published beta values offers an objective proxy for an unobservable, forward-looking beta that is widely accepted and there is no basis for Dr. Berry's claim of a "mismatch."

Moreover, size adjustments are calculated as the difference between actual realized returns and the returns that are predicted by the traditional CAPM. Because the smaller size deciles have average beta values that exceed 1.00, the "Blume" adjustment would act to reduce the average beta and lower the predicted CAPM return. This would have the effect of *increasing* the resulting size adjustment from those reported by Duff & Phelps. Accordingly, even granting Dr. Berry's incorrect "mismatch" claim, this would imply that my CAPM results are understated.

[82] *Id.*
[83] Berry Direct at 33-34.
[84] While Dr. Berry asserts that Ibbotson SBBI size adjustments are based on "raw" betas, *New Regulatory Finance* reported that the annual Ibbotson studies rely on "Bayseian" adjusted betas. This description is consistent with the 2013 edition of the Valuation Yearbook, which noted that "we have selected the Vasicek adjustment technique for our beta calculations." Morningstar, *Ibbotson SBBI 2013 Valuation Yearbook* at 78.

Q. IS A MISMATCH CREATED IN YOUR CAPM APPROACH IF 30-YEAR TREASURY BOND YIELDS ARE USED AS THE RISK-FREE RATE BUT LONG-TERM GDP GROWTH RATES ARE EXCLUDED IN THE CALCULATION OF THE MARKET RETURN, AS CLAIMED BY DR. BERRY?[85]

A. No. As noted by Morningstar (now Duff & Phelps), the maturity of the risk-free security should approximate the life of the underlying investment:

> The traditional thinking regarding the time horizon of the chosen Treasury security is that it should match the time horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate, since the company will continue to exist beyond those five years.[86]

Since equity ownership represents a perpetual claim on a firm's cash flows, and because the 30-year Treasury bond is the longest maturity risk-free security, it is the most appropriate security for the CAPM application.

Growth rates used in the DCF model, however, are based on investor expectations. As I state earlier, there is no demonstrable evidence that investors look to GDP growth rates in the far distant future in assessing their expectations for common stocks. Dr. Berry continues to place too much emphasis on the theoretical assumptions underlying the DCF model and not enough emphasis on its practical application. The risk-free rate component of the CAPM and the growth expectations of investors, as captured by the DCF model, are measured in separate and distinct ways and there is no requirement that these concepts "match" in the application of the ROE estimation models.

[85] *Id.* at 23.
[86] Morningstar, *Ibbotson SBBI 2013 Valuation Yearbook*, at 44.

E. Dr. Berry's Risk Premium Result is Reasonable

Q. DR. BERRY'S RISK PREMIUM ANALYSIS YIELDS A COST OF EQUITY OF 9.56%. IS THIS A REASONABLE OUTCOME?

A. Yes. While this result falls at the low end of my recommended range, it is close to recent ROEs authorized by other state commissions. I agree with Dr. Berry's use of utility equity returns allowed 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. SHOULD THIS OUTCOME HAVE ALERTED DR. BERRY TO THE DOWNWARD-BIAS OF HIS DCF AND CAPM RESULTS?

A. Yes. His DCF estimate (8.86%) and his CAPM estimate (8.81%) are 70-75 basis points below his risk premium result of 9.56%. This disparity should have been a signal to Dr. Berry as to the unreasonableness of his DCF and CAPM results. In a previous academic publication, he echoes this notion when he says 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."[87]

Q. DR. BERRY "UPDATES" YOUR RISK PREMIUM ANALYSIS BY USING UTILITY BOND YIELDS FROM SIX MONTHS PRIOR TO THE FINAL ORDERS IN THE STATE COMMISSION CASES THAT FORM YOUR RISK PREMIUM DATASET. IS THIS REASONABLE?

A. No. Dr. Berry says that this analysis "reflects the fact that the data used in formulating the state-allowed ROE is approximately six months earlier than the date of the order."[88] Given that Dr. Berry has not provided any evidence concerning the study periods covered by each

[87] S. Keith Berry, "Interest Rate Risk and Utility Risk Premia During 1982-93." *Managerial and Decision Economics*. (1998). This article was provided in response to BH Nebraska Gas' Third Set of Discovery Requests, Request: BH-PA 3-1.
[88] Berry Direct at 25.

individual rate proceeding covered by my study, this is an erroneous assumption. My analysis uses average single-A utility bond yields corresponding to each calendar quarter over which the allowed ROEs reported by RRA Regulatory Focus were established. This properly matches the bond yield with the authorized ROE using an objective standard that reflects the regulators' determination that these findings reflected the underlying cost of equity at the time they were approved.

F. Other ROE Issues

Q. DR. BERRY SAYS THAT YOUR ECAPM ANALYSIS IS "FLAWED."[89] 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.[90] 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. 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-6 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

[89] *Id.* at 34.
[90] *Id.* at 35-36.

ECAPM.[91] The ECAPM and the use of adjusted betas represent two separate and distinct issues in estimating returns, and both are useful for improving the traditional CAPM results.[92]

Q. DR. BERRY DOES NOT AGREE WITH YOUR EXPECTED EARNINGS ANALYSIS.[93] IS THIS A USEFUL ALTERNATIVE ROE ESTIMATION METHOD?

A. Yes. One of Dr. Berry's arguments against the expected earnings approach is that it is not "market-based." This 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 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

[91] 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).
[92] *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. Util. Reports, Inc. (2006) at 190-191.
[93] Berry Direct at 37-47.

assumptions of market-based financial models strain credulity,[94] and as the submissions in this proceeding make clear, virtually every element of a market-based financial analysis is 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,[95] 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 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,

[94] 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.
[95] McKenzie Direct at 52-54.

under the revenue requirements model used in the traditional regulatory paradigm, derives directly from the return on the book value of equity.[96] 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*.

Q. HAS THE EXPECTED EARNINGS APPROACH BEEN RECOGNIZED AS A MEANINGFUL METHODOLOGY IN EVALUATING A JUST AND REASONABLE ROE?

A. Yes. As discussed earlier, the expected earnings approach is directly analogous to the comparable earnings method that predominated before the advent of the DCF and other financial models.[97] The traditional comparable earnings method identifies a group of companies that are believed to be comparable in risk to the utility. The actual earnings of those companies on the book value of their investment are then compared to the allowed return of the utility. While the traditional comparable earnings test was often implemented using historical data taken from accounting records, it is also common to use projections of returns on book investment. Because these returns on book value equity are analogous to the allowed return on a utility's rate base, this measure of opportunity costs results in a direct, "apples to apples" comparison, and it has long been referenced and relied on in regulatory proceedings.

For example, a 1996 survey conducted by the National Association of Regulatory Utility Commissioners reported that 19 regulatory jurisdictions cited the comparable earnings approach as a primary method favored in determining the allowed ROE, while an additional 16 jurisdictions reported that this approach was considered along with the results

[96] *See*, Moody's Investors Service, *Rating Methodology, Regulated Electric and Gas Utilities* (June 23, 2017) at 4.
[97] The term "expected earnings" distinguishes my proposed methodology from a traditional comparable earnings analysis, in that it is based on forward-looking projections representative of investors' expectations, rather than backward-looking, historical data on actual earned returns on equity.

of other methods.[98] Similarly, the Virginia State Corporation Commission is required by statute (Virginia Code § 56-585.1.A.2.a) to consider the earned returns on book value of electric utilities in its region, which establish lower and upper boundaries for the allowed ROE. As S&P recently 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 approach, similar investments with similar risks are analyzed to determine an appropriate ROE."[99]

Q. IS THERE EVIDENCE THAT RETURNS ON BOOK VALUE INFLUENCE INVESTORS' VALUATION DECISIONS?

A. Yes. S&P cited the relevance of earned returns on book value in highlighting the primary credit considerations in the utility industry, noting that "required rate of return on equity investment is closely linked to a utility company's profitability."[100] S&P indicated that, "[f]or regulated utilities subject to full cost-of-service regulation and return-on-investment requirements, we normally measure profitability using ROE, the ratio of net income available for common stockholders to average common equity." While recognizing that "the regulator ultimately bases its decision on an authorized ROE," S&P observed that "different factors such as variances in costs and usage may influence the return a utility is actually able to earn, and consequently our analysis of profitability for cost-of-service-based utilities centers on the utility's ability to consistently earn the authorized ROE." In other words, in S&P's view, the earned return on book value may provide better insight into the financial health of the utility because it reflects the end-result of regulation, not the theoretical outcome implied by an authorized ROE.

[98] Nat'l Ass'n of Regulatory Util. Comm'rs, *Utility Regulatory Policy in the U.S. and Canada, 1995-1996* (Dec. 1996).
[99] S&P Global Market Intelligence, *The rate case process: establishing a fair return for regulated utilities*, RRA Regulatory Focus (Jun. 29, 2020).
[100] Standard & Poor's Corporation, *Utilities: Key Credit Factors For The Regulated Utilities Industry*, Criteria Corporates (Nov. 19, 2013).

Similarly, Moody's also recognizes the relevance of returns on book value in its assessment of a utility's future prospects. While noting that "[t]he authorized ROE is a popular focal point in many regulatory rate case proceedings," Moody's recognized that "earned ROEs, as reported by utilities and adjusted by Moody's," are a key gauge of financial performance.[101] As Moody's concluded, "utilities are closer to earning their authorized equity returns, which is positive from an equity market valuation perspective."

A research paper by Dr. Aswath Damodaran—a researcher cited by Dr. Berry[102]—emphasized the importance of considering returns on book value in evaluating performance and alternative investments.[103] Contradicting Dr. Berry's conclusion that returns on book value are unrelated to an evaluation of investors' expected return on investment, Dr. Damodaran noted that, "[w]hile returns on equity and capital are based upon accounting earnings and capital, and are designed to measure the quality of a firm's existing investments, they are correlated with returns you would make investing in the publicly traded equity of the firm."[104]

As Dr. Damodaran stated, "we can safely conclude that the key number in a valuation is not the cost of capital that we assign a firm but the return earned on capital that we attribute to it."[105] This is exactly what the expected earnings method seeks to measure. If the allowed ROE is insufficient to provide a return on the book value of a utility's investment as compared with what investors expect other utilities of comparable risk to earn, the utility's ability to compete for capital will be undermined. The expected earnings approach provides a measure of this necessary return as one component of the evaluation of a just and reasonable ROE.

[101] Moody's Investors Service, *Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles*, Sector In-Depth 5 (Mar. 10, 2015).
[102] Berry Direct at 32.
[103] Aswath Damodaran, *Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications*, New York University, Stern School of Business (July 2017).
[104] *Id.* at 49.
[105] *Id.* at 6.

Q. DR. BERRY IMPLIES THAT THE IMPACT OF MTB RATIOS SHOULD BE CONSIDERED IN THE EXPECTED EARNINGS APPROACH. IS THERE A CLEAR LINK BETWEEN MTB RATIOS FOR UTILITIES AND ALLOWED RATES OF RETURN?

A. No. Underlying Dr. Berry's conclusions is the supposition that regulators should set an ROE to produce a MTB ratio of approximately 1.0. This is fallacious: there is no clear link between MTB ratios for utilities and allowed rates of return.

With MTB ratios for most utilities above 1.0, Dr. Berry is suggesting that, unless book value grows rapidly, regulators should establish equity returns that will cause share prices to fall. Given the regulatory imperative of preserving a utility's ability to attract capital, this would be a truly nonsensical result. MTB ratios are determined by investors in the stock market, and a utility would be foreclosed from attracting capital if regulators were to push MTB ratios to 1.0 while other firms command prices well in excess of 1.0 times book value.

Q. IS THERE ANYTHING UNUSUAL ABOUT A STOCK PRICE EXCEEDING BOOK VALUE?

A. No. In fact, the majority of stocks currently sell substantially above book value. For example, Value Line reports that approximately 1,450 of the roughly 1,700 stocks it follows (including utilities and other industries) sell for prices in excess of book value.[106] The table below provides a listing of recent MTB ratios by industry.

[106] www.valueline.com (retrieved Aug. 18, 2020).

TABLE 4
MARKET-TO-BOOK RATIO BY SECTOR

Sector	Ratio
Energy	0.92
Financial	1.51
Utilities	1.82
Basic Materials	2.65
Conglomerates	3.29
Services	3.31
Consumer Discretionar	4.77
Healthcare	4.88
Transportation	5.24
Consumer Noncyclical	5.31
Capital Goods	5.87
Technology	6.84
Retail	11.18

Source: https://csimarket.com/screening/index1.php?s=pb
(retrieved Sep. 23, 2020).

The MTB ratio for the utilities sector of 1.82 is among the lowest of the industry groups, and it is well below the 2.83 times historical average for the S&P 500. The consistently higher MTB relationship for unregulated companies shows that Dr. Berry's theoretical 1.0 benchmark is misplaced and that his claims about excessive utility earnings based on this benchmark are incorrect.

Q. ARE THERE OTHER IMPORTANT FACTORS BEYOND ROE THAT EXPLAIN MTB RATIOS FOR UTILITIES ABOVE 1.0?

A. Yes. Although Dr. Berry's comparison would make it appear that utility ROEs are the cause for MTB ratios greater than one, this contention ignores accounting issues and other considerations. Consider, for example, the merger and acquisition activity that has significantly affected utility stock market prices in recent years. Investors know that many acquisitions have occurred, and that significant premiums and large capital gains have been associated with those transactions. While earnings expectations are a part of market pricing, Dr. Berry's contention about direct causation between ROEs and MTB ratios is an extremely narrow view.

Q. ARE ADJUSTMENTS BASED ON MTB RATIOS A COMMON FEATURE IN DETERMINING ALLOWED ROES FOR UTILITIES?

A. No. While arguments regarding the implications of a MTB ratio greater than 1.0 are not uncommon, I am not aware of a single instance in recent history where a state regulator has approved a MTB adjustment in establishing a fair ROE. Meanwhile, FERC has explicitly recognized the fallacy of relying on MTB ratios in evaluating cost of equity estimates, labelling such proposals as "academic rhetoric."[107] FERC has specifically rejected similar arguments like that from Dr. Berry, concluding that "[i]f, all else being equal, the regulator sets a utility's ROE so that the utility does not have the opportunity to earn a return on its book value comparable to the amount that investors expect that other utilities of comparable risk will earn on their book equity, the utility will not be able to provide investors the return they require to invest in that utility."[108]

Q. IS DR. BERRY'S MTB DISCUSSION RELEVANT TO EVALUATING THE ROE IN THIS CASE?

A. No. Even in the unlikely event that the long trail of breadcrumbs between Dr. Berry's theoretical postulations on MTB ratios and allowed returns remained unbroken, his conclusion is directed at the wrong hypothesis. The question before the Commission is not what ROE will produce a MTB ratio of 1.0 for utilities; rather, the question is what return will allow the Company to maintain access to capital and grant stockholders the opportunity to earn a fair return on investment vis-à-vis alternatives of comparable risk.

[107] *See, e.g., Orange & Rockland Utilities, Inc.*, Initial Decision, 40 FERC ¶ 63,053, 1987 WL 118,352 (F.E.R.C.).
[108] *Coakely v. Bangor-Hydro Elec.*, Opinion No. 531-B, 150 FERC ¶ 61,165 at P 129 (2015).

Q. DR. BERRY POINTS TO POTENTIAL DIFFERENCES IN EXPECTED EARNINGS RATES BETWEEN PARENT COMPANIES AND OPERATING COMPANIES AS A REASON TO DISCREDIT YOUR ANALYSIS.[109] WHAT IS YOUR RESPONSE?

A. This is not a valid argument. The proxy group of gas utilities has been chosen as the best representation of BH Nebraska Gas' utility operations in Nebraska. The group is risk-comparable and has observable capital market data, such as stock prices and beta values. Dr. Berry uses the same proxy group as I do. To say that the proxy group is a legitimate basis upon which to apply the DCF and CAPM methods, but it somehow is not a valid group upon which to apply the expected earnings method is arbitrary. As such, Dr. Berry's conclusions in this area should be ignored.

Q. DR. BERRY CONTENDS THAT THE EXPECTED EARNINGS APPROACH IS UNDERMINED BY "CIRCULARITY."[110] IS THIS CONCERN JUSTIFIED?

A. No. First, under my proposed ROE estimation methodology, the expected earnings approach is not the sole basis on which a just and reasonable return will be established. Rather, this method is to be considered along with the results of the DCF, CAPM, ECAPM, and risk premium approaches in evaluating the final range of reasonableness. Given that the expected earnings approach is one method among others and is not being relied on solely to establish the ROE, there is no justification for the claim that consideration of the expected earnings approach somehow results in a "self-fulfilling prophecy."[111]

Second, while expected earned rates of return for the utilities in the proxy group are certainly influenced by the returns authorized by regulators, these allowed ROEs themselves are premised on a variety of information, which presumably would include the results of "market-based" methods. State regulatory agencies routinely consider the results

[109] Berry Direct at 45-46.
[110] *Id.* at 47.
[111] *Id.*

of multiple financial models in their deliberations. As a result, it is wrong to suggest that reference to projected earned returns on book value as one facet of the Commission's fact-finding is somehow analogous to the "*ad infinitum*" loop alleged by Dr. Berry.[112]

Moreover, given the importance of the return on equity component of a utility's revenue requirements, virtually every measure of future financial performance—including cash flow measures, profitability, and dividend policies—is impacted by the ROE established by regulators. As a result, the projections of earned returns used to apply the expected earnings approach are no more susceptible to concerns over regulatory influence (past, present, or future) than the analysts' EPS growth rates reported by IBES. If analysts' estimates are rendered unusable because they are, in part, a function of expectations regarding future allowed ROEs, then under Dr. Berry's own logic, the DCF model must be rejected as well. This is misguided and the Commission should dismiss such arguments.

Q. DR. BERRY CRITICIZES YOUR USE OF A LOW-RISK GROUP OF NON-UTILITY COMPANIES AS AN ROE CHECK OF REASONABLENESS.[113] ARE HIS CRITICISMS JUSTIFIED?

A. Not at all. I covered this issue earlier in this testimony. 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 reality, investor behavior, and the *Bluefield* and *Hope* decisions. In fact, returns in the competitive sector of the economy form the very underpinning for utility ROEs because regulation purports to serve as a substitute for the actions of competitive markets.

The 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

[112] *Id.*
[113] Berry Direct at 48.

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.[114]

Q. DOES DR. BERRY PRESENT ANY OBJECTIVE EVIDENCE THAT WOULD SUPPORT A FINDING THAT YOUR NON-UTILITY PROXY GROUP IS RISKIER THAN THE COMPANIES IN THEIR PROXY GROUPS?

A. No. Dr. Berry, simply alludes to a general assertion that companies in the non-utility proxy group are "not comparable to a regulated utility company such as Black Hills" and that "regulated utilities are not exposed to competitive forces as are NUC."[115] 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 very basis for a fair rate of return. Regulatory standards governing a fair ROE are based on comparable risk, not the nature of the business.[116] 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

[114] *Fed. Power Comm'n v. Hope Natural Gas Co*., 320 U.S. 591 (1944).
[115] Berry Direct at 48. The acronym "NUC" stands for "non-utility companies."
[116] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

generally regarded as less risky than the Company, making it a conservative benchmark for the ROE in this case.[117]

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-7 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. As a result, the impact of regulatory protections is already reflected in my risk analysis. 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 STATES THAT IT IS NOT APPROPRIATE TO RELY ON THE MIDPOINT IN CALCULATING THE COMPANY'S COST OF EQUITY.[118] DO YOU CONCUR?

A. No. The paramount consideration that must be reflected in the choice of a point estimate is the need to ensure that the end result meets the standards mandated by the Supreme Court to ensure that a utility can attract capital. This determination is not a quest to ordain a single statistical measure of central tendency. Rather, the Commission must consider the available evidence to make an informed evaluation of an ROE that is just, reasonable, and sufficient to support investment.

[117] McKenzie Direct, Table AMM-7, at 61.
[118] Berry Direct at 27-28.

As the U.S. Court of Appeals for the D.C. Circuit observed in approving the use of the midpoint for setting the ROE:

> [P]etitioners are correct in noting that all measures of central tendency 'consider' the entire proxy group range, in the sense that all are influenced – at least indirectly – by each data point in the range. But only the midpoint *emphasizes* that range, as it is equally placed between the top and bottom values.[119]

There is no single ROE that meets the tests of a just and reasonable return. Rather, there is a range, or zone, that includes the set of ROEs that may meet judicial and regulatory standards. As a result, the range of reasonableness has particular significance in evaluating a fair ROE and the midpoint expressly considers the endpoints of this range.

Q. DOES REFERENCE TO THE MEDIAN CORRECT FOR ANY UNDERLYING BIAS IN DR. BERRY'S ANALYSIS?

A. No. The median is simply the observation with an equal number of data values above and below. For odd-numbered samples, the median relies on only a single number, *e.g.*, the fifth number in a nine-number set. Reliance on the median value for a series of illogical values does not correct for the inability of individual cost of equity estimates to pass fundamental tests of economic logic.

Q. DR. BERRY DISMISSES YOUR FLOTATION COST ADJUSTMENT, TESTIFYING THAT "WHILE A FLOTATION ALLOWANCE MAY BE APPROPRIATE IN CASES WHERE THE UTILITY REGULARLY ISSUES COMMON STOCK, THAT IS NOT THE CASE HERE."[120] IS THIS A VALID REASON FOR IGNORING SUCH AN ADJUSTMENT?

A. No. The need for a flotation cost adjustment is not tied to a specific issuance of common stock in the recent past or near future. Rather, it recognizes that over time the equity provided to support investment in utility assets has been provided through the sale of

[119] *Public Service Commission of the Commonwealth of Kentucky, v. FERC*, 397 F.3d 1004, 1010 (D.C. Cir. 2005).
[120] *Id.* at 49.

common shares in the capital markets. As discussed in my direct testimony, the financial literature has recognized that a flotation cost adjustment in all future years is required even if no further stock issuances are contemplated.[121]

Dr. Berry's infers that flotation costs are only recoverable in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument implies that the company has already been compensated for these costs or the initial contributed capital was obtained free of any flotation costs. These are dubious assumptions, and certainly not applicable to most utilities. The flotation cost adjustment cannot be applied strictly to current stock issues until all flotation costs associated with all past issues have been recovered.

Q. DR. BERRY CLAIMS THAT THE COMPANY'S INFRASTRUCTURE RIDER "PLACES IT IN APPROXIMATELY THE SAME RISK GROUP AS THE PROXY GROUP."[122] DO YOU AGREE?

A. No. As indicated on Exhibit AMM-3, all but one of the nine proxy utilities benefit from decoupling or weather normalization mechanisms. As discussed in my direct testimony, relative to the proxy group, the mechanisms in place for the Company's gas utility operations are somewhat more limited.[123] Thus, while the Company's regulatory clauses would be regarded as supportive, investors would nonetheless view the risks of the Company as somewhat higher than the proxy group in this important respect.

III. UPDATE TO QUANTITATIVE ANALYSIS

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

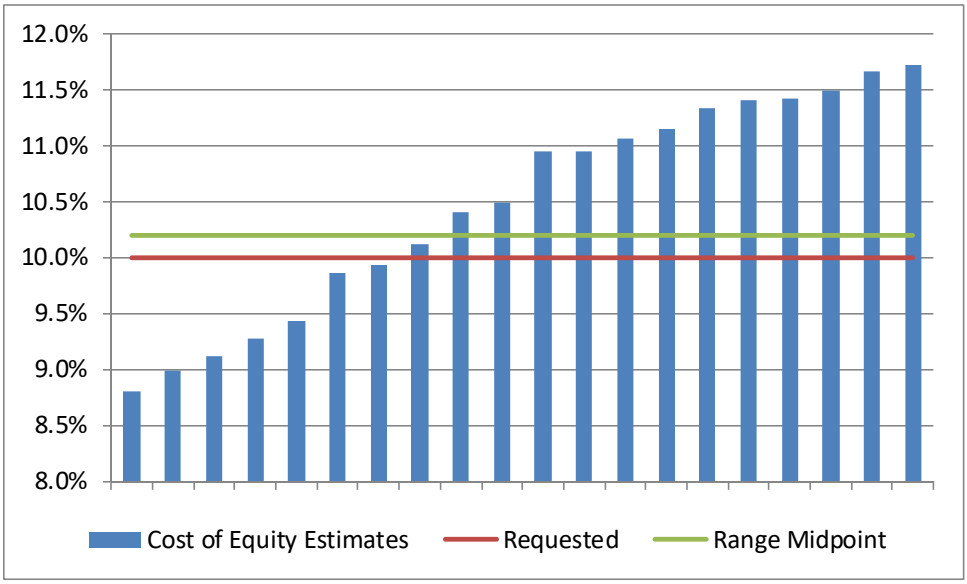
A. In light of the significant changes in capital market conditions since my direct testimony was prepared, this section presents updated results for the quantitative approaches described in my direct testimony using current data.

[121] McKenzie Direct at 52-56.
[122] Berry Direct at 49.
[123] McKenzie Direct at 9-11.

Q. DO THESE UPDATED QUANTITATIVE RESULTS LEAD YOU TO MODIFY THE PRINCIPAL CONCLUSIONS AND ROE RECOMMENDATION PRESENTED IN YOUR EARLIER FILED DIRECT TESTIMONY?

A. No. The results of my updated analyses are presented in Exhibit AMM-14 and summarized in Figure 2, below:

FIGURE 2
DISTRIBUTION OF COST OF EQUITY ESTIMATES



As illustrated above, an ROE range of approximately 9.5% to 10.7% (before a flotation cost adjustment) continues to capture the bulk of the individual cost of equity estimates making up the middle of the distribution, with the 10.0% ROE requested by BH Nebraska Gas falling below the majority of the results.

Q. IN APPLYING THE DCF MODEL, HOW DO YOU DETERMINE THE UPDATED DIVIDEND YIELDS FOR THE PROXY GROUP?

A. Estimates of dividends to be paid by each of these utilities over the next twelve months, obtained from the September 11, 2020 edition of Value Line, serve as D_1. This annual dividend is then divided by a 30-day average stock price for each utility to arrive at the

expected dividend yield. The updated dividends, stock prices, and resulting dividend yields for the firms in the Gas Group are presented on Exhibit AMM-15. As shown on the first page of this exhibit, dividend yields for the firms in the Gas Group average 3.6% (versus3.2% in my direct testimony).

Q. WHERE DO YOU REPORT THE UPDATED DCF COST OF COMMON EQUITY ESTIMATES FOR THE GAS GROUP?

A. After combining the dividend yields and respective growth projections for each utility, the resulting cost of common equity estimates are shown on page 3 of Exhibit AMM-15.

Q. WHAT ROE ESTIMATES ARE IMPLIED BY YOUR UPDATED DCF RESULTS FOR THE PROXY GROUPS?

A. My updated application of the constant growth DCF model is shown on page 3 of Exhibit AMM-15 and the results are summarized in Table 5, below:

TABLE 5
DCF RESULTS – GAS GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	10.5%	10.9%
IBES	9.0%	9.3%
Zacks	9.1%	8.8%
br + sv	10.4%	11.1%

Q. HOW DO YOU CALCULATE THE MARKET RISK PREMIUM IN YOUR UPDATE OF THE CAPM?

A. I use the same approach described in my direct testimony, only updated to reflect current information. The dividend yield for each firm is obtained from Value Line, and the growth rate is equal to the average of the earnings growth projections for each firm published by IBES, Zacks, and Value Line, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. As shown on Exhibit AMM-17, based on the weighted average of the projections for the individual firms, current estimates

imply an average growth rate over the next five years of 9.2%. Combining this average growth rate with a year-ahead dividend yield of 2.2% results in a current cost of common equity estimate for the market as a whole (R_m) of 11.4%. Subtracting a 1.4% risk-free rate based on the average yield on 30-year Treasury bonds for the six-months ending August 2020 produces a market equity risk premium of 10.0%.

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

A. I rely on the beta values reported by Value Line in their August 28, 2020 edition.

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

A. As shown on page 1 of Exhibit AMM-17, after adjusting for the impact of firm size, the CAPM approach implies an average ROE for the Gas Group of 10.9% (versus 9.4% in my direct testimony). Consistent with my direct testimony, I also apply the CAPM based on updated forecasts of long-term Treasury bond yields developed based on projections published by Value Line, IHS Global Insight and Blue Chip for the years 2021-2025. As shown on page 2 of Exhibit AMM-17, incorporating a forecasted Treasury bond yield implies an average cost of equity estimate of 11.1% for the Gas Group.

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

A. My applications of the ECAPM are based on the same forward-looking market rate of return, risk-free rates, and beta values discussed above in connection with the CAPM. As shown on page 1 of Exhibit AMM-18, applying the forward-looking ECAPM approach to the firms in the Gas Group results in an average cost of equity estimate of 11.3%. As shown on page 2 of Exhibit AMM-25, applying the ECAPM using a forecasted Treasury bond yield for 2021-2025 implies an average cost of equity estimate of 11.4% for the Gas Group.

Q. WHAT IS THE UPDATED ROE IMPLIED BY YOUR APPLICATION OF THE RISK PREMIUM METHOD?

A. As illustrated on page 1 of Exhibit AMM-19 with an average yield on single-A public utility bonds for the six-months ending August 2020 of 3.06%, this implies a current equity risk premium of 5.93% for gas utilities. Adding this equity risk premium to the average yield on Baa utility bonds corresponding to the Company implies a current ROE of 9.43%.

Q. WHAT IS THE RESULT OF THE RISK PREMIUM APPROACH AFTER INCORPORATING FORECASTED BOND YIELDS?

A. As shown on page 2 of Exhibit AMM-19, incorporating a forecasted yield for 2021-2025 and adjusting for changes in interest rates since the study period implies an equity risk premium of 5.31% for gas utilities, which is less than current equity risk premiums. Adding this equity risk premium to the implied average yield on triple-B public utility bonds for 2021-2025 of 4.81%, results in an implied cost of equity of 10.12%.

Q. WHAT ROES ARE INDICATED FOR BH NEBRASKA GAS BASED ON THE EXPECTED EARNINGS APPROACH?

A. For the firms in the proxy group, updated year-end returns on common equity projected by Value Line over its forecast horizon are shown on Exhibit AMM-20. As shown there, Value Line's current projections suggest an average ROE of 9.9% for the Gas Group.

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

A. The updated results of my DCF analysis for the Non-Utility Group are presented in Exhibit AMM-21. As summarized in Table 6, below, after eliminating illogical values, application of the constant growth DCF model resulted in the following cost of equity estimates:

TABLE 6
DCF RESULTS – NON-UTILITY GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	10.5%	10.8%
IBES	9.5%	9.9%
Zacks	9.8%	10.9%

These results provide additional confirmation that the 10.0% ROE requested by BH Nebraska Gas is reasonable.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes, it does.

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 8th day of October, 2020.

(SEAL)

BRUCE H FAIRCHILD
Notary ID #131906507
My Commission Expires
February 25, 2023

Notary Public

My Commission Expires: 2/25/2023