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**

DIRECT TESTIMONY OF

ADRIEN M. MCKENZIE

ON BEHALF OF

BLACK HILLS NEBRASKA GAS, LLC

Date: June 1, 2020

Adrien M. McKenzie
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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") d/b/a Black Hills Energy. 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, Inc. ("BH Gas Utility") and Black Hills Gas Distribution, LLC ("BH Gas Distribution").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND QUALIFICATIONS.

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

A. Overview

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

A. The purpose of my testimony is to present to the Nebraska Public Service Commission ("NPSC") my independent assessment of 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 addition, I examine the reasonableness of the Company's requested capital structure, considering both the specific risks faced by BH Nebraska Gas and other industry guidelines.

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

A. To prepare my testimony, I used information from a variety of sources that would normally be relied upon by a person in my capacity. I am familiar with BHC having previously filed rate of return testimony on behalf of its utility operations in Nebraska, as well as Arkansas, Colorado, Iowa, Kansas, South Dakota, and Wyoming. In connection with the present filing, I considered and rely upon corporate disclosures and management discussions, publicly available financial reports, and other published information relating to BHC and its subsidiaries. I also reviewed information relating generally to current capital market conditions and specifically to investor perceptions, requirements, and expectations for the Company's gas utility operations. These sources, coupled with my experience in the fields of finance and utility regulation, have given me a working knowledge of the issues relevant to investors' required return for BH Nebraska Gas, and they form the basis of my analyses and conclusions.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. After first summarizing my conclusion and recommendations, I briefly review the Company's operations and finances, develop a relevant proxy group of natural gas utilities, and examine BH Nebraska Gas' risk profile in relation to this group, including the implications of regulatory mechanisms. I then consider current conditions in the capital markets and their implications in evaluating a fair ROE for BH Nebraska Gas. With this as a background, I discuss well-accepted quantitative analyses to estimate the current cost of equity for my proxy group. These include the discounted cash flow ("DCF") model, the Capital Asset Pricing Model ("CAPM"), the empirical form of the CAPM ("ECAPM"), an equity risk premium approach based on allowed equity returns, and reference to expected earned rates of return for gas utilities, which are all methods

that are commonly relied on in regulatory proceedings. In addition, I discuss the issue of stock flotation expenses and the implications of these legitimate costs on the estimation of a reasonable ROE for the Company. Finally, consistent with the fact that utilities must compete for capital with firms outside their own industry, I corroborate my utility quantitative analyses by applying the DCF model to a group of low risk non-utility firms.

Based on the cost of equity estimates indicated by my analyses, the Company's ROE was evaluated taking into account the specific risks for BH Nebraska Gas and its requirements for financial strength. I also consider the Company's requested capital structure in relation to industry benchmarks and in relation to the Company's ongoing efforts to maintain its credit standing and support access to capital on reasonable terms.

B. Summary and Conclusions

Q. WHAT IS YOUR CONCLUSION REGARDING THE 10.0% ROE REQUESTED BY BH NEBRASKA GAS?

A. Based on the results of my analyses, and giving less weight to extremes at the high and low ends of the range, I concluded that the cost of equity for the proxy group of utilities is in the 9.5%to 10.7% range, or 9.6% to 10.8% after incorporating an adjustment to account for the impact of common equity flotation costs. As reflected in the testimony of Mr. Amdor, BH Nebraska Gas is requesting a fair ROE of 10.0%, which is below the 10.2% midpoint of my recommended range. Considering capital market expectations, the exposures faced by BH Nebraska Gas, and the economic requirements necessary to maintain financial integrity and support additional capital investment even under adverse circumstances, it is my opinion that 10.0% represents a conservatively low ROE for the Company.

II. FUNDAMENTAL ANALYSES

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. My objective is to evaluate and recommend a fair and reasonable ROE for BH Nebraska Gas. As a foundation for my opinions and subsequent quantitative analyses, this section briefly reviews the operations and finances of BH Nebraska Gas, explains the basis for my proxy group used to estimate the cost of equity, and examines alternative objective indicators of investment risk applicable to these firms. I also evaluate the investment risks of BH Nebraska Gas against those of my reference group, as well as examining specific conditions impacting today's capital markets. An understanding of the fundamental factors driving the risks and prospects of gas utilities is essential in developing an informed opinion of investors' expectations and requirements that are the basis of a fair rate of return.

A. BH Nebraska Gas

Q. BRIEFLY DESCRIBE BH NEBRASKA GAS AND ITS GAS UTILITY OPERATIONS.

A. As mentioned previously, BH Nebraska Gas is the natural gas utility resulting from the recent internal consolidation of BHC's two former Nebraska gas utility subsidiaries. BHC, headquartered in Rapid City, South Dakota, operates regulated electric utilities, regulated gas utilities, and power generation and mining business segments. Its gas utilities segment serves approximately 1,066,000 natural gas utility customers in Arkansas, Colorado, Iowa, Kansas, Nebraska and Wyoming. On February 12, 2016, BHC acquired SourceGas Holdings, LLC, adding four regulated natural gas utilities serving approximately 431,000 customers in Arkansas, Colorado, Nebraska and Wyoming and a company engaged in providing regulated intrastate natural gas transmission, storage, and related services in the Western Slope region of Colorado. At December 31, 2019, BHC's gas utility operations

in Nebraska reported revenues of approximately $256 million, gas sold and transported of approximately 81 million dekatherms, and nearly 294,000 customers.[1]

B. Determination of a Proxy Group

Q. HOW DO YOU IMPLEMENT QUANTITATIVE METHODS TO ESTIMATE THE COST OF COMMON EQUITY FOR BH NEBRASKA GAS?

A. Application of quantitative methods to estimate the cost of common equity requires observable capital market data, such as stock prices and beta values. Moreover, even for a firm with publicly traded stock, the cost of common equity can only be estimated. As a result, applying quantitative models using observable market data only produces an estimate that inherently includes some degree of observation error. Thus, the accepted approach to increase confidence in the results is to apply alternative quantitative methods to a proxy group of publicly traded companies that investors regard as risk-comparable. The results of the analysis for the sample of companies are relied upon to establish a range of reasonableness for the cost of equity for the specific company at issue.

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

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

[1] Black Hills Corporation, SEC Form 10-K report for the fiscal year ended December 31, 2019 at 21.

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

A. From the list of gas utilities compiled by Value Line, I exclude UGI Corporation because it is primarily engaged in propane sales and marketing, which are not directly comparable to BH Nebraska Gas' distribution operations. Further, I confirm that all of the proxy group firms have investment-grade credit ratings from S&P and Moody's.[2] Finally, I verify that the remaining firms are not currently involved in significant merger or acquisition activity, have not cut dividend payments during the past six months, and have not announced a dividend cut since that time. Application of these criteria resulted in a proxy group composed of nine companies, which I refer to as the "Gas Group."

C. Relative Risks of the Gas Group and BH Nebraska Gas

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

A. My evaluation of relative risk considers four objective, published benchmarks that are widely relied on in the investment community. Credit ratings are assigned by independent rating agencies—such as S&P Global Ratings ("S&P") and Moody's Investors Service ("Moody's)—for the purpose of providing investors with a broad assessment of the creditworthiness of a firm. Ratings generally extend from triple-A (the highest) to D (in default). Other symbols (*e.g.*, "+" or "-") are used to show relative standing within a category. Because the rating agencies' evaluation includes virtually all of the factors normally considered important in assessing a firm's relative credit standing, corporate

[2] Credit rating firms, such as S&P and Moody's, use designations consisting of upper- and lower-case letters 'A' and 'B' to identify a bond's credit quality rating. 'Aaa', 'Aa', 'A', and 'Baa' ratings are considered investment grade. Credit ratings for bonds below these designations ('Ba', 'B', 'Caa', etc.) are considered speculative grade, and are commonly referred to as "junk bonds." The term "investment grade" refers to bonds with ratings in the 'Baa' category ('BBB' by S&P) and above.
While the debt of Chesapeake Utilities Corporation ("Chesapeake") is not rated by S&P or Moody's, Value Line concluded that its "finances are in solid shape." Furthermore, Value Line has assigned Chesapeake its second best Safety Rank of "2." Value Line noted that "long-term debt was only 32% of total capital, while short-term commitments did not appear to pose a major problem," and concluded, "all told, we believe Chesapeake is well positioned to satisfy, for a while, its capital requirements, including investments in new plants and equipment and dividends." The Value Line Investment Survey, *Chesapeake Utilities*, August 21, 2018.

credit ratings provide a broad, objective measure of overall investment risk that is readily available to investors. Widely cited in the investment community and referenced by investors, credit ratings are also frequently used as a primary risk indicator in establishing proxy groups to estimate the cost of common equity.

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

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

Finally, beta measures a utility's stock price volatility relative to the market as a whole and reflects the tendency of a stock's price to follow changes in the market. A stock that tends to respond less to market movements has a beta less than 1.0, while stocks that tend to move more than the market have betas greater than 1.0. Beta is the only relevant measure of investment risk under modern capital market theory and is widely cited in academics and in the investment industry as a guide to investors' risk perceptions. In my

experience, Value Line is the most widely referenced source for beta in regulatory proceedings. As noted in New Regulatory Finance:

> Value Line is the largest and most widely circulated independent investment advisory service, and influences the expectations of a large number of institutional and individual investors. … Value Line betas are computed on a theoretically sound basis using a broadly based market index, and they are adjusted for the regression tendency of betas to converge to 1.00.[3]

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

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

TABLE AMM-1
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
Proxy Group	S&P	Moody's	Safety Rank	Financial Strength	Beta
Gas Group	A-	A3	2	A	0.62
Black Hills Corp.	BBB+	Baa2	2	A	0.70

The average single-A minus ratings corresponding to the Gas Group place their credit risks solidly within the investment grade range, while the lower ratings for BHC indicate slightly more risk. The average Value Line Safety Rank and Financial Strength indicators for the Gas Group are identical to those of BHC, although BHC's higher beta value again indicates somewhat more risk. Considered together, a comparison of these objective measures, which incorporate a broad spectrum of risks, including financial and business position, relative size, and exposure to company-specific factors, indicates that investors would likely conclude that the overall investment risks for BH Nebraska Gas are comparable to, if not greater than, those of the firms in the Gas Group.

[3] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports (2006) at 71.

D. Implications of Regulatory Mechanisms

Q. DO YOU CONSIDER THE IMPLICATIONS OF REGULATORY MECHANISMS IN EVALUATING A FAIR ROE FOR BH NEBRASKA GAS?

A. Yes. Adjustment mechanisms and cost trackers have been increasingly prevalent in the utility industry in recent years. Reflective of this trend, companies in the gas utility industry operate under a wide variety of cost adjustment mechanisms, in addition to the standard gas cost recovery clauses that they all have. These enhanced mechanisms range from revenue decoupling and adjustment clauses designed to address rising capital investment outside of a traditional rate case, to recovery riders for costs of environmental compliance measures, bad debt expense, and post-retirement employee benefit costs. In its most recent review of adjustment clauses, *RRA Regulatory Focus* ("RRA") reported that "roughly half of the utilities utilize some type of decoupling mechanism."[4] RRA went on to conclude that:

> More recently and with greater frequency, commissions have approved mechanisms that permit the costs associated with the construction of new generation capacity or delivery infrastructure to be reflected in rates, effectively including these items in rate base without a full rate case. In some instances, these mechanisms may even provide the utilities a cash return on construction work in progress.[5]

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

A. Yes. As summarized on Exhibit AMM-3, these mechanisms are ubiquitous and wide ranging. For example, of the 29 operating companies controlled by the Gas Group parent companies, 24 of them operate under some form of decoupling mechanism that accounts for the impact of various factors affecting sales volumes and revenues, with Atmos Energy Corporation operating under formula rate provisions in four of its jurisdictions, which

[4] S&P Global Market Intelligence, *Adjustment Clauses, A State-by-State Overview*, RRA Regulatory Focus (Nov. 12, 2019).
[5] *Id.*

have a similar impact. In addition, a weather normalization mechanism has been approved for almost 60% of these utilities, while 22 of the 29 operating gas utilities benefit from trackers designed to address rising capital investment in utility infrastructure outside of a traditional rate case.

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

A. Like all companies represented in the Gas Group, BH Nebraska Gas has a gas cost adjustment mechanism that allows it to pass the prudently-incurred cost of gas through to the customer between rate reviews. In addition, it has riders to facilitate the recovery of infrastructure system replacement, safety, and integrity costs, as well as mechanisms to recover bad debts.

Q. DOES THE COMPANY HAVE A DECOUPLING OR WEATHER NORMALIZATION MECHANISM?

A. No. In contrast to many of the specific operating companies associated with the firms in the Gas Group, the Company lacks revenue decoupling or weather normalization mechanisms. In this regard, the mechanisms in place for the Company's gas utility operations are more limited than those approved for other firms in the industry. This factor indicates more risk for the Company relative to other gas utilities.

Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO BH NEBRASKA GAS' COST OF EQUITY RELATIVE TO THE PROXY GROUP RESULTS?

A. As indicated on Exhibit AMM-3, infrastructure tracker mechanisms analogous to those available to BH Nebraska Gas are widely prevalent in the industry. Meanwhile, in contrast to many of the specific operating companies associated with the firms in the Gas Group, the Company lacks revenue decoupling or weather normalization mechanisms. Accordingly, I conclude that the mechanisms in place for the Company's gas utility operations are somewhat more limited than those approved for other firms in the industry.

Regulatory adjustment mechanisms have important implications for a utility's financial health and relative risk. Thus, while existing and proposed regulatory clauses would be regarded as supportive, investors would view the risks of the Company as somewhat higher than the proxy group in this important respect.

Q. ARE YOU RECOMMENDING A SPECIFIC ADDER TO THE COMPANY'S BASE ROE TO REFLECT ITS RELATIVE LACK OF DECOUPLING OR WEATHER NORMALIZATION MECHANISMS?

A. No. While this factor indicates more risk for the Company relative to other gas utilities, I am not proposing a specific ROE adder to account for these greater uncertainties. This provides additional support for the reasonableness of the 10.0% ROE requested by the Company.

III. CAPITAL MARKET ANALYSES AND ESTIMATES

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

A. This section presents capital market estimates of the cost of equity. First, I examine current capital market conditions. Next, I address the concept of the cost of common equity, along with the risk-return tradeoff principle fundamental to capital markets. I then describe various quantitative analyses conducted to estimate the cost of common equity for the proxy group of comparable risk utilities. Finally, I examine flotation costs, which are properly considered in evaluating a fair and reasonable ROE.

A. Outlook for Capital Costs

Q. PRIOR TO THE RECENT DISLOCATIONS RELATED TO THE CORONAVIRUS PANDEMIC, WHAT WAS THE GENERAL STATE OF ECONOMIC AND CAPITAL MARKETS?

A. In the fourth quarter of 2019, U.S. real GDP growth continued to slow to 2.1% from its recent apex of 3.5% in the second quarter of 2018. The unemployment rate remained in the neighborhood of 3.5% toward the end of 2019, which is indicative of a strong labor

market and an economy that remains at full employment. Inflation, as evidenced by the Consumer Price Index, remained steady at around 2.1% in November 2019. Investors faced uncertainty as capital markets responded to the implications of an economy at or near full employment, along with the ramifications of the Trump Administration's tariff policies. While fears of an escalating international trade war with China had eased more recently as the U.S. and China concluded the first phase of a trade agreement, uncertainty over trade policy remained elevated and investors continued to confront signs of global economic weakness. Economic activity remained weak in the Eurozone (which faces uncertain developments surrounding Brexit), and in many emerging market economies, including Brazil and Mexico. These signs of softening global growth were accompanied by continued indications of an economic slowdown in China. Finally, investors were also faced with the implications of heightened geopolitical tensions in the Middle East, which raised ongoing concerns over possible disruptions in crude oil supplies and attendant price volatility.

Q. HOW HAVE COMMON EQUITY MARKETS BEEN IMPACTED BY COVID-19?

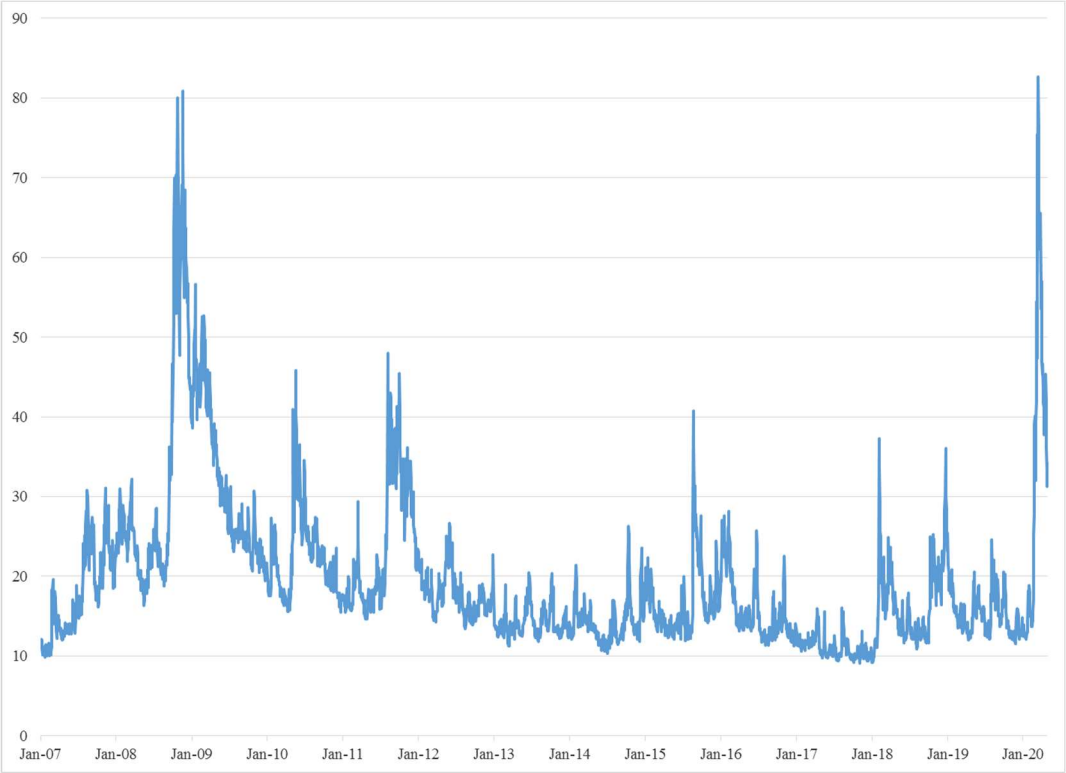
A. The threat posed by the coronavirus pandemic has led to extreme volatility in the capital markets as investors dramatically revise their risk perceptions and return requirements in the face of the severe disruptions to commerce and the world economy. Simultaneously, energy markets have been roiled by the threat to demand posed by a worldwide economic slowdown and a breakdown of Russia's partnership with the Organization of the Petroleum Exporting Countries. These simultaneous demand and supply shocks have led to sharp declines in oil prices, which have further confounded investors and destabilized the economic outlook and asset prices.

Despite the actions of the world's central banks to ease market strains and bolster the economy, global financial markets have experienced extreme volatility and precipitous declines in asset values. On March 12, 2020, the Dow Jones Industrial Average ("DJIA")

suffered its worst decline since the 1987 "Black Monday" crash, falling by almost 10% in a single session, and pushing the index into a bear market, defined as a 20% drop from a previous high. On March 16, 2020, the DJIA experienced its greatest fall, point-wise, in history, ending the day with a decline of 2,997 points. Similarly, between February 19 and March 23, 2020, the S&P 500 lost more than 30% of its total value.

The Chicago Board Options Exchange Volatility Index, commonly known as the "VIX", is a key measure of expectations of near-term volatility and market sentiment based on options prices for the S&P 500 Composite Stock Index ("S&P 500"). Figure AMM-1 illustrates the dramatic increase in volatility in response to the coronavirus pandemic:

FIGURE AMM-1
CBOE VIX INDEX – 2017-2020



The VIX has moderated since peaking at levels not seen since the 2008-2009 Financial Crisis, but it remains elevated relative to recent experience. Similarly, while the S&P 500

has staged a recovery, as of late April 2020 it remained approximately 15% below the high reached in February 2020.

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 from these lows, but as of April 2020 the DJUA remains 19% below its previous high. While equity markets have recovered from the lows reached in March 2020, the pronounced selloff and ongoing volatility evidences investors' trepidation to commit capital and marks a significant upward revision in their perceptions of risk and required returns.

Concerns over weakening credit quality prompted S&P to revise its outlook for the regulated utility industry from "stable" to "negative."[6] 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.[7]

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."[8] S&P warned investors that pressure on utility finances "sets the stage for downgrades."[9] Meanwhile Moody's noted that utilities were forced to seek alternatives to volatile commercial paper markets in order to

[6] S&P Global Ratings, *COVID-10: The Outlook For North American Regulated Utilities Turns Negative*, RatingsDirect (Apr. 2, 2020).
[7] 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).
[8] *Id.*
[9] *Id.*

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.[10]

Q. WHAT HAS BEEN THE RECENT DIRECTION OF FEDERAL RESERVE MONETARY POLICIES?

A. In early 2019, the Federal Reserve indicated its intention to adopt a more patient and accommodative stance to future policy adjustments, while observing that the appropriate target range for the federal funds rate would depend on future data. In the second half of 2019, the Federal Reserve lowered the target range for its benchmark federal funds rate by 75 basis points, reversing its policy of steady rate increases in 2016 and 2017. At the December 2019 meeting of the Federal Open Market Committee ("FOMC"), economic projections by Fed members and bank presidents indicated a strong expectation that the target federal funds rate would increase during the 2020–2022 timeframe and beyond.

Even prior to the coronavirus pandemic, the Federal Reserve continued to exert considerable influence over capital market conditions through its massive holdings of Treasuries and mortgage-backed securities, which exceeded $3.7 trillion.[11] While beginning a gradual balance sheet normalization program in October 2017, the Federal Reserve ended the reduction in its holdings of Treasury securities in 2019 and in October 2019 had indicated its intention to purchase Treasury bills at least into the second quarter of 2020 in order to maintain ample reserve balances.

[10] Moody's Investors Service, *FAQ on credit implications of the coronavirus outbreak*, Sector Comment (Mar. 26, 2020).
[11] *Factors Affecting Reserve Balances*, H.4.1 (Jan. 2, 2020). https://www.federalreserve.gov/releases/h41/current/. Prior to the initiation of the stimulus program in 2009, the Federal Reserve's holdings of U.S. Treasury bonds and notes amounted to approximately $400-$500 billion.

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

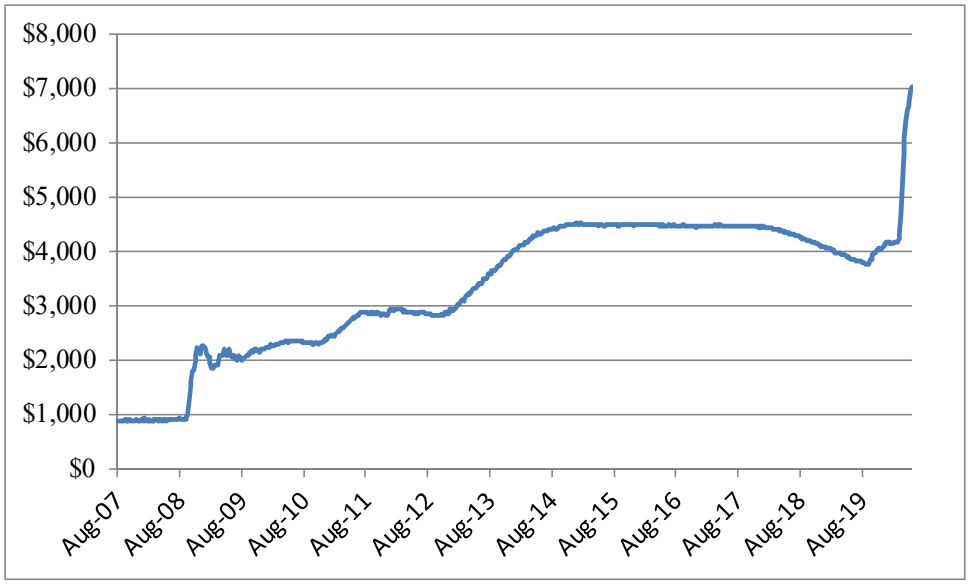
A. In response to the economic shock posed by the spread of the coronavirus, the FOMC announced a 50 basis point reduction in the target range for the federal funds range on March 3, 2020, noting that "the risks to the U.S. outlook have changed materially."[12] Twelve days later, on March 15, 2020, the FOMC moved to reduce the federal funds rate by a further 100 basis points, to a target range of 0% to 0.25%. In addition, the Federal Reserve has announced a broad range of unprecedented programs designed to support financial market liquidity and economic stability. To start, the quantitative easing ("QE") measures initially adopted in response to the 2008 financial crisis were reintroduced by directing the purchase of Treasury securities and agency mortgage-backed securities "in the amounts needed to support the smooth functioning of markets,"[13] while continuing to reinvest all principal payments from its existing holdings. In addition, the Federal Reserve has also announced wide-raging initiatives designed to support credit markets and ensure liquidity, including credit facilities to support households, businesses, and state and local governments, as well as the purchase of corporate bonds on the secondary market.[14]

Prior to the initiation of QE in 2009, the Federal Reserve's holdings of U.S. Treasury bonds and notes amounted to approximately $900 billion. With the implementation of its asset purchase program, balances of Treasury securities and mortgage backed instruments climbed steadily. Although the Federal Reserve had begun a process of normalizing its monetary policies by reducing its balance sheet holdings, its

[12] https://www.federalreserve.gov/monetarypolicy/fomcpresconf20200303.htm.
[13] Federal Reserve, *Press Release* (Mar. 23, 2020), https://www.federalreserve.gov/monetarypolicy/files/monetary20200323a1.pdf.
[14] *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.

response to the coronavirus pandemic dramatically reversed this stance. Figure AMM-2 below charts the course of the Federal Reserve's asset purchase program:

FIGURE AMM-2
FEDERAL RESERVE BALANCE SHEET
(BILLION $)



Source: https://www.federalreserve.gov/monetarypolicy/bst_recenttrends_accessible.htm.

As illustrated above, the Federal Reserve's asset holdings now amount to approximately $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.

Q. DO TRENDS IN THE YIELDS ON TREASURY NOTES AND BONDS ACCURATELY REFLECT THE EXPECTATIONS AND REQUIREMENTS OF THE COMPANY'S EQUITY INVESTORS?

A. No. Not surprisingly, investors have reacted to the threat of a global economic recession and resulting equity market volatility by seeking a safe haven in U.S. government bonds. As a result of this "flight to safety," and in response to the Federal Reserve's monetary

policies, Treasury bond yields have been pushed dramatically lower in the face of extreme risks in other sectors of the capital markets. Monthly average yields on 30-year Treasury bonds are plotted in Figure AMM-3, below:

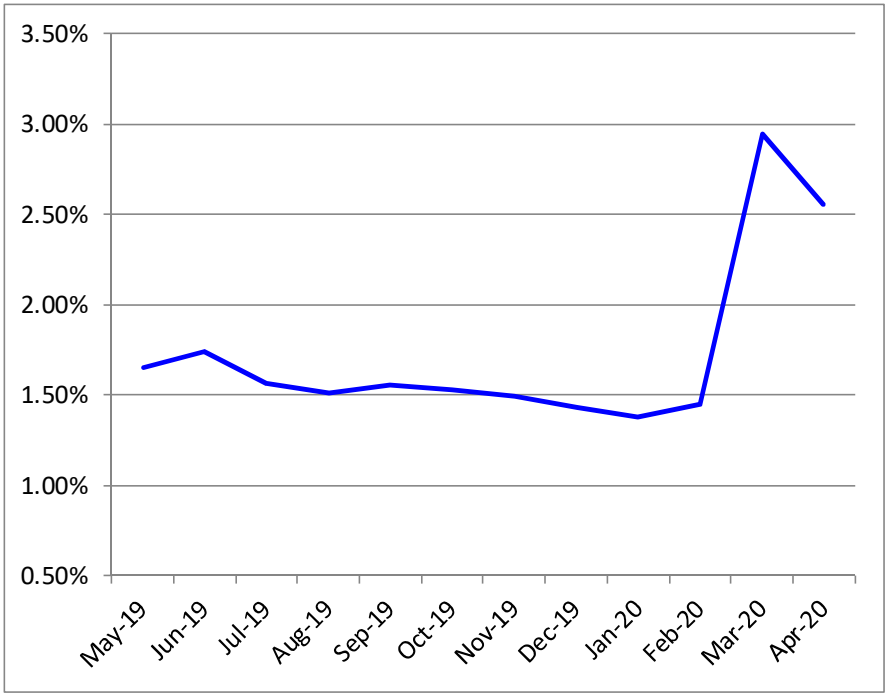
FIGURE AMM-3
30-YEAR TREASURY BOND YIELD
(MAY 2019 – APRIL 2020)

As shown above, beginning in January 2020, the yields on 30-year Treasury bonds began a general decline. In response to accelerating concerns over economic uncertainties and the Federal Reserve's actions to increase liquidity in the face of the coronavirus pandemic, the fall in Treasury bond yields became increasingly pronounced, with daily yields on 30-year notes falling below 1% in March 2020. Meanwhile, the price of 3-month Treasury bills rose high enough to push yields to 0%.

While the yields on Treasury securities have fallen significantly, the required returns for risky assets, such as common stocks, have moved sharply higher to compensate for increased perceptions of risk. This "risk-off" behavior has caused the spread between the observable yields on public utility bonds and 30-year Treasury bonds to spike

dramatically. Figure AMM-4 plots the monthly spread between Moody's Baa public utility bond yields and 30-year Treasury bond yields since May 2019.

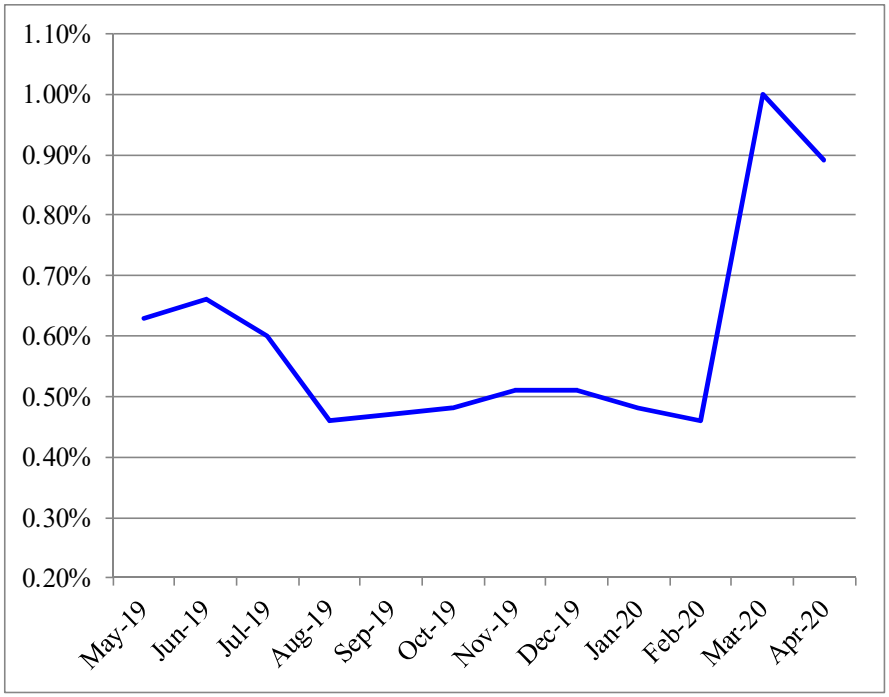
FIGURE AMM-4
YIELD SPREAD – Baa UTILITY V. 30-YEAR TREASURY BONDS
(MAY 2019 – APRIL 2020)



As illustrated above, the gap between the yields on these two debt instruments has widened significantly, reflecting the extent of the uncertainties facing investors. During January 2020, this yield spread averaged 143 basis points, versus 294 and 255 basis points in March and April of 2020. The difference (approximately 110 to 150 basis points), is the additional "cost" investors are now requiring to assume additional risk.

While the cost of equity cannot be directly observed in capital markets like the yields on bonds, there is every reason to believe that the required return to attract risk capital to utilities has increased relative to the yield on utility bonds. As illustrated below in Figure AMM-5, the spread between public utility bonds of different ratings has also expanded:

FIGURE AMM-5
YIELD SPREAD – BBB / AA UTILITY BONDS
(MAY 2019 – APRIL 2020)



Source: Moody's Investors Service.

If investors require additional return to bear the risk of BBB bonds relative to AA bonds, it is likely that they also require an even greater additional premium to shift from the relative safety of bonds to the higher risk of utility equity.

Q. WHAT DOES THIS IMPLY WITH RESPECT TO THE ROE FOR A UTILITY SUCH AS BH NEBRASKA GAS?

A. Because of the increased uncertainty in the financial markets, investors have sought a safe haven in government-backed securities, such as Treasury bonds. While the required returns for common stocks have moved higher to compensate for increased perceptions of risk, the yields on Treasury securities have fallen significantly. As evidenced above, the spread between the observable yields on utility bonds and Treasury securities has expanded significantly.

Focusing solely on the decrease in Treasury bond yields since the start of the coronavirus pandemic might suggest that investors' required returns have fallen, but the exact opposite is true. Treasury bond yields have declined because of a "flight to quality" as investors' risk perceptions have mounted. The fact that prices of Treasury bonds have been driven sharply higher is the mirror image of higher, not lower returns for more risky asset classes, such as the common stock of utilities like BH Nebraska Gas.

Q. DOES THE PROSPECT OF ECONOMIC RECESSION 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. With respect to credit markets, S&P observed that conditions "look set to remain extraordinarily difficult for borrowers at least into the second half of the year, with the economic stop associated with coronavirus-containment measures continuing with no clear end in sight."[15] And while regulated utilities are favorably positioned relative to other industry sectors, S&P nevertheless noted that "access to the equity markets remains extraordinarily challenging."[16]

It is important not to confuse investors' expectations for future growth and cash flows, which is one consideration in estimating the cost of common equity, 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 precipitous decline in utility stock prices may in part be attributed to somewhat

[15] S&P Global Ratings, *Credit Conditions North America: Unprecedented Uncertainty Slams Credit* (Mar. 31, 2020).
[16] S&P Global Ratings, *COVID-19: The Outlook For North American Regulated Utilities Turns Negative,* Ratings Direct (Apr. 2, 2020).

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.

Q. HOW DO INTEREST RATES ON LONG-TERM BONDS COMPARE WITH THOSE PROJECTED FOR THE NEXT FEW YEARS?

A. Table AMM-2 below compares current interest rates on 10-year and 30-year Treasury bonds, triple-A rated corporate bonds, and double-A rated utility bonds with the average of near-term projections from the Blue Chip Financial Forecasts, Energy Information Administration ("EIA"), IHS Markit, and The Value Line Investment Survey ("Value Line"):

TABLE AMM-2
INTEREST RATE TRENDS

	Apr. 2020	Average 2021-25	Change (bp)
10-Yr. Treasury	0.66%	2.93%	227
30-Yr. Treasury	1.27%	3.25%	198
Aaa Corporate	2.43%	3.92%	149
Aa Utility	2.93%	4.45%	152

Source:
Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020).
IHS Markit, Long-Term Macro Forecast - Baseline (Apr. 8, 2020).
Value Line Investment Survey, Forecast for the U.S. Economy (Feb. 28, 2020).
Wolters Kluwer, Blue Chip Financial Forecasts (Dec. 1, 2019).

As evidenced above, there is a clear consensus that the cost of permanent capital will be higher in the 2021-2025 timeframe than it is currently. As a result, current cost of capital estimates are likely to understate investors' requirements during the time the rates set in this proceeding are effective.

Q. WOULD IT BE REASONABLE TO DISREGARD THE IMPLICATIONS OF CURRENT CAPITAL MARKET CONDITIONS IN ESTABLISHING A FAIR ROE FOR BH NEBRASKA GAS?

A. No. They reflect the reality of the situation in which BH Nebraska Gas and other businesses must attract and retain capital. The standards underlying a fair rate of return require that the Company's authorized ROE reflect a return competitive with other investments of comparable risk and preserve its ability to maintain access to capital on reasonable terms. These standards can only be met by considering the requirements of investors in today's capital markets. As S&P concluded, challenges posed by the coronavirus crisis "have the potential to significantly impact the financial performance of the investor-owned utilities, increasing the overall level of investor risk, and will have to be addressed by state regulators."[17]

The events since early March 2020 undoubtedly mark a significant transition in investors' expectations, and there has been little indication that the challenges confronting the economy and financial markets will be resolved quickly. While market dislocations may complicate the evaluation of the cost of common equity, this provides no basis to ignore the upward shift in investors' risk perceptions and required rates of return for long-term capital. If the increase in investors' required rate of return is not incorporated in the allowed ROE, the results will fail to meet the comparable earnings standard that is fundamental in determining the cost of capital. From a more practical perspective, failing to provide investors with the opportunity to earn a rate of return commensurate with BH Nebraska Gas' risks will only serve to weaken its financial integrity, while hampering the Company's ability to attract the capital needed to meet the economic and reliability needs of its service area.

[17] S&P Global Market Intelligence, *State Regulatory Evaluations*, RRA Regulatory Focus (Mar. 25, 2020).

Q. IS IT POSSIBLE THAT THE ECONOMIC DISLOCATION CAUSED BY THE CORONAVIRUS PANDEMIC IS A TEMPORARY ABERRATION THAT WILL SOON ABATE?

A. No one knows the future of our complex global economy. While there is continued hope for a swift economic rebound as COVID-19 containment measures are gradually lifted, residual impacts of the unprecedented economic and health crisis could linger indefinitely. In any event, it would be imprudent to gamble the interests of customers and the economy of Nebraska in the hope that the harsh economic reality will suddenly be resolved. BH Nebraska Gas must raise capital in the real world of financial markets. To ignore the current reality would be unwise given the importance of reliable gas service for customers and the economy.

B. Economic Standards

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

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

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

$$k_i = R_f + RP_i$$

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

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

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

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

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

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

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

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

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

A. The actual return investors require is unobservable. Different methodologies have been developed to estimate investors' expected and required return on capital, but all such methodologies are merely theoretical tools and generally produce a range of estimates, based on different assumptions and inputs. The DCF method, which is frequently referenced and relied on by regulators, is only one theoretical approach to gain insight into the return investors require; there are numerous other methodologies for estimating the cost of capital and the ranges produced by the different approaches can vary widely.

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

A. Yes. In my experience, financial analysts and regulators routinely consider the results of alternative approaches in determining allowed ROEs. It is widely recognized that no single method can be regarded as a panacea; with all approaches having advantages and shortcomings. As the Federal Energy Regulatory Commission ("FERC") has noted, "[t]he

determination of rate of return on equity starts from the premise that there is no single approach or methodology for determining the correct rate of return."[18] More recently, FERC recognized the potential for any application of the DCF model to produce unreliable results.[19] Similarly, a publication of the Society of Utility and Regulatory Financial Analysts (formerly the National Society of Rate of Return Analysts), concluded that:

> Each model requires the exercise of judgment as to the reasonableness of the underlying assumptions of the methodology and on the reasonableness of the proxies used to validate the theory. Each model has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises, most of which cannot be validated empirically. Investors clearly do not subscribe to any singular method, nor does the stock price reflect the application of any one single method by investors.[20]

As this treatise succinctly observed, "no single model is so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models."[21] Similarly, New Regulatory Finance concluded that:

> There is no single model that conclusively determines or estimates the expected return for an individual firm. Each methodology possesses its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises that cannot be validated empirically. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. There is no monopoly as to which method is used by investors. In the absence of any hard evidence as to which method outdoes the other, all relevant evidence should be used and weighted equally, in order to minimize judgmental error, measurement error, and conceptual infirmities.[22]

Thus, while the DCF model is a recognized approach to estimating the ROE, it is not without shortcomings and does not otherwise eliminate the need to ensure that the

[18] *Nw. Pipeline Co.*, Opinion No. 396-C, 81 FERC ¶ 61,036 at 61,188 (1997).
[19] *Coakley v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234 at P 41 (2014).
[20] David C. Parcell, *The Cost of Capital – A Practitioner's Guide*, Society of Utility and Regulatory Financial Analysts (1997) at Part 2, p. 4.
[21] *Id.*
[22] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 429.

"end result" is fair. The Indiana Utility Regulatory Commission has recognized this principle:

> There are three principal reasons for our unwillingness to place a great deal of weight on the results of any DCF analysis. One is . . . the failure of the DCF model to conform to reality. The second is the undeniable fact that rarely if ever do two expert witnesses agree on the terms of a DCF equation for the same utility – for example, as we shall see in more detail below, projections of future dividend cash flow and anticipated price appreciation of the stock can vary widely. And, the third reason is that the unadjusted DCF result is almost always well below what any informed financial analysis would regard as defensible, and therefore require an upward adjustment based largely on the expert witness's judgment. In these circumstances, we find it difficult to regard the results of a DCF computation as any more than suggestive.[23]

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

[23] *Ind. Michigan Power Co.*, Cause No. 38728, 116 PUR4th, 1, 17-18 (IURC 8/24/1990).

Q. DOES THE FACT THAT THE COMPANY'S GAS DISTRIBUTION SERVICES IN NEBRASKA ARE PART OF AN OPERATING DIVISION OF BLACK HILLS CORPORATION IN ANY WAY ALTER THESE FUNDAMENTAL STANDARDS UNDERLYING A FAIR AND REASONABLE ROE?

A. No. While the Nebraska operations have no publicly traded common stock and BHC is the ultimate owner, this does not change the standards governing the determination of a fair ROE for the jurisdictional gas utility. Ultimately, the common equity that is required to support the utility operations of BH Nebraska Gas must be raised in the capital markets, where investors consider the Company's ability to offer a rate of return that is competitive with other risk-comparable alternatives. BH Nebraska Gas must compete with other investment opportunities and unless there is a reasonable expectation that investors will have the opportunity to earn returns commensurate with the underlying risks, capital will be allocated elsewhere, the Company's financial integrity will be weakened, and investors will demand an even higher rate of return. BH Nebraska Gas' ability to offer a reasonable return on investment is a necessary ingredient in ensuring that customers continue to enjoy economical rates and reliable service.

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

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

C. Constant Growth DCF Analysis

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

A. DCF models are based on the assumption that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return. Rather than developing annual estimates of cash flows into perpetuity, the DCF model can be simplified to a "constant growth" form:[24]

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

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

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

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

This constant growth form of the DCF model recognizes that the rate of return to stockholders consists of two parts: 1) dividend yield (D_1/P_0); and, 2) growth (g). In other words, investors expect to receive a portion of their total return in the form of current dividends and the remainder through price appreciation.

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

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

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

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

A. Estimates of dividends to be paid by each of these utilities over the next twelve months, obtained from Value Line, served as D_1. This annual dividend is then divided by a 30-day average stock price for each utility to arrive at the expected dividend yield. The expected dividends, stock prices, and resulting dividend yields for the firms in the Gas Group are presented on Exhibit AMM-4. As shown on page 1, dividend yields for the firms in the Gas Group range from 2.0% to 4.7% and average 3.2%.

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

A. The next step is to evaluate long-term growth expectations, or "g," for the firm in question. In constant growth DCF theory, earnings, dividends, book value, and market price are all assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. But implementation of the DCF model is more than just a theoretical exercise; it is an attempt to replicate the mechanism investors used to arrive at observable stock prices. A wide variety of techniques can be used to derive growth rates, but the only "g" that matters in applying the DCF model is the value that investors expect.

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

A. Implementation of the DCF model is solely concerned with replicating the forward-looking evaluation of real-world investors. In the case of utilities, dividend growth rates are not likely to provide a meaningful guide to investors' current growth expectations. Utility dividend policies reflect the need to accommodate business risks and investment requirements in the industry, as well as potential uncertainties in the capital markets. As a result, trends in dividend payments do not provide a direct guide to the growth prospects that investors associate with the utility industry.

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

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

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

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

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

A. Yes. Dr. Gordon specifically recognized that "it is the growth that investors expect that should be used" in applying the DCF model and he concluded:

> A number of considerations suggest that investors may, in fact, use earnings growth as a measure of expected future growth.[25]

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

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

Any claims that analysts' estimates are not relied upon by investors are illogical given the reality of a competitive market for investment advice. If financial analysts' forecasts do not add value to investors' decision making, then it is irrational for investors to pay for these estimates. Similarly, those financial analysts who fail to provide reliable forecasts will lose out in competitive markets relative to those analysts whose forecasts

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

investors find more credible. The reality that analyst estimates are routinely referenced in the financial media and in investment advisory publications (e.g., Value Line) implies that investors use them as a basis for their expectations.

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. As explained in New Regulatory Finance:

> Because of the dominance of institutional investors and their influence on individual investors, analysts' forecasts of long-run growth rates provide a sound basis for estimating required returns. Financial analysts exert a strong influence on the expectations of many investors who do not possess the resources to make their own forecasts, that is, they are a cause of *g* [growth]. The accuracy of these forecasts in the sense of whether they turn out to be correct is not an issue here, as long as they reflect widely held expectations.[26]

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

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

> KU's argument concerning the appropriateness of using investors' expectations in performing a DCF analysis is more persuasive than the AG's argument that analysts' projections should be rejected in favor of historical results. The Commission agrees that analysts' projections of growth will be relatively more compelling in forming investors' forward-looking expectations than relying on historical performance, especially given the current state of the economy.[27]

[26] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 298.
[27] *Kentucky Utilities Co.*, Case No. 2009-00548 (Ky PSC Jul. 30, 2010) at 30-31.

Similarly, FERC has expressed a clear preference for projected EPS growth rates in applying the DCF model to estimate the cost of equity for both electric and natural gas pipeline utilities:

> Opinion No. 414-A held that the IBES five-year growth forecasts for each company in the proxy group are the best available evidence of the short-term growth rates expected by the investment community. It cited evidence that (1) those forecasts are provided to IBES by professional security analysts, (2) IBES reports the forecast for each firm as a service to investors, and (3) the IBES reports are well known in the investment community and used by investors. The Commission has also rejected the suggestion that the IBES analysts are biased and stated that "in fact the analysts have a significant incentive to make their analyses as accurate as possible to meet the needs of their clients since those investors will not utilize brokerage firms whose analysts repeatedly overstate the growth potential of companies."[28]

The Public Utility Regulatory Authority of Connecticut has also noted that "there is not growth in DPS without growth in EPS," and concluded that securities analysts' growth projections have a greater influence over investors' expectations and stock prices.[29] In addition, the Regulatory Commission of Alaska ("RCA") has previously determined that analysts' EPS growth rates provide a superior basis on which to estimate investors' expectations:

> We also find persuasive the testimony . . . that projected EPS returns are more indicative of investor expectations of dividend growth than historical growth data because persons making the forecasts already consider the historical numbers in their analyses.[30]

The RCA has concluded that arguments against exclusive reliance on analysts' EPS growth rates to apply the DCF model "are not convincing."[31]

[28] *Kern River Gas Transmission Co.*, 126 FERC ¶ 61,034 at P 121 (2009) (footnote omitted).
[29] *Decision*, Docket No. 13-02-20 (Sept. 24, 2013).
[30] Regulatory Commission of Alaska, U-07-76(8) at 65, n. 258.
[31] Regulatory Commission of Alaska, U-08-157(10) at 36.

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

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

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

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

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

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

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

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

A. Yes. In applying quantitative methods to estimate the cost of equity, it is essential that the resulting values pass fundamental tests of reasonableness and economic logic. Accordingly, DCF estimates that are implausibly low or high should be eliminated when evaluating the results of this method.

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

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

Q. HAVE SIMILAR TESTS BEEN APPLIED BY REGULATORS?

A. Yes. FERC has noted that adjustments are justified where applications of the DCF approach produce illogical results. FERC evaluates DCF results against observable yields on long-term public utility debt and has recognized that it is appropriate to eliminate estimates that do not sufficiently exceed this threshold.[32] FERC affirmed that:

[32] See, e.g., *Southern California Edison Co*., 131 FERC ¶ 61,020 at P 55 (2010).

> The purpose of the low-end outlier test is to exclude from the proxy group those companies whose ROE estimates are below the average bond yield or are above the average bond yield but are sufficiently low that an investor would consider the stock to yield essentially the same return as debt. In public utility ROE cases, the Commission has used 100 basis points above the cost of debt as an approximation of this threshold, but has also considered the distribution of proxy group companies to inform its decision on which companies are outliers. As the Presiding Judge explained, this is a flexible test.[33]

Q. WHAT INTEREST RATE BENCHMARK DO YOU CONSIDER IN EVALUATING THE DCF RESULTS FOR BH NEBRASKA GAS?

A. Utility bonds rated "Baa" represent the lowest ratings grade for which Moody's publishes index values, and the closest available approximation for the risks of common stock, which are significantly greater than those of long-term debt. Monthly yields on Baa utility bonds reported by Moody's averaged 3.79% over the six months ended April 2020. As documented earlier, current forecasts continue to anticipate higher long-term rates over the near-term. As shown in Table AMM-3 below, forecasts of IHS Markit and the EIA imply an average Baa bond yield of approximately 5.1% over the period 2021-2025:

[33] Opinion No. 531, 147 FERC ¶ 61,234 at P 122 (2014).

TABLE AMM-3
IMPLIED BAA UTILITY BOND YIELD

	Baa Yield 2021-25
Projected Aa Utility Yield	
IHS Global Insight (a)	4.30%
EIA (b)	4.60%
Average	4.45%
Current Baa - Aa Yield Spread (c)	0.64%
Implied Baa Utility Yield	**5.09%**

(a) IHS Markit, Long-Term Macro Forecast - Baseline (Apr. 8, 2020).
(b) Energy Information Administration, Annual Energy Outlook 2020 (Jan. 29, 2020).
(c) Based on monthly average bond yields from Moody's Investors Service for the six-month period Nov. 2019 - Apr. 2020.

Q. WHAT ELSE SHOULD BE CONSIDERED IN EVALUATING DCF ESTIMATES AT THE LOW END OF THE RANGE?

A. While a 100 basis point spread over public utility bond yields is a starting place in evaluating low-end values, reference to a static test ignores the implications of the inverse relationship between equity risk premiums and bond yields. Specifically, the premium that investors demand to bear the higher risks of common stock is not constant. As demonstrated empirically in the application of the risk premium method,[34] equity risk premiums expand when interest rates fall, and vice versa.

For example, based on a review of its precedent for evaluating low-end values, FERC established a 100 basis point risk premium over Moody's bond yield averages as a threshold to eliminate DCF results in *SoCal Edison*, citing prior decisions in *Atlantic Path*

[34] Exhibit AMM-8, page 5.

15,[35] *Startrans*,[36] and *Pioneer*[37] in support of this policy.[38] Because bond yields declined significantly between the time of those findings and the study period in this case, the inverse relationship implies a significant increase in the equity risk premium that investors require to accept the higher uncertainties associated with an investment in utility common stocks versus bonds. As shown on page 4 of Exhibit AMM-4, recognizing the inverse relationship between equity risk premiums and bond yields would indicate a current low-end threshold in the range of approximately 6.2% to 6.8%. The impact of widening equity risk premiums should be considered in evaluating low-end cost of equity estimates.

Q. WHAT DO YOU CONCLUDE REGARDING THE REASONABLENESS OF DCF VALUES AT THE LOW END OF THE RANGE OF RESULTS?

A. As highlighted on page 3 of Exhibit AMM-4, after considering these tests and the distribution of individual estimates, I eliminate two low-end DCF estimates of 5.9% and 6.3%. 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 the threshold established by utility bond yields, the values below the threshold provide little guidance as to the returns investors require from utility common stocks and should be excluded.

Q. DO YOU ALSO RECOMMEND EXCLUDING ESTIMATES AT THE HIGH END OF THE RANGE OF DCF RESULTS?

A. While it is just as important to evaluate DCF estimates at the upper end of the range, there is no objective benchmark analogous to the bond yield averages used to eliminate illogical low-end values. Based on my review of the array of DCF results, I determine that the ROE estimate for Northwest Natural at 25.6% (including a growth rate of 22.5%) should be removed. Beyond this, the upper end of the DCF results for the Gas Group is set by a

[35] *Atl. Path 15, LLC*, 122 FERC ¶ 61,135 (2008) ("*Atlantic Path 15*").
[36] *Startrans IO, LLC*, 122 FERC ¶ 61,306 (2008) ("*Startrans*").
[37] *Pioneer Transmission, LLC*, 126 FERC ¶ 61,281 (2009) ("*Pioneer*").
[38] *SoCal Edison* at P 54.

return on equity estimate of 14.9%. While a 14.9% cost of equity estimate may exceed the majority of the remaining values, remaining low-end estimates in the 7.0% range are assuredly far below investors' required rate of return. Taken together and considered along with the balance of the results, the remaining values provide a reasonable basis on which to frame the range of plausible DCF estimates and evaluate investors' required rate of return.

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

A. As shown on page 3 of Exhibit AMM-4 and summarized in Table AMM-4, below, after eliminating illogical values, application of the constant growth DCF model results in the following ROE estimates:

TABLE AMM-4
DCF RESULTS – GAS GROUP

	Cost of Equity	
Growth Rate	**Average**	**Midpoint**
Value Line	10.7%	11.6%
IBES	9.4%	10.9%
Zacks	9.8%	11.5%
br + sv	9.9%	10.2%

D. Capital Asset Pricing Model

Q. PLEASE DESCRIBE THE CAPM.

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

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

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

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

Q. WHY IS THE CAPM APPROACH A RELEVANT COMPONENT WHEN EVALUATING THE COST OF EQUITY FOR BH NEBRASKA GAS?

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

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

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

The dividend yield for each firm is obtained from Value Line, and the growth rate is equal to the average of the earnings growth projections for each firm published by IBES, Zacks, and Value Line, with each firm's dividend yield and growth rate being weighted by its proportionate share of total market value. 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 9.3%. Combining this average growth rate with a year-ahead dividend yield of 3.1% results in a current cost of common equity estimate for the market as a whole (R_m) of 12.4%. Subtracting a 1.9% risk-free rate based on the average yield on 30-year Treasury bonds for the six-months ending April 2020 produces a market equity risk premium of 10.5%.

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

A. As indicated earlier in my discussion of risk measures for the Gas Group, I rely on the beta values reported by Value Line, which in my experience is the most widely referenced source for beta in regulatory proceedings.

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

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

> One of the most remarkable discoveries of modern finance is the finding of a relationship between firm size and return. On average, small companies have higher returns than large ones. . . . The relationship between firm size and return cuts across the entire size spectrum; it is not restricted to the smallest stocks.[39]

According to the CAPM, the expected return on a security should consist of the riskless rate, plus a premium to compensate for the systematic risk of the particular security. The degree of systematic risk is represented by the beta coefficient. The need for

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

the size adjustment arises because differences in investors' required rates of return that are related to firm size are not fully captured by beta. To account for this, researchers have developed size premiums that need to be added to account for the level of a firm's market capitalization in determining the CAPM cost of equity.[40] Accordingly, my CAPM analyses also incorporate an adjustment to recognize the impact of size distinctions, as measured by the market capitalization for the firms in the Gas Group.

Q. IS THIS ADJUSTMENT RELATED TO THE RELATIVE SIZE OF BH NEBRASKA GAS AS COMPARED WITH THE PROXY GROUP?

A. No. I am not proposing to apply a general size risk premium in evaluating a fair and reasonable ROE for the Company and my recommendation does not include any adjustment related to the relative size of BH Nebraska Gas. Rather, this size adjustment is specific to the CAPM and merely corrects for an observed inability of the beta measure to fully reflect the risks perceived by investors for the firms in the Gas Group. As FERC has recognized, "This type of size adjustment is a generally accepted approach to CAPM analyses."[41]

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

A. As shown on page 1 of Exhibit AMM-6, after adjusting for the impact of firm size, the CAPM approach implies an average ROE of 9.4% and midpoint ROE of 9.8% for the Gas Group.

Q. DO YOU ALSO APPLY THE CAPM USING FORECASTED BOND YIELDS?

A. Yes. As discussed earlier, there is general consensus that interest rates will increase over the period when the rates established in this proceeding will be in effect. Accordingly, in addition to the use of current bond yields, I also apply the CAPM based on the forecasted

[40] Originally compiled by Ibbotson Associates and published in their annual yearbook entitled, "Stocks, Bonds, Bills and Inflation," these size premia are now developed by Duff & Phelps and presented in its *Valuation Handbook – Guide to Cost of Capital*.
[41] Opinion No. 531-B, 150 FERC ¶ 61,165 at P 117 (2015).

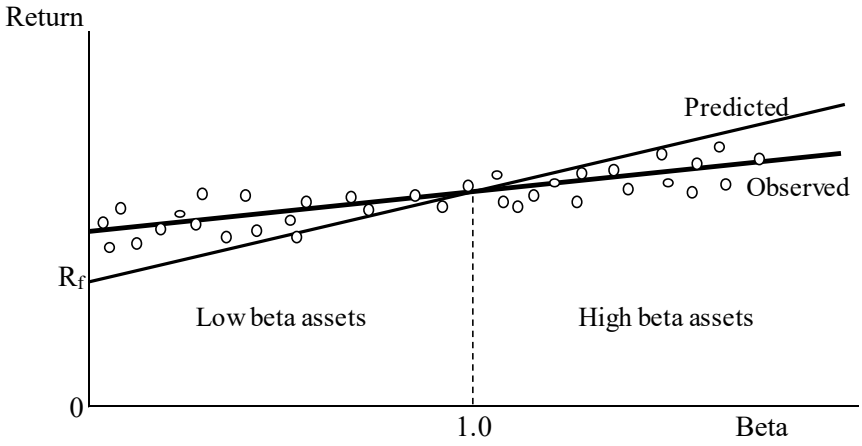
long-term Treasury bond yields developed based on projections published by Value Line, IHS Markit, and Blue Chip. As shown on page 2 of Exhibit AMM-6, incorporating a forecasted Treasury bond yield for 2021-2025 implies an average cost of equity estimate of 9.9% for the Gas Group after adjusting for the impact of relative size, with a midpoint of 10.2%.

E. Empirical Capital Asset Pricing Model

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

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

FIGURE AMM-6
CAPM – PREDICTED VS. OBSERVED RETURNS



Because the betas of utility stocks, including those in the Gas Group, are generally less than 1.0, this implies that cost of equity estimates based on the traditional CAPM

would understate the cost of equity. This empirical finding is widely reported in the finance literature, as summarized in New Regulatory Finance:

> As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical relationships.[42]

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

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

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

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

A. Yes. Value Line beta values are adjusted for the observed tendency of beta to converge toward the mean value of 1.0 over time.[43] The purpose of this adjustment is to refine beta values determined using historical data to better match forward-looking estimates of beta, which are the relevant parameter in applying the CAPM or ECAPM models. Meanwhile,

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

the ECAPM does not involve any adjustment to beta whatsoever. Rather, it represents a formal recognition of findings in the financial literature that the observed risk-return tradeoff demonstrated in Figure AMM-6 is flatter than predicted by the CAPM. In other words, even if a firm's beta value were estimated with perfect precision, the CAPM would still understate the return for low-beta stocks and overstate the return for high-beta stocks. The ECAPM and the use of adjusted betas represent two separate and distinct issues in estimating returns.

Q. HAVE REGULATORS RELIED ON THE ECAPM?

A. Yes. The Wyoming Office of Consumer Advocate, an independent division of the Wyoming Public Service Commission, has relied on this same ECAPM formula in estimating the cost of equity for a natural gas utility.[44] The staff of the Colorado commission has recognized that, "The ECAPM is an empirical method that attempts to enhance the CAPM analysis by flattening the risk-return relationship,"[45] and relied on the exact same standard ECAPM equation presented above.[46] The ECAPM approach has been relied on by the Staff of the Maryland Public Service Commission. For example, Maryland Staff Witness Julie McKenna noted that "the ECAPM model adjusts for the tendency of the CAPM model to underestimate returns for low Beta stocks," and concluded that, "under current economic conditions that the ECAPM gives a more realistic measure of the ROE than the CAPM model does."[47] The New York Department of Public Service also routinely incorporates the results of the ECAPM approach in determining allowed ROEs.[48] The Regulatory Commission of Alaska has also relied on the ECAPM approach, noting that:

[44] Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53.
[45] Proceeding No. 13AL-0067G, *Answer Testimony and Schedules of Scott England* (July 31, 2013) at 47.
[46] *Id.* at 48.
[47] *Direct Testimony and Schedules of Julie McKenna*, Maryland PSC Case No. 9299 (Oct. 12, 2012) at 9.
[48] *See, e,g.,* New York Public Service Commission, Cases 19-E-0065 19-G-0066, *Prepared Fully Redacted Testimony of Staff Finance Panel* (May 2019) at 94-95.

> Tesoro averaged the results it obtained from CAPM and ECAPM while at the same time providing empirical testimony that the ECAPM results are more accurate then [sic] traditional CAPM results. The reasonable investor would be aware of these empirical results. Therefore, we adjust Tesoro's recommendation to reflect only the ECAPM result.[49]

A witness for the Office of Arkansas Attorney General has also applied the ECAPM approach.[50] More recently, the Montana Public Service Commission determined that "[t]he evidence in this proceeding has convinced the Commission that the Empirical Capital Asset Pricing Model ("ECAPM") should be the primary method for estimating…the cost of equity" for a gas distribution utility under its jurisdiction.[51]

Q. WHAT 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 earlier in connections with the CAPM. As shown on page 1 of Exhibit AMM-7, applying the forward-looking ECAPM approach to the firms in the Gas Group results in an average cost of equity estimate of 10.4% after incorporating the size adjustment corresponding to the market capitalization of the individual utilities. The midpoint of the size adjusted ECAPM range is 10.6%.

As shown on page 2 of Exhibit AMM-7, incorporating a forecasted Treasury bond yield for 2021-2025 implies an average and midpoint cost of equity for the Gas Group of 10.7% and 11,0%, after adjusting for the impact of relative size.

F. Utility Risk Premium Method

Q. BRIEFLY DESCRIBE THE RISK PREMIUM METHOD.

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

[49] Regulatory Commission of Alaska, Order No. P-97-004(151) (Nov. 27, 2002) at 145.
[50] Docket No. 17-071-U, *Direct Testimony of Marlon F. Griffing, PH.D.* (May 29, 2018) at 33-35.
[51] Montana Public Service Commission, Docket No. D2017.9.80, Order No. 7575c (Sep. 26, 2018) at P 114.

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

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

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

Q. HOW DO YOU IMPLEMENT THE RISK PREMIUM METHOD?

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

Q. IS IT CIRCULAR TO CONSIDER RISK PREMIUMS BASED ON AUTHORIZED RETURNS IN ASSESSING A FAIR ROE FOR BH NEBRASKA GAS?

A. No. In establishing authorized ROEs, regulators typically consider the results of alternative market-based approaches. Because allowed risk premiums consider objective

market data (*e.g.*, stock prices dividends, beta, and interest rates) and are not based strictly on past actions of other regulators, this mitigates concerns over any potential for circularity.

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

A. The equity returns authorized for gas utilities by regulatory commissions across the U.S. are compiled by RRA and published on a quarterly basis. In Exhibit AMM-8, the average yield on single-A public utility bonds is subtracted from the average allowed return for gas utilities to calculate equity risk premiums for each quarter between 1980 and the first quarter of 2020. As shown on page 4 of Exhibit AMM-8, over this period, these equity risk premiums for gas utilities average 3.65%, and the yield on single-A public utility bonds average 7.90%.

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

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

As noted earlier, bond yields are at relatively low levels. Given that equity risk premiums move inversely with interest rates, these lower bond yields also imply an increase in the equity risk premium that investors require to accept the higher uncertainties

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

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

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

> Published studies by Brigham, Shome, and Vinson (1985), Harris (1986), Harris and Marston (1992, 1993), Carelton, Chambers, and Lakonishok (1983), Morin (2005), and McShane (2005), and others demonstrate that, beginning in 1980, risk premiums varied inversely with the level of interest rates – rising when rates fell and declining when rates rose.[52]

Other regulators have also recognized that, while the cost of equity trends in the same direction as interest rates, these variables do not move in lock-step.[53] This relationship is illustrated in the figure on page 5 of Exhibit AMM-8.

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

A. Based on the regression output between the interest rates and equity risk premiums displayed on page 5 of Exhibit AMM-8, the equity risk premium for gas utilities increases approximately 47 basis points for each percentage point drop in the yield on average public utility bonds. As illustrated on page 1 of Exhibit AMM-8, with an average yield on single-A public utility bonds for the six-months ending April 2020 of 3.35%, this implies

[52] Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, at 128 (2006).
[53] *See, e.g.*, California Public Utilities Commission, Decision 08-05-035 (May 29, 2008); Entergy Mississippi Formula Rate Plan FRP-5, http://www.entergy-mississippi.com/content/price/tariffs/emi_frp.pdf; *Martha Coakley et al.*, 147 FERC ¶ 61,234 at P 147 (2014).

a current equity risk premium of 5.79% for gas utilities. Adding this equity risk premium to the current average yield on triple-B utility bonds implies a current ROE of 9.58%.

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

A. As shown on page 2 of Exhibit AMM-8, incorporating a forecasted yield for 2021-2025 and adjusting for changes in interest rates since the study period implies an equity risk premium of 5.18% for gas utilities, which is less than the current equity risk premium. This lower equity risk premium is consistent with the inverse relationship I described above. Adding this equity risk premium to the implied average yield on triple-B public utility bonds for 2021-2025 of 5.09% results in an implied cost of equity of 10.27%.

G. Expected Earnings Approach

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

A. I also evaluate the ROE using the expected earnings method. Reference to rates of return available from alternative investments of comparable risk can provide an important benchmark in assessing the return necessary to assure confidence in the financial integrity of a firm and its ability to attract capital. This expected earnings approach is consistent with the economic underpinnings for a fair rate of return established by the U.S. Supreme Court in *Bluefield*[54] and *Hope*.[55] Moreover, it avoids the complexities and limitations of capital market methods and instead focuses on the returns earned on book equity, which are readily available to investors.

Q. WHAT ECONOMIC PREMISE UNDERLIES THE EXPECTED EARNINGS APPROACH?

A. The simple, but powerful concept underlying the expected earnings approach is that investors compare each investment alternative with the next best opportunity. If the utility is unable to offer a return similar to that available from other opportunities of comparable

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

risk, investors will become unwilling to supply the capital on reasonable terms. For existing investors, denying the utility an opportunity to earn what is available from other similar risk alternatives prevents them from earning their opportunity cost of capital. Such an outcome would violate the *Hope* and *Bluefield* standards and undermine the utility's access to capital on reasonable terms.

Q. HOW IS THE EXPECTED EARNINGS APPROACH TYPICALLY IMPLEMENTED?

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

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

similar in risk, their expected earned returns on invested capital provide a direct benchmark for investors' opportunity costs that is independent of fluctuating stock prices, market-to-book ratios, debates over DCF growth rates, or the limitations inherent in any theoretical model of investor behavior.

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

A. For the firms in the Gas Group, the year-end returns on common equity projected by Value Line over its forecast horizon are shown on Exhibit AMM-9. As I explained earlier in my discussion of the br+sv growth rates used in applying the DCF model, Value Line's returns on common equity are calculated using year-end equity balances, which understates the average return earned over the year.[56] Accordingly, these year-end values are converted to average returns using the same adjustment factor discussed earlier and developed on Exhibit AMM-5. As shown on Exhibit AMM-9, Value Line's projections for the Gas Group suggest an average ROE of 10.3%, with a midpoint value of 9.9%.

H. Flotation Costs

Q. WHAT OTHER CONSIDERATION IS RELEVANT IN SETTING THE ROE FOR A UTILITY?

A. The common equity used to finance the investment in utility assets is provided from either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs associated with "floating" the new equity securities. These flotation costs include services such as legal, accounting, and printing, as well as the fees and discounts paid to compensate brokers for selling the stock to the public. Also, some argue that the "market pressure" from the additional supply of common stock and other market factors may further reduce the

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

amount of funds a utility nets when it issues common equity. While the Company has no publicly traded stock and does not incur flotation costs directly, equity capital is provided by investors through BHC's sale of common shares. Thus, these expenses are also relevant when evaluating the fair and reasonable ROE for a wholly-owned subsidiary, such as the Company.

Q. IS THERE AN ESTABLISHED MECHANISM FOR A UTILITY TO RECOGNIZE EQUITY ISSUANCE COSTS?

A. No. While debt flotation costs are recorded on the books of the utility, amortized over the life of the issue, and thus increase the effective cost of debt capital, there is no similar accounting treatment to ensure that equity flotation costs are recorded and ultimately recognized. No rate of return is authorized on flotation costs necessarily incurred to obtain a portion of the equity capital used to finance plant. In other words, equity flotation costs are not included in a utility's rate base because neither that portion of the gross proceeds from the sale of common stock used to pay flotation costs is available to invest in plant and equipment, nor are flotation costs capitalized as an intangible asset. Unless some provision is made to recognize these issuance costs, a utility's revenue requirements will not fully reflect all of the costs incurred for the use of investors' funds. Because there is no accounting convention to accumulate the flotation costs associated with equity issues, they must be accounted for indirectly, with an upward adjustment to the cost of equity being the most appropriate mechanism.

Q. IS THERE ACADEMIC EVIDENCE THAT SUPPORTS A FLOTATION COST ADJUSTMENT?

A. Yes. The financial literature and evidence in this case provides a sound theoretical and practical basis to include consideration of flotation costs for BH Nebraska Gas. An adjustment for flotation costs associated with past equity issues is appropriate, even when the utility is not contemplating any new sales of common stock. The need for a flotation

cost adjustment to compensate for past equity issues has been recognized in the financial literature. In a *Public Utilities Fortnightly* article, for example, Brigham, Aberwald, and Gapenski demonstrated that even if no further stock issues are contemplated, a flotation cost adjustment in all future years is required to keep shareholders whole, and that the flotation cost adjustment must consider total equity, including retained earnings.[57] Similarly, New Regulatory Finance contains the following discussion:

> Another controversy is whether the flotation cost allowance should still be applied when the utility is not contemplating an imminent common stock issue. Some argue that flotation costs are real and should be recognized in calculating the fair rate of return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made 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 and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. … The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.58

Q. CAN YOU ILLUSTRATE WHY INVESTORS WILL NOT HAVE THE OPPORTUNITY TO EARN THEIR REQUIRED ROE UNLESS A FLOTATION COST ADJUSTMENT IS INCLUDED?

A. Yes. Assume a utility sells $10 worth of common stock at the beginning of year 1. If the utility incurs flotation costs of $0.48 (5% of the net proceeds), then only $9.52 is available to invest in rate base. Assume that common shareholders' required rate of return is 10.5%, the expected dividend in year 1 is $0.50 (i.e., a dividend yield of 5%), and that growth is expected to be 5.5% annually. As developed in Table AMM-5 below, if the allowed rate of return on common equity is only equal to the utility's 10.5% "bare bones" cost of equity,

[57] E. F. Brigham, D. A. Aberwald, and L. C. Gapenski, *Common Equity Flotation Costs and Rate Making*, Pub. Util. Fortnightly, May 2, 1985. *See also* Roger A. Morin, *New Regulatory Finance*, Pub. Util. Reports, Inc. (2006) at 335.
[58] Roger A. Morin, "New Regulatory Finance," *Public Utilities Reports, Inc.* (2006) at 335.

common stockholders will not earn their required rate of return on their $10 investment, since growth will really only be 5.25%, instead of 5.5%:

TABLE AMM-5
NO FLOTATION COST ADJUSTMENT

Year	Common Stock	Retained Earnings	Total Equity	Market Price	M/B Ratio	Allowed ROE	EPS	DPS	Payout Ratio
1	$ 9.52	$ -	$ 9.52	$10.00	1.050	10.50%	$ 1.00	$ 0.50	50.0%
2	$ 9.52	$ 0.50	$10.02	$10.53	1.050	10.50%	$ 1.05	$ 0.53	50.0%
3	$ 9.52	$ 0.53	$10.55	$11.08	1.050	10.50%	$ 1.11	$ 0.55	50.0%
Growth			**5.25%**	**5.25%**			**5.25%**	**5.25%**	

The reason that investors never really earn 10.5% on their investment in the above example is that the $0.48 in flotation costs initially incurred to raise the common stock is not treated like debt issuance costs (*i.e.*, amortized into interest expense and therefore increasing the embedded cost of debt), nor is it included as an asset in rate base.

Including a flotation cost adjustment allows investors to be fully compensated for the impact of these costs. One commonly referenced method for calculating the flotation cost adjustment is to multiply the dividend yield by a flotation cost percentage. Thus, with a 5% dividend yield and a 5% flotation cost percentage, the flotation cost adjustment in the above example would be approximately 25 basis points. As shown in Table AMM-6 below, by allowing a rate of return on common equity of 10.75% (a 10.5% cost of equity plus a 25 basis point flotation cost adjustment), investors earn their 10.5% required rate of return, since actual growth is now equal to 5.5%:

TABLE AMM-6
INCLUDING FLOTATION COST ADJUSTMENT

Year	Common Stock	Retained Earnings	Total Equity	Market Price	M/B Ratio	Allowed ROE	EPS	DPS	Payout Ratio
1	$ 9.52	$ -	$ 9.52	$10.00	1.050	10.75%	$ 1.02	$ 0.50	48.8%
2	$ 9.52	$ 0.52	$10.05	$10.55	1.050	10.75%	$ 1.08	$ 0.53	48.8%
3	$ 9.52	$ 0.55	$10.60	$11.13	1.050	10.75%	$ 1.14	$ 0.56	48.8%
Growth			**5.50%**	**5.50%**			**5.50%**	**5.50%**	

The only way for investors to be fully compensated for issuance costs is to include an ongoing adjustment to account for past flotation costs when setting the return on common equity. This is the case regardless of whether or not the utility is expected to issue additional shares of common stock in the future.

Q. WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES" COST OF EQUITY TO ACCOUNT FOR ISSUANCE COSTS?

A. The most common method used to account for flotation costs in regulatory proceedings is to apply an average flotation-cost percentage to a utility's dividend yield. Exhibit AMM-10, presents an analysis of flotation costs associated with the most recent open-market common stock issues for each company in Value Line's electric and gas utility industries. For all companies in the electric and gas industries, flotation costs averaged 2.902%. Applying this 2.902% expense percentage to the Gas Group dividend yield of 2.7% produces a flotation cost adjustment on the order of 8 basis points.

Q. HAVE OTHER REGULATORS RECOGNIZED FLOTATION COSTS IN EVALUATING A FAIR AND REASONABLE ROE?

A. Yes. For example, in Docket No. UE-991606 the Washington Utilities and Transportation Commission concluded that a flotation cost adjustment of 25 basis points should be included in the allowed return on equity:

> The Commission also agrees with both Dr. Avera and Dr. Lurito that a 25 basis point markup for flotation costs should be made. This amount compensates the Company for costs incurred from past issues of common stock. Flotation costs incurred in connection with a sale of common stock are not included in a utility's rate base because the portion of gross proceeds that is used to pay these costs is not available to invest in plant and equipment.[59]

In Case No. INT-G-16-02 the staff of the Idaho Public Utilities Commission supported the use of the same flotation cost methodology that I recommend above, concluding:

[59] *Third Supplemental Order*, WUTC Docket No. UE-991606, *et al.*, p. 95 (September 2000).

> [I]s the standard equation for flotation cost adjustments and is referred to as the "conventional" approach. Its use in regulatory proceedings is widespread, and the formula is outlined in several corporate finance textbooks.[60]

More recently, the Wyoming Office of Consumer Advocate recommended a 10 basis point flotation cost adjustment for a wholly-owned gas utility that, like BH Nebraska Gas, does not issue common stock directly.[61] Similarly, the South Dakota Public Utilities Commission has recognized the impact of issuance costs, concluding that, "recovery of reasonable flotation costs is appropriate."[62] Another example of a regulator that approves common stock issuance costs is the Mississippi Public Service Commission, which routinely includes a flotation cost adjustment in its Rate Stabilization Adjustment Rider formula.[63] The Public Utilities Regulatory Authority of Connecticut,[64] the Minnesota Public Utilities Commission,[65] and the Virginia State Corporation Commission[66] have also recognized that flotation costs are a legitimate expense worthy of consideration in setting a fair and reasonable ROE.

IV. NON-UTILITY BENCHMARK

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

A. This section presents the results of my DCF analysis applied to a group of low-risk firms in the competitive sector, which I refer to as the "Non-Utility Group." This analysis is not directly considered in arriving at my recommended ROE range of reasonableness; however, it is my opinion that this is a relevant consideration in evaluating a fair and reasonable ROE for the Company.

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[60] Case No. INT-G-16-02, *Direct Testimony of Mark Rogers* (Dec. 16, 2016) at 18.
[61] Docket No. 30011-97-GR-17, *Pre-Filed Direct Testimony of Anthony J. Ornelas* (May 1, 2018) at 52-53.
[62] *Northern States Power Co*, EL11-019, Final Decision and Order at P 22 (2012).
[63] *See*, *e.g.*, Entergy Mississippi, Inc., Formula Rate Plan Rider (Dec. 30, 2019), https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=2ahUKEwi-rZmf_4joAhXIIDQIHRpZCO4QFjADegQICBAB&url=https%3A%2F%2Fwww.entergy-mississippi.com%2Fuserfiles%2Fcontent%2Fprice%2Ftariffs%2Feml_frp.pdf&usg=AOvVaw0LXIS0Z-AWjUIIu3YUiGD1.
[64] *See, e.g.*, Docket No. 14-05-06, Decision (Dec. 17, 2014) at 133-134.
[65] *See, e.g.,* Docket No. E001/GR-10-276, Findings of Fact, Conclusions, and Order at 9.
[66] Roanoke Gas Company, Case No. PUR-2018-00013, *Final Order*, (Jan. 24, 2020) at 6.

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

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

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

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

> By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.[67]

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

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

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

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

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

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

1) pay common dividends;
2) have a Safety Rank of "1" or "2";
3) have a Financial Strength Rating of "B++" or greater;
4) have a beta of 0.80 or less; and
5) have investment grade credit ratings from S&P and Moody's.

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

A. Table AMM-7 compares the Non-Utility Group with the Gas Group across the measures of investment risk discussed earlier:

TABLE AMM-7
COMPARISON OF RISK INDICATORS

	Credit Ratings		Value Line		
			Safety	Financial	
Proxy Group	S&P	Moody's	Rank	Strength	Beta
Non-Utility Group	A-	A3	1	A	0.75
Gas Group	A-	A3	2	A	0.62
Black Hills Corp.	BBB+	Baa2	2	A	0.70

As shown above, the risk indicators for the Non-Utility Group generally suggest comparable or less risk than for the Gas Group or for the Company.

The companies that make up the Non-Utility Group are representative of the pinnacle of corporate America. These firms, which include household names such as Coca-Cola, Kellogg, Proctor & Gamble, and Walmart, have long corporate histories, well-established track records, and exceedingly conservative risk profiles. Many of these companies pay dividends on a par with utilities, with the average dividend yield for the group of 2.9%. Moreover, because of their significance and name recognition, these companies receive intense scrutiny by the investment community, which increases confidence that published growth estimates are representative of the consensus expectations reflected in common stock prices.

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

A. I apply the DCF model to the Non-Utility Group using the same analysts' EPS growth sources described earlier for the Gas Group. The results of my DCF analysis for the Non-Utility Group are presented in Exhibit AMM-11. As summarized in Table AMM-8, below, after eliminating illogical values, application of the constant growth DCF model results in the following cost of equity estimates:

TABLE AMM-8
DCF RESULTS – NON-UTILITY GROUP

Growth Rate	Average	Midpoint
Value Line	10.5%	10.8%
IBES	9.5%	10.6%
Zacks	9.5%	10.5%

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

V. RETURN ON EQUITY FOR BH NEBRASKA GAS

Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section presents an overview of the relationship between ROE and preservation of a utility's financial integrity and the ability to attract capital under reasonable terms, and presents my conclusions regarding the reasonableness of the 10.0% requested by BH Nebraska Gas. Finally, I discuss the reasonableness of the Company's capital structure request in this case.

A. Importance of Financial Strength

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

A. The ROE is the cost of attracting and retaining common equity investment in the utility's physical plant and assets. This investment is necessary to finance the asset base needed to provide utility service. Investors commit capital only if they expect to earn a return on their investment commensurate with returns available from alternative investments with comparable risks. Moreover, a fair and reasonable ROE is integral in meeting sound regulatory economics and the standards set forth by the U.S. Supreme Court. The *Bluefield* case set the standard against which just and reasonable rates are measured:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties. . . . The return should be reasonable, sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary for the proper discharge of its public duties.[68]

The *Hope* case expanded on the guidelines as to a reasonable ROE, reemphasizing its findings in *Bluefield* and establishing that the rate-setting process must produce an end-

[68] *Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679 (1923).

result that allows the utility a reasonable opportunity to cover its capital costs. The Court stated:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. . . . By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain credit and attract capital.[69]

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

While the *Hope* and *Bluefield* decisions did not establish a particular method to be followed in fixing rates (or in determining the allowed ROE),[70] these and subsequent cases enshrined the importance of an <u>end result</u> that meets the opportunity cost standard of finance. Under this doctrine, the required return is established by investors in the capital markets based on expected returns available from comparable risk investments. Coupled with modern financial theory, which has led to the development of formal risk-return models (*e.g.,* DCF and CAPM), practical application of the *Bluefield* and *Hope* standards involves the independent, case-by-case consideration of capital market data in order to

[69] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
[70] *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. at 602 (1944) (*finding,* "the Commission was not bound to the use of any single formula or combination of formulae in determining rates." and, "[I]t is not theory but the impact of the rate order which counts.")

evaluate an ROE that will produce a balanced and fair end result for investors and customers.

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

A. These terms are generally synonymous, and refer to the utility's ability to attract and retain the capital that is necessary to provide service at reasonable cost, consistent with the Supreme Court standards. The Company's plans call for a continuation of capital investments in main replacement, system safety and integrity, and technology to preserve and enhance service reliability for its customers. The Company must generate adequate cash flow from operations to fund these requirements and for repayment of maturing debt, together with access to capital from external sources under reasonable terms, on a sustainable basis.

Rating agencies and potential debt investors tend to place significant emphasis on maintaining strong financial metrics and credit ratings that support access to debt capital markets under reasonable terms. This emphasis on financial metrics and credit ratings is shared by equity investors who also focus on cash flows, capital structure and liquidity, much like debt investors. Investors understand the important role that a supportive regulatory environment plays in establishing a sound financial profile that will permit the utility access to debt and equity capital markets on reasonable terms in both favorable financial markets and during times of potential disruption and crisis.

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

A. Regulatory signals are a major driver of investors' risk assessment for utilities. Investors recognize that constructive regulation is a key ingredient in supporting utility credit ratings and financial integrity. Security analysts study commission orders and regulatory policy statements to advise investors about where to put their money. As Moody's noted, "the regulatory environment is the most important driver of our outlook because it sets the pace for cost recovery."[71] Similarly, S&P observed that, "Regulatory advantage is the most heavily weighted factor when S&P Global Ratings analyzes a regulated utility's business risk profile."[72] Value Line summarizes these sentiments:

> As we often point out, the most important factor in any utility's success, whether it provides electricity, gas, or water, is the regulatory climate in which it operates. Harsh regulatory conditions can make it nearly impossible for the best run utilities to earn a reasonable return on their investment.[73]

Furthermore, the ROE set by state regulatory agencies impacts investor confidence in not only the jurisdictional utility, but also in the ultimate parent company that is the entity that actually issues common stock.

Q. DO CUSTOMERS BENEFIT IF THE UTILITY'S FINANCIAL FLEXIBILITY IS PRESERVED?

A. Yes. Providing an ROE that is sufficient to maintain the Company's ability to attract capital under reasonable terms, even in times of financial and market stress, is not only consistent with the economic requirements embodied in the U.S. Supreme Court's *Hope* and *Bluefield* decisions, it is also in customers' best interests. Customers enjoy the benefits

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

that come from ensuring that the utility has the financial wherewithal to take whatever actions are required to ensure safe and reliable service.

B. Conclusions and Recommendations

Q. WHAT ARE YOUR FINDINGS REGARDING THE 10.0% ROE REQUESTED BY BH NEBRASKA GAS?

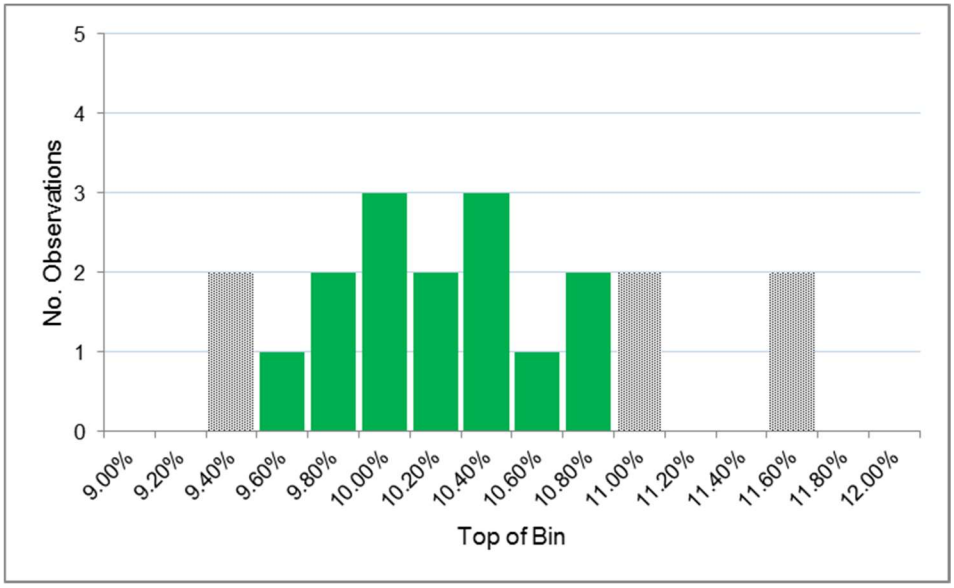
A. Based on the results of my analyses and the economic requirements necessary to support continuous access to capital under reasonable terms, I determined that 10.0% is a conservative estimate of investors' required ROE for BH Nebraska Gas. The bases for my conclusion are summarized below:

- In order to reflect the risks and prospects associated with BH Nebraska Gas' jurisdictional utility operations, my analyses focused on a proxy group of publicly traded natural gas utilities.
- Because investors' required return on equity is unobservable and no single method should be viewed in isolation, I applied the DCF, CAPM, ECAPM, and risk premium methods to estimate a fair ROE for BH Nebraska Gas, as well as referencing the expected earnings approach.
- As summarized on Exhibit AMM-2, based on the results of these analyses, and giving less weight to extremes at the high and low ends of the range, I concluded that the cost of equity for BH Nebraska Gas' utility operations is in the 9.5% to 10.7% range, or 9.6% to 10.8% after incorporating an adjustment to account for the impact of common equity flotation costs.
- The 10.0% ROE requested by BH Nebraska Gas falls below the 10.2% midpoint of my recommended range. Considering capital market expectations and the economic requirements necessary to maintain financial integrity and support additional capital investment even under adverse circumstances, it is my opinion that 10.0% represents a conservatively low ROE for BH Nebraska Gas.
- In contrast to many of the operating companies associated with the firms in the Gas Group, the Company lacks revenue decoupling or weather normalization mechanisms. This factor indicates more risk for the Company relative to other gas utilities and serves to emphasize the conservative nature of the Company's requested ROE.

Q. HOW DOES YOUR RECOMMENDED COST OF EQUITY RANGE COMPARE TO THE DISTRIBUTION OF RESULTS FROM YOUR ANALYSES?

A. I examine the distribution of cost of equity estimates from my analysis and summarize this distribution in the histogram shown in Figure AMM-7, below:

FIGURE AMM-7
DISTRIBUTION OF COST OF EQUITY ESTIMATES



As illustrated above, my recommended cost of equity range (before flotation costs) of 9.5% to 10.7% captures the center of the distribution of individual cost of equity estimates. The Company's 10.0% requested ROE falls in the bottom portion of the distribution.

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

A. As noted earlier, the evaluation of a fair ROE should not be based on the mechanical application of a single methodology. Because no single approach is inherently superior, the results of alternative quantitative approaches should serve as an integral part of the decision-making underlying the determination of a just and reasonable ROE. In this light, it is important to consider alternatives to the DCF model. As shown on Exhibit AMM-2, alternative risk premium models (i.e., the CAPM, ECAPM, and utility risk premium

approaches) produce ROE estimates that generally exceed the DCF results. My expected earnings approach corroborated these outcomes.

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

A. As shown on page 3 of Exhibit AMM-11, DCF estimates for a low-risk group of firms in the competitive sector of the economy range from 9.5% to 10.8%, and average 10.2% before consideration of flotation costs. While I do not base my recommendation directly on these results, they confirm that an ROE of 10.0% falls in a reasonable range to maintain BH Nebraska Gas' financial integrity, provide a return commensurate with investments of comparable risk, and support the Company's ability to attract capital.

C. Capital Structure

Q. IS AN EVALUATION OF THE CAPITAL STRUCTURE MAINTAINED BY A UTILITY RELEVANT IN ASSESSING ITS RETURN ON EQUITY?

A. Yes. Other things equal, a higher debt ratio and lower common equity ratio, translates into increased financial risk for all investors. A greater amount of debt means more investors have a senior claim on available cash flow, thereby reducing the certainty that each will receive their contractual payments. This increases the risks to which lenders are exposed, and they require correspondingly higher rates of interest. From common shareholders' standpoint, a higher debt ratio means that there are proportionately more investors ahead of them, thereby increasing the uncertainty as to the amount of cash flow that will remain.

Q. WHAT COMMON EQUITY RATIO IS IMPLICIT IN BH NEBRASKA GAS' CAPITAL STRUCTURE?

A. BH Nebraska Gas' capital structure is presented in the testimony of Mr. Amdor. As summarized in that testimony, the proposed common equity ratio used to compute BH Nebraska Gas' overall rate of return is 50% in this filing.

Q. HOW DOES THIS COMPARE TO THE AVERAGE EQUITY RATIOS MAINTAINED BY THE GAS GROUP?

A. Exhibit AMM-12 presents the sources of long-term capital (long-term debt and common equity) used by the publicly traded firms in the group of natural gas utilities used to estimate the cost of equity. As shown there, over the four quarters ended December 31, 2019, the common equity ratios for the Gas Group ranged from 50.9% to 52.9%, with the average being 52.0%.

Q. HOW DO THESE HISTORICAL CAPITALIZATION RATIOS COMPARE WITH INVESTORS' FORWARD-LOOKING EXPECTATIONS?

A. As shown on Exhibit AMM-12, Value Line expects an average common equity ratio of 52.9% for the Gas Group over its three-to-five year forecast horizon.

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

A. Utilities, including BH Nebraska Gas, are facing significant capital investment plans. Coupled with the potential for turmoil in capital markets, this warrants a stronger balance sheet to deal with an uncertain environment. A conservative financial profile, in the form of a reasonable common equity ratio, is consistent with the need to accommodate these uncertainties and maintain the continuous access to capital under reasonable terms that is required to fund operations and necessary system investment, even during times of adverse capital market conditions.

Q. WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO BH NEBRASKA GAS' PROPOSED CAPITAL STRUCTURE?

A. BH Nebraska Gas' mix of external financing and its proposed 50% common equity ratio are consistent with the range of industry benchmarks reflected in the most recent average capital structure ratios maintained by the Gas Group; although its falls below investors' future expectations for the industry. Taken together, I conclude that BH Nebraska Gas'

proposed capital structure represents a reasonable basis on which to calculate the overall rate of return.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

STATE OF NEBRASKA)

) SS

COUNTY OF LANCASTER)

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 27th day of May, 2020.

(SEAL)

GENERAL NOTARY - State of Nebraska
CHRISTINA L. ELLIS
My Comm. Exp. July 4, 2022

Notary Public

My Commission Expires:
July 4, 2022