BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

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

DIRECT TESTIMONY AND EXHIBITS OF S. KEITH BERRY

ON BEHALF OF THE NEBRASKA PUBLIC ADVOCATE

August 15, 2025

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is S. Keith Berry. I am a principal in the firm Economic and Financial Consulting Group, Inc. My academic affiliation is Professor Emeritus of Economics and Business at Hendrix College in Conway, Arkansas. My business address is 7 Redtail Point, Little Rock, Arkansas 72211.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

A. I am testifying on behalf of the Nebraska Public Advocate.

II. STATEMENT OF QUALIFICATIONS

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL WORK EXPERIENCE.

A. I hold a Bachelor of Arts in mathematics from Hendrix College and a Ph.D. in economics from Vanderbilt University. I served as a statistics instructor at Vanderbilt from 1976 to 1977 and then as an instructor and assistant professor at Hendrix College from 1977 to 1979. In July 1979, I joined the Staff of the Arkansas Public Service Commission (AC) as Manager of the Finance Section, where I was primarily responsible for preparing and presenting testimony on the cost of capital in utility rate cases. In July 1980, I assumed managerial responsibility for both the Finance and Rate Sections, and in September 1986, I was promoted to Director of Research and Policy Development. I returned to Hendrix College in September 1989 to resume my academic career.

I have submitted testimony in more than ninety proceedings before public service commissions and other regulatory agencies. My publications include articles in *American Economic Review*, *Journal of Regulatory Economics*, *Land Economics*, the *Energy Journal* (coauthor), the *Journal of Economics and Business*, *The Quarterly Review of Economics and Business*, *The Financial Review*, the *Eastern Economic Journal*, *Managerial and Decision Economics*, *Public Choice*, and *Review of Industrial Organization*. I have delivered presentations on utility regulation and the cost of capital at the National Association of Regulatory Utility Commissioners (NARUC) Advanced Studies Program, the Eastern NARUC Utility Rate Seminar, the Western NARUC Utility Rate Seminar, the National Conference of Regulatory Utility Commission Engineers, and the Annual Conference of the Institute of Public Utilities. While on the Staff of the AC, I also served on the NARUC Subcommittee on Electricity and the Research Advisory Committee of the National Regulatory Research Institute, where I was Deputy Chairman from 1988 to 1989.

Q. HAVE YOU INCLUDED A MORE DETAILED DESCRIPTION OF YOUR QUALIFICATIONS?

A. Yes, a detailed description of my qualifications is provided as Exhibit SKB-1.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NEBRASKA CORPORATION COMMISSION?

A. Yes. I testified before this Commission in Docket No. NG-109 in September 2020 regarding the cost of capital for Black Hills Nebraska Gas.

III. SCOPE AND SUMMARY OF TESTIMONY

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

A. The purpose of my Direct Testimony is to provide recommendations regarding the cost of equity, the cost of debt, the capital structure, and the overall cost of capital for Black Hills Nebraska Gas, LLC d/b/a Black Hills Energy ("BH Natural Gas," BHE, or "Company"). I also respond to the Direct Testimony of Company witness Adrien M. McKenzie.

Q. PLEASE SUMMARIZE YOUR RECOMMENDED REVENUE INCREASE.

A. I apply four methods to estimate BHE's cost of equity: the Discounted Cash Flow (DCF) model, the Capital Asset Pricing Model (CAPM), the Risk Premium (RP) method, and the Expected Earnings (EE) method. Based on these analyses, I determined that a just and reasonable cost of equity for BHE is 9.42%, as shown in Exhibit SKB-2.

I then calculated the Company's overall cost of capital to be 7.02%, as shown in Exhibit SKB-7. This figure reflects a capital structure consisting of 50% common equity and 50% long-term debt.

IV. FINANCIAL AND ECONOMIC TENETS

Q. PLEASE DISCUSS THE FINANCIAL AND ECONOMIC TENETS THAT FRAMED YOUR ESTIMATION OF BHE'S COST OF EQUITY.

A. As an economist with substantial experience in federal and state regulatory proceedings, I understand that the legal "just and reasonable" standard has been interpreted to require that cost-based rates—such as those at issue here—include an allowance for the cost of common equity invested in the assets used to provide service. In other words, rates must reflect the return required by common equity investors to induce them to invest in those

assets. The cost of, or required return on, equity is a legitimate cost of providing utility service, just like any other explicit expense incurred by the utility. The challenge, however, is that the cost of equity is not recorded directly in a utility's accounts; instead, it must be estimated using market-based data.

If the return authorized by the regulatory authority is set higher than the return investors require, monopoly profits will inure to the benefit of the shareholders at the expense of customers. In the context of BHE's rates, an allowed return that materially exceeds the cost-based (i.e., investor-required) return would constitute exploitation of consumers and thus fail to meet the "just and reasonable" standard. Conversely, if the allowed return is set materially too low, it will erode shareholder value and impair the utility's ability to attract necessary capital. Setting the allowed ROE equal to the cost of equity ensures that stockholders have the opportunity to earn a fair return, while also preserving the utility's capacity to access capital on reasonable terms.

Moreover, when the allowed ROE equals the current cost of equity, the resulting price signals to consumers will reflect the true economic cost of utility service to society—including the equity cost component of any additional investment costs. In this way, an allowed return based on the cost of equity promotes economic efficiency. By contrast, when the allowed ROE departs from the cost of equity, the utility may be incentivized to pursue inefficient investments that regulators may not readily detect or prevent. For example, if the allowed ROE exceeds the actual cost of equity, the utility may favor projects that are unnecessarily capital intensive. From the perspective of balancing the interests of ratepayers and shareholders—and simulating outcomes consistent with a

competitive market—an allowed ROE for BHE would be unjust and unreasonable if it materially exceeds the utility's cost of equity.

V. DCF ANALYSIS

Q. PLEASE DISCUSS YOUR APPLICATION OF THE DCF METHOD TO ESTIMATE BHE'S COST OF EQUITY.

A. The concept of a return to capital is closely associated with time—it represents the reward to capital providers for deferring consumption. Calculations of the embedded costs of debt are relatively straightforward since those costs are fixed and contractual in nature. In contrast, the cost of equity is not contractually specified and is therefore more challenging to determine. However, it can be reasonably estimated through an appropriate examination of current stock market data and widely disseminated financial information.

Rational investors in common stock are primarily concerned with the cash flows they expect to receive from stock ownership. For an individual investor, these cash flows consist of expected future dividends as well as capital gains or losses realized from selling the stock at a future date. However, for investors in aggregate (across ownership changes), expected cash flows are comprised of future dividends only. Conceptually, there is no fundamental difference between these two interpretations of cash flow.

The market price of common stock reflects investors' expectations about that stream of future dividends. However, a dividend expected in the future is not valued as highly as the same dividend received today. Investors implicitly impute a discount to future dividends, with the discount increasing the further into the future the dividend is expected to be received.

The value, or market price, that investors assign to a share of common stock is equal to the present value of the expected stream of future dividends. These future dividends are discounted at a rate determined by the cost of equity, also referred to as the discount rate. This relationship is expressed in Equation (1) below, where P_0 represents the current share price, D_i represents the dividend expected at the end of period i and k is the discount rate, or cost of equity:

(1) $P_0 = D_1/(1+k) + D_2/(1+k)^2 + D_3/(1+k)^3 + \ldots$

In this form, without further simplifying and reasonable assumptions, Equation (1) is mathematically intractable. However, if we assume that investors expect future dividends to grow at a constant rate g, then Equation (1) can be expressed in this way:

(2) $P_0 = D_1/(1+k) + D_1(1+g)/(1+k)^2 + D_1(1+g)^2/(1+k)^3 + \ldots$

Equation (2) can then be solved for P_0 as in the following:

(3) $P_0 = D_1/(k-g)$, for $k > g$.

Equation (3) demonstrates that this constant growth DCF method is a market-based approach. Any changes in investors' discount rate, expected growth rate in dividends, or dividends expected one period hence are actually captured by changes in the market price of the stock. For example, all else equal, if the cost of equity decreases, investors will bid the market price up.

The constant growth DCF model shown in Equation (3) can be rearranged:

(4) $k = D_1/P_0 + g$,

which indicates that the cost of equity is simply the sum of the expected dividend yield and the anticipated growth rate. Because of the quarterly nature of dividend payments, I have defined $D_1/P_0 = (D_0/P_0)(1 + g/2)$, as does the Federal Energy Regulatory Commission

(FERC), where D_0 is the current annualized dividend, resulting in this final form of the DCF equation:

$$k = D_0(1 + g/2)/P_0 + g. \quad (5)$$

Q. HOW DID YOU DETERMINE YOUR PROXY GROUP?

A. I used the same eight natural gas utilities as those used by Company witness Adrien M. McKenzie:

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

Q. HOW DID YOU DETERMINE THE DCF STOCK PRICE FOR EACH OF THESE COMPANIES?

A. In the DCF model, it is important to utilize a price term that reflects fairly current market conditions, since a current stock price incorporates all publicly available information and implicitly reflects investors' most recent expectations regarding the required ROE. However, to mitigate the impact of short-term market volatility and random fluctuations, the price should be averaged over an appropriate period. To minimize the possibility of relying on an aberrant price, I used an average of the daily closing stock prices over a six-month period—from December 1, 2024, through May 31, 2025—obtained from Yahoo Finance.

Q. HOW DID YOU DETERMINE THE DIVIDEND YIELDS FOR THE PROXY COMPANIES?

A. The monthly dividend yields were calculated by dividing the annualized dividend at the end of each month by the average stock price for that month. These monthly dividend yields were then averaged over the six-month period to obtain the Unadjusted Dividend Yield.

Q. HOW DID YOU DETERMINE THE GROWTH RATE IN YOUR DCF MODEL?

A. To properly implement the DCF method, it is essential for the analyst to ascertain investors' expectations about sustainable long-term growth in dividends per share. Importantly, the relevant consideration is not the analyst's personal view of future growth, but rather what investors collectively expect. It is these expectations that influence stock price. Furthermore, assuming sustainability, growth in Book Value Per Share (BPS), Earnings Per Share (EPS), and Dividends Per Share (DPS) will be equivalent over the long-term.

I utilized recent editions of Value Line to develop my array of data for inferring investors' growth expectations. I employed four estimates of investor-expected growth:

1. g1—The weighted average of the short-term expected growth rate, from *Value Line*, and long-term expected growth rate, with weights of 80% and 20%, respectively
2. g2—The average of the expected ten-year EPS annual growth for the years 2018 to 2028, as reported in Value Line
3. g3—The average of the expected ten-year DPS annual growth for the years 2018 to 2028, as reported in Value Line
4. g4—the sustainable long-term growth rate given by the formula "*br* +*vs*" discussed below

For the short-term growth rate (g1), I used the average forecasted growth rates for EPS (where available) from IBES, Zacks, and Value Line, as shown in Direct Exhibit

AMM-4, Page 3 of 3. The long-term growth rate was equal to the average of the long-term nominal GDP growth projections from the U.S. Energy Information Administration and the Social Security Administration. This long-term average estimate is 3.95%.

Q. WHY IS IT IMPORTANT TO CONSIDER THE LONG-TERM GROWTH RATE?

A. As practitioner Roger Morin observes, "It is useful to remember that eventually all company growth rates, especially utility services growth rates, converge to a level consistent with the growth rate of the aggregate economy."[1] His statement means that, if short-term growth rates are greater than the long-term projected growth rate in the economy, using a DCF model with just short-term growth rates will overestimate the expected future return in the entire market.

Note that the expression *br* for g4 is a measure of long-term sustainable expected growth in BPS, based on a fundamental source of BPS growth: earnings retention (*br*). Since the DCF formula relies on investor-expected growth in DPS, and since long-term growth is ultimately derived from, and equal to, long-term growth in BPS, this approach is useful in gauging investors' dividend growth expectations.

For each firm *b* and *r* were calculated from data in Value Line for 2028 (2027–2029).

The *br* component implicitly considers factors that cause sustainable growth in DPS, EPS, and BPS due to earnings retention, where *b*, the expected retention ratio, is multiplied times *r*, the expected return on equity. A simple example, assuming no stock issuance, helps illustrate how this component functions. Suppose that a company has an

[1] Roger Morin, *New Regulatory Finance*, Public Utilities Reports, 2006, page 308

initial BVPS of $20, a return on equity (*r)* of 10%, and a retention ratio (*b*) of 40%. Investors expect this hypothetical utility to earn 10% x $20 = $2.00 per share. Of this amount 40%, or $.80 per share, is retained, and 60%, or $1.20 per share, will be paid out in dividends. The BVPS will grow to $20.80 in the next period because of earnings retention. This represents a growth in BVPS of ($20.80-$20)/$20 = 4%. EPS in the next period will be 10% x $20.80, which represents growth in EPS of 4%. DPS in the next period will be 60% X $2.08 = $1.248, which also represents growth of 4%. DPS, EPS, and BPS all grow at the long-term sustainable growth rate of 4%.

At this juncture, it is important to note that *r*, the *expected* return on equity, is not necessarily equal to *k*, the *required* return on equity. The investor-expected return on equity, *r,* may be greater or less than *k*, the investor-expected required return on equity. In particular, if *r* is greater (less) than *k*, then the stock-market price-to-book value ratio is greater (less) than one. Only when *r* equals *k* does the price-to-book ratio equal one. This relationship is discussed extensively in *Cost of Capital to a Public Utility* by Myron Gordon, who provided a major impetus for the use of the DCF method in utility rate proceedings.[2]

For each firm, *vs* was calculated as $n^*(P/B - 1)$ where n^* is the expected annual rate of growth in common shares outstanding, *P* is the arithmetic average of the daily closing stock prices for the period December 1, 2024 through May 31, 2025, and *B* is the BPS at the end of calendar year 2024 (as reported in Value Line).

In my opinion, these four growth rates, taken together, provide a reasonable basis upon which to infer the investor-expected growth rate in the DCF method for BHE.

[2] Myron Gordon, *Cost of Capital to a Public Utility*, MSU Public Utilities Studies, 1974.

The Adjusted Dividend Yields were calculated using this equation: Unadjusted Dividend Yield times (1 + (Growth Rate/2)) = Adjusted Dividend Yield. The Adjusted Dividend Yield and Composite Growth Rate were added together to obtain each stock's DCF cost of equity.

Q. WHAT ARE YOUR DCF-BASED COST OF EQUITY RESULTS FOR EACH COMPANY IN YOUR RISK-COMPARABLE SAMPLE, BASED ON YOUR APPLICATION OF THE FOUR GROWTH RATE ESTIMATES?

A. The results are shown in Exhibit SKB-3 and Table 1 below for k1 through k4, which correspond to growth rates g1 through g4, respectively. As shown there, the average DCF cost of equity is approximately 8.68%.

Table 1: DCF Cost of Equity Estimates for BHE

Cost of Equity Method Based on Growth Rate	Cost of Equity
k1	9.16%
k2	7.72%
k3	8.31%
k4	9.51%

Average: 8.68%

VI. CAPITAL ASSET PRICING MODEL (CAPM)

Q. PLEASE DESCRIBE THE CAPM.

A. The CAPM is a market-based model that assumes that investors own a company's stock as part of a well-diversified portfolio. Under this assumption, diversified risk is eliminated, and only non-diversifiable risk remains. This remaining risk reflects the company-stock risk associated with general movements in market stock prices.

The following formula is for the CAPM:

(6) $k = r_f + \beta(r_m - r_f)$,

where k is the cost of equity, β is the Beta coefficient, r_m is the expected return on the market as a whole, and r_f is the risk-free rate. The expected return can be estimated using either a backward-looking approach, a forward-looking approach, or a survey of academics and investment professionals. The risk-free rate is represented by a proxy, typically the yield on 30-year U.S. Treasury bonds. The term ($r_m - r_f$) represents the Market RP. The Beta coefficient represents the variability of a company's stock price relative to the overall stock market volatility. For example, a company with a Beta coefficient of 0.70 indicates that its stock price, on average, moves up or down by 70% of the movement in the overall stock market. Beta values are published by a number of commercial sources, including Value Line.

Q. HOW DID YOU APPLY THE CAPM MODEL FOR PURPOSES OF THIS CASE?

A. I used two different CAPM Models: "CAPM 1" and "CAPM 2."

In CAPM Model 1, I used the six-month average yield on 30-year U.S. Treasury Bonds for December 2024 through May 2025 for the risk-free rate. For the Risk Premium component in CAPM 1, I used the difference between the geometric means of total returns for Large Cap Stocks (10.1 %) and Long Term U.S. Treasury Bonds (5.2 %). For the Beta values in CAPM 1, I used Betas as reported in Value Line for each individual Company. The results are shown in Exhibit SKB-4. The average CAPM 1 result is 9.16%.

In CAPM 2, I used the six-month average yield on 30-year U.S. Treasury Bonds for December 2024 through May 2025 for the risk-free rate. For the Risk Premium, I calculated the Market Cost of Equity using the Dividend Yield from Value Line Stocks as of May 31, 2025, added to the Growth Rate using a weighted average of Short-Term and

Long-Term Growth Rates as discussed above in the context of DCF growth rate g1. That Market Cost of Equity was 11.71%. I used Betas as reported in Value Line for each individual Company. Subtracting the Risk Free Rate of 4.72% yields a Risk Premium of 6.99%. Those results are shown in Exhibit SKB-5. The average CAPM 2 result is 11.05%.

The average of the CAPM 1 and CAPM 2 results is 10.11%.

VII. RP METHOD

Q. HOW DID YOU DETERMINE YOUR RP RESULT?

A. The RP method is based on the simple idea that since investors in stocks take greater risk than investors in bonds, the former expect to earn a return on a stock investment that reflects a *premium* over and above the return they expect to earn on a bond investment. The RP method uses the following equation:

(7) K_e = Bond Yield + RP

The bond yield can be a projected or contemporaneous utility bond yield, or a U.S. Long-term Treasury yield. RP is not assumed to be constant; rather, it varies over time. Empirical evidence indicates a strong inverse correlation between bond yields and risk premia.

Multiple approaches have been advanced to determine the equity RP for a utility. For example, an RP can be developed directly by conducting an RP analysis for the company at issue, or indirectly by analyzing the RP for the overall market and then adjusting that result to reflect the company's relative risk. In the utility context, another common approach is to examine the RP implied in the returns on equity allowed by regulatory commissions for utilities over some period relative to the contemporaneous level of interest rates.

In this case, I considered three different methods for the RP calculations. First and second, I used the Risk Premia that I estimated in research that I published.[3] These are the relevant equations:

$RP_1 = .07722 - .48392\ YD$

$RP_2 = .07533 - .39096\ GOV$

where RP is Risk Premium, YD is a recent utility bond yield, and GOV is a recent U.S. Treasury Bond yield. A-rated utility bond yields (5.50% from Direct Exhibit AMM-8, page 1 of 5) and U.S. long-term U.S. Treasury bond yields for the period December 2024 through May 2025 (4.72%) yield these risk premia:

$RP_1 = 5.06\%$

$RP_2 = 5.69\%$

Adding RP_1 to the recent A-rated utility bond yield of 5.50% yields a cost of equity estimate of 10.56%.

Adding 5.69% to the recent U.S. long-term Treasury yield of 4.72% produces a cost of equity estimate of 10.41%.

For the third method, I used the RP equation from Morin.[4]

$RP = 8.2049 - .4833\ YIELD,$

where YIELD is the long-term U. S. Treasury Bond Yield. Substituting in the recent U.S. Treasury yield of 4.72% produces this RP:

$RP = 5.92\%$

Adding that to 4.72% produces an RP cost of equity estimate of 10.64%.

[3] See S. Keith Berry, "Interest Rate Risk and Utility Risk Premia During 1982-93," *Managerial and Decision Economics*, 19: 127-135 (1998).
[4] Roger Morin, *New Regulatory Finance*, Public Utilities Reports, 2006, page 123.

My RP estimates are summarized in Table 3 below.

Table 2: Risk Premium Cost of Equity Estimates for BHE

RP Method	Cost of Equity
Berry 1	9.16%
Berry 2	7.72%
Morin	8.31%

Average: 8.68%

VIII. EXPECTED EARNINGS APPROACH

Q. WHAT IS YOUR OPINION OF THE EXPECTED EARNINGS MODEL (EE)?

A. I recommend that the EE model either not be used or be given minimal weight in determining the cost of equity for BHE.

Q. WHAT IS THE MAIN REASON YOU RECOMMEND AGAINST USING AN EE MODEL WITH SIGNIFICANT WEIGHT?

A. At any given time, the cost of equity to regulated utilities is the profit level that they must provide to current equity investors to attract capital from those investors, who exchange present cash for a stake in future earnings and dividends. This capital attraction cost of equity is the investment return necessary to compensate for the time value of that deferral and for the risk that future dividends and stock appreciation may fall short of expectations. Because investors compare competing investment opportunities, they will normally purchase a stock only if its expected return—given its current market price—is comparable to the return they could expect from another stock with a similar level of risk. Investors therefore care about a utility stock's earnings and dividend stream relative to the market price that they must pay to acquire rights to share in those earnings and dividends.

But that is not what the EE model measures. Rather, it measures how much the proxy companies expect to earn relative to their own book value equity. Current investors have no opportunity to buy into utility ownership at the book value per share. They must pay the current market price. The E/B ratios of gas utility stocks, therefore, do not indicate the current risk-comparable return opportunities that are presently available to equity investors.

Q. DOES THE EE MODEL PRODUCE A MARKET-BASED INDICATION OF THE COST OF EQUITY?

A. No. Unlike the DCF, CAPM, and RP methods, the EE method is not market-based. The DCF method centers on dividend yields, which represent the market price at which stocks are actually exchanged in the financial market, divided into actual dividends declared by corporate boards that are competing for capital in that market. The CAPM method centers on betas, which represent the relative movement of proxy company stock prices and broad portfolio stock prices in that same market. The RP method centers on bond yields, which represent interest rates divided by the market price of bonds.

Q. IN SPITE OF THESE SIGNIFICANT RESERVATIONS ABOUT THE EE MODEL, DID YOU PERFORM AN EE ANALYSIS?

A. Yes, but I gave it very little weight in my recommendations discussed below. Those results are shown in Exhibit SKB-6 and indicate an 8.85% ROE based on the Expected Returns for 2025 and 2028.

XI. RECOMMENDED COST OF EQUITY FOR BHE

Q. BASED ON YOUR DCF, CAPM, RP, AND EE METHODS, WHAT IS YOUR RECOMMENDED ROE FOR BHE?

A. I assigned weights of 50%, 25%, 20%, and 5% to the results of my DCF, CAPM, RP, and EE analyses, respectively. Those results are shown in the table below. I put more weight on the DCF method because my opinion is that its inputs are more reliable than the CAPM, RP, and EE methods**.** I also put more weight on the CAPM than the RP method and very little weight on the EE method because of the reasons I discussed above.

Table 3: ROE Results for BHE

Cost of Equity Model	Result	Weight
DCF	8.68%	50%
CAPM	10.11%	25%
RP	10.54%	20%
EE	8.85%	5%

Weighted Average: 9.42%

As shown above, my weighted average result is approximately 9.42%. Consequently, my recommended ROE for BHE is 9.42%. This ROE is below the recommended 10.50% recommendation of Company witness Adrian McKenzie.

Q. DOES THE PROXY GROUP INCLUDE OPERATING COMPANIES WITH A WEATHER NORMALIZATION ADJUSTMENT CLAUSE (WNA)?

A. Yes, it does.

Q. DOES A WNA REDUCE A COMPANY'S RISK AS WELL AS THE COST OF EQUITY?

A. Yes, it can—provided that weather variability contributes to an inability of a Company to earn its allowed return.

Q. DID THE NEBRASKA PUBLIC ADVOCATE WITNESS HOWARD SOLGANICK RECOMMEND THAT THE COMMISSION NOT APPROVE THE COMPANY'S PROPOSED WNA?

A. That is correct. He shows that the Company has not demonstrated a need for the WNA because of weather. Given that, no adjustment to BHE's return on equity is necessary.

IX. COST OF DEBT FOR BHE

Q. HOW DID YOU DETERMINE THE COST OF DEBT FOR BHE?

A. I used a 4.61% cost of debt, which excludes the rate associated with the planned refinancing in the latter half of 2025, as that cost is speculative.

X. CAPITAL STRUCTURE AND OVERALL COST OF CAPITAL FOR BHE

Q. WHAT CAPITAL STRUCTURE DID YOU USE FOR BHE?

A. I used a capital structure of 50%/50% common equity to long-term debt. This ratio is based on the 50%/50% ratio used in the Settlement of the 2020 BHE proceeding before this Commission as well as the historical common equity ratios shown in Company Exhibit AMM-11. On page 1 of that Exhibit, the average common equity ratio is from 48.6% to 49.3%. On page 2 of that Exhibit the average common equity ratio is 48.9%. Finally, as noted by Company witness Thomas D. Stevens: "The Company targets a 50% to 52% equity-to-capitalization level, in line with how gas utility operating companies are

commonly capitalized across the industry" (Direct Testimony of Thomas D. Stevens, page 12, lines 3–4).

Q. WITH THAT CAPITAL STRUCTURE, WHAT IS YOUR RECOMMENDED OVERALL RATE OF RETURN FOR BHE?

A. My recommended overall rate of return is 7.02%, as shown in Exhibit SKB-7 and the following table.

Table 4: Overall Rate of Return for BHE

Capital Component	Proportion	Cost	Weighted Cost
Common Equity	50%	9.42%	4.71%
Long-Term Debt	50%	4.61%	2.31%

Overall Rate of Return: 7.02%

XI. RESPONSE TO COMPANY WITNESS MCKENZIE

Q. PLEASE DISCUSS YOUR RESPONSE TO THE UTILITY PROXY GROUP IN THE DIRECT TESTIMONY OF COMPANY WITNESS ADRIAN MCKENZIE.

A. I have no issue with regard to the composition of his Utility Proxy Group.

Q. DO YOU AGREE WITH MR. MCKENZIE'S ASSERTION THAT THE OVERALL INVESTMENT RISKS CORRESPONDING TO BHE ARE GREATER THAN THOSE OF THE PROXY GROUP?

A. No, I do not. The comparison of Risk Indicators shown in Table AMM-3, page 17, of his Direct Testimony show no appreciable differences between Black Hills Parent and the Proxy Group. Further, a recent edition of Value Line shows that Black Hills (Parent) has a Beta of .85, which is lower than the Proxy Group's average Beta of .91 (see Exhibit SKB-4) and indicates less risk for Black Hills Parent. (See Exhibit SKB-8.)

Q. DO YOU AGREE WITH MR. MCKENZIE'S USE OF SHORT-TERM GROWTH RATES IN HIS DCF ANALYSIS?

A. No, I do not. Three of his four growth rates are short-term expectations (or five years forecast), Value Line, IBES, and Zacks. (See his Direct Exhibit AMM-4, page 2 of 3.)

Investors' growth rates in the DCF model should be longer in term, sustainable, and not solely based on EPS growth. A number of articles and studies discuss the upward bias and lack of reliability in these five-year EPS growth forecasts by stock analysts. For example, in a study by Cusatis and Woolridge, they highlight this finding:

> "Long-term EPS growth rate forecasts are consistently over-optimistic…We do discover that a contributing factor in the bias in analysts' long-term and one-year EPS growth rate estimates is the resistance of analysts to project negative earnings growth rates."[5]

This study was also publicized in *The Wall Street Journal*, a well-known periodical relied upon by investors.[6]

In an article from McKinsey & Company, the authors provide this conclusion:

> "[In research we undertook nearly a decade ago], analysts, we found, were typically overoptimistic…Alas, a recently completed update of our work only reinforces this view- despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest…On average analysts' forecasts have been almost 100 percent too high."[7]

This article was also publicized in *Bloomberg Businessweek*, a general source of financial information for investors.[8]

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[5] Patrick Cusatis, CFA and J. Randall Woolridge, "The Accuracy of Analysts' Long-Term Earnings Per Share Growth Rate Forecasts," January 24, 2008

[6] Andrew Edwards, "Study Suggests Bias in Analysts' Rosy Forecasts.' *The Wall Street Journal*, March 21, 2008, Page C6.

[7] Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity analysts: Still too bullish." McKinsey on Finance, Number 35, Spring 2010.

[8] Roben Farzad, "For Analysts, Things Are Always Looking Up," *Bloomberg Businessweek, Markets and Finance*, June 10, 2012.

This finding was from a study by Lacina, Lee, and Xu:

"Our findings imply that analysts' long-term earnings forecasts should be used with caution by researchers and practitioners as they do not appear to be more accurate than long-term forecasts from naïve models."[9]

Q. DOES EXAMINATION OF THE DCF FORMULA SUPPORT THE PROPOSITION THAT THE DCF GROWTH RATE MUST ACCOUNT FOR THE LONG TERM?

A. Yes. As discussed earlier, the market price of the common stock reflects investors' expectations about the stream of future dividends. However, a typical investor may be expecting to sell the common stock in five years or less at the expected market price.

This particular relationship is characterized in Equation (8) below where P_0 represents the current share price, D_i represents the dividend expected to be received at the end of period i, k is the discount rate (or cost of equity), and P_5 is the expected market price of the common stock in five years:

$$(8) \quad P_0 = D_1/(1+k) + D_2/(1+k)^2 + D_3/(1+k)^3 + D_4/(1+k)^4 + D_5/(1+k)^5 + P_5/(1+k)^5$$

The investor expects that the following calculates the market price in five years:

$$(9) \quad P_5 = D_6/(1+k) + D_7/(1+k)^2 + D_8/(1+k)^3 + \ldots$$

Eq. (9) can be substituted into Eq. (8) to produce this result:

$$(10) \quad P_0 = D_1/(1+k) + D_2/(1+k)^2 + D_3/(1+k)^3 + D_4/(1+k)^4 + D_5/(1+k)^5 + D_6/(1+k)^6 + D_7/(1+k)^7 + D_8/(1+k)^8 + \ldots$$

If we assume that investors expect future dividends to increase at a constant rate of growth, g, then Equation (10) can be expressed as follows:

[9] Michael Lacina, B. Brian Lee and Randall Zhaohui Xu, "An Evaluation of Financial Analysts and Naïve Methods in Forecasting Long-Term Earnings." *Advances in Business and Management Forecasting*, Volume 8, 77-101. 2011.

(11) $P_0 = D_1/(1+k) + D_1(1+g)/(1+k)^2 + D_1(1+g)^2/(1+k)^3 + \ldots,$

which can be solved for P_0 as this:

(12) $P_0 = D_1/(k-g)$, for $k > g$

This formula can be rearranged as this:

(13) $k = D_1/P_0 + g,$

which is the same as the basic DCF equation. This calculation demonstrates that even if an investor has a short-run (five-year) horizon and expects to sell the shares in five years, the same basic DCF model applies.

Q. IS THERE EVIDENCE THAT INVESTORS SHARE THE EXPECTATION THAT LONG-TERM GROWTH OF A BROAD EQUITY PORTFOLIO WILL BE CONSTRAINED BY THE GROWTH RATE OF THE OVERALL ECONOMY?

A, Yes. That evidence includes a statement by Warren Buffet. Many investors pay close attention to his views. Moreover, through his large share of Berkshire Hathaway, Mr. Buffet is a very substantial investor (probably the single largest individual investor) in U.S. electric utilities and gas pipelines. A *Fortune* magazine article quoted Mr. Buffet:

> When you begin to expect the growth of a component factor to forever outpace that of the aggregate, you get into certain mathematical problems. In my opinion, you have to be wildly optimistic to believe that corporate profits, as a percent of GDP can, for any sustained period, hold much above 6%. One thing keeping the percentage down will be competition, which is alive and well. In addition, there is a public-policy point: If corporate investors, in aggregate, are going to eat an ever-growing portion of the American economic pie, some other group will have to settle for a smaller portion. That would justifiably raise political problems—and in my view a major reslicing of the pie just isn't going to happen.[10]

[10] Warren Buffet, *Mr. Buffet on the Stock Market*, FORTUNE, Nov. 22, 1999.

I believe Mr. Buffet makes two very important points here. First, mathematically, corporate profits cannot sustainably increase at a faster rate than the economy. This principle applies not only to the corporate sector broadly but also to specific sectors such as the utility industry and the S&P 500. Second, competition will keep profits from increasing that fast. In a dynamic capitalist economy, such as the U.S. generally, unusually high profit levels attract new entrants to those industries, which in turn decreases profits to more competitive—and ultimately sustainable—levels.

Q. DOES THE ACADEMIC LITERATURE ADDRESS THE ISSUE OF SUSTAINABLE PORTFOLIO GROWTH?

A. Yes, it does. Messrs. Brealey and Meyers provide an example where they conclude that a constant growth of twenty percent is silly because, as they state, "No firm can continue growing at 20 percent per year forever, except possibly under extreme inflationary conditions."[11]

Messrs. Pinto, Henry, Robinson, and Stow state:

> The Gordon growth model form of the DDM [i.e., the one stage constant growth form of the Dividend Discount Model, aka DCF] is most appropriate for companies with earnings expected to grow at a rate comparable to or lower than the economy's nominal growth rate. Businesses growing at much higher rates than the economy often grow at lower rates in maturity, and the horizon in using the Gordon growth model is the entire future stream of dividends.
>
> To determine whether the company's growth rate qualifies it as a candidate for the Gordon growth model, an estimate of the economy's nominal growth rate is needed. This growth rate is usually measured by the growth in gross domestic product (GDP).[12]

[11] RICHARD BREALEY AND STEWART C. MYERS, PRINCIPLES OF CORPORATE FINANCE 69 (2000).
[12] JERALD A. PINTO ET AL., EQUITY ASSET VALUATION (CFA INSTITUTE INVESTMENT SERIES) 98 (2d ed. 2010).

As I pointed out earlier, the investor-expected growth rates appropriate for usage in the DCF method are long-term in nature. In the determination of the price in the DCF method, only about 18 percent to 27 percent of the market price is determined by the dividends in the first five to seven years. Mr. McKenzie implicitly neglects the remaining 73 percent to 82 percent of future dividends, from years after the first five to seven, that determine the market price and, consequently, fails to consider investors' long-term growth rate expectations. To base long-term investor growth rate expectations primarily on five-year EPS growth rates, as Mr. McKenzie does, is inappropriate. Consequently, his results (10.2%, 10.5%, and 9.9%) in his Direct Exhibit AMM-4, page 3 of 3, columns for Value Line, IBES, and Zacks, should not be relied upon by the Commission for setting the allowed ROE. However, his results (9.5%) for "*br+vs*" growth rates shown in that Exhibit are reasonable and similar to my "*br+vs*" results (with growth rate g_4) in the DCF model.

Also of note is that in my DCF analysis, long-term growth rates are utilized for growth rates g_1, g_2, and g_3, with much lower DCF results (7.72%–9.16%).

Q. DID MR. MCKENZIE EXCLUDE ALLEGED OUTLIERS IN HIS DCF ANALYSIS?

A. Yes, he did, but he excluded only alleged low-end outliers and no alleged high-end outliers, such as 12.4% and 13.5% for NiSource and Southwest Gas in the Value Line column (Direct Exhibit AMM-4, page 3).

My opinion is that the low-end outliers as well as the high-end outliers mentioned above should not be excluded. As a general matter, outliers should not be excluded since they are individual estimates that are rolled into the averages for the Proxy Group. These exclusions could bias the DCF results from the Proxy Group.

The results of redoing his Direct Exhibit AMM-4, page 3, with no exclusion of outliers, are shown in Exhibit SKB-9. The DCF estimate with long-term growth ("*br+vs*") is 9.22%.

Q. DO YOU HAVE ANY COMMENTS ABOUT MR. MCKENZIE'S CAPM ANALYSIS?

A. Yes, I do. Witness McKenzie solely relied upon short-term growth rates in his development of the risk-premium component in his CAPM Model (Direct Exhibit AMM-6, page 1). I have previously discussed the flaws with primarily using short-term growth rates.

He also made upward "size adjustments," which inflated his CAPM results by approximately 70 basis points.

Mr. McKenzie proposes upward adjustments to his CAPM analysis of the Proxy Group estimate because the Proxy Group Companies are smaller in size than companies in the general market. These size adjustments are not appropriate. The argument for the size adjustment is that differences in investors' required rates of return that are related to firm size are not fully captured by beta or elsewhere in a cost of equity analysis. Much of the empirical work on this was developed by Rolf. W. Banz,[13] who made this statement:

> It is not possible to determine conclusively whether market values *per se* matters or whether it is only a proxy for unknown true additional factors correlated with market value.[14]

Researchers commonly identify these factors to explain the tendency of average smaller companies to have higher costs of equity:

[13] Rolf W. Banz, "The Relationship Between Return and Market Value of Common Stocks," *Journal of Financial Economics* (1981) 3-18.
[14] Rolf W. Banz, "The Relationship Between Return and Market Value of Common Stocks," *Journal of Financial Economics* (1981), page 4.

1. Difficulties of external financing
2. Lack of liquidity
3. Smaller companies possessing fewer resources to adjust to competition and avoid distress in economic slowdowns
4. Survivorship bias (the historic data represents the experienced growth rates only of those small companies that survived)

It is important to note that due to the nature of regulation, those relatively small companies that are regulated utilities do not face the pressures referenced in factors 1 through 3. They sell to captive customers and have regulatory and economic "moats" protecting them from competition. For that reason and because they can obtain rate increases from regulators (on application or through automatically adjusting fuel clauses and other forms of formula rates), small utilities generally do not face difficulties in obtaining external financing or have liquidity issues. For the same reasons, small utilities don't face the same distress during economic slowdowns as do competitive-sector firms.

An empirical study of the size effect and utility stocks concluded this:

> The fact that the two samples show different, though weak, results indicates that utility and industrial stocks do not share the same characteristics. First, given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power and regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their sizes. Therefore, utility betas would not necessarily be expected to be related to firm size. [15]

These findings imply that a size adjustment is not appropriate for cost of equity results applied to utilities.

The "size adjustment" is not generally accepted among leading academic experts. For example, Aswath Damodaran opposes the Small Cap Premium for these reasons:[16]

[15] Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis, 33 *J. Midwest Financial Association* 95 (1993).
[16] Aswath Damodaran, "The Small Cap Premium: Where is the Beef," Musings on Markets, April 11, 2015.

1. On closer scrutiny, the historical data, which has been used as the basis of the argument, is yielding more ambiguous results and leading us to question the original judgment that there is a small cap premium.
2. The forward-looking risk premiums, where we look at the market pricing of stocks to get a measure of what investors are demanding as expected returns, are yielding no premiums for small cap stocks.
3. If the justification is intuitive, i.e., that smaller firms are riskier than larger firms, much of that additional risk is either diversifiable, better adjusted for in the expected cash flows (instead of the discount rate) or double counted.

Professor Damodaran also notes the "January effect" for small stocks:

> One of the most puzzling aspects of the small cap premium is that almost all it is earned in one month of the year, January, and removing that month makes it disappear. . . . If your argument for the small cap premium is that small cap stocks are riskier, you now have the onus of explaining why that risk shows up only in the first month of the year. [17]

For all of these reasons, the upward "size adjustment" used by Mr. McKenzie should not be relied upon by this Commission in setting the allowed ROE.

Q. DO YOU HAVE ANY COMMENTS ABOUT MR. MCKENZIE'S RISK PREMIUM ANALYSIS IN THE CONTEXT OF HIS CAPM?

A. Yes. Mr. McKenzie's Risk Premium (RP) shown in his Exhibit AMM-6 is also flawed because of his reliance on short-term growth rates as shown in his column labelled "Projected Growth." Those growth rates are biased upward because they are short-term, and RP is, consequently, biased upward. I have previously pointed out the problems associated with solely relying upon short-term growth rates in my discussion of the DCF model. The Commission should not rely on Direct Exhibit AMM-6 for setting the allowed return on equity.

[17] Aswath Damodaran, "The Small Cap Premium: Where is the Beef," Musings on Markets, April 11, 2015.

Q. DO YOU HAVE ANY ISSUES WITH MR. MCKENZIE'S EMPIRICAL CAPM (ECAPM) MODEL?

A. Yes, I do. Mr. McKenzie asserts that an ECAPM analysis can help correct for claimed deficiencies in the CAPM analysis by adjusting the intercept line of the security market line and reducing the slope. He asserts that this modification in the intercept and slope of the security market line has the effect of producing a more reliable estimate of the expected return relative to risk for securities because a standard CAPM analysis will understate the required return for companies with betas less than 1 and overstate the required return for companies with betas greater than 1. The ECAPM is not based on an economic theory; rather, it is based on an empirical regression comparing certain returns predicted by certain CAPM models to certain historically observed returns.

If the ECAPM regression uses Value Line betas or yields on long-term U.S. Treasuries, as does Mr. McKenzie's, it is likely to involve double counting for at least two reasons. Value Line already adjusts betas for low-beta companies upward and high-beta companies downward through the "Blume" adjustment that I discussed earlier. Also, Dr. Morin concedes that "the use of a long-term risk-free rate rather than a short-term risk-free rate already incorporates some of the desired effect of using the ECAPM." Both these methods have the effect of increasing return estimates for companies with betas less than 1 and reducing return estimates for companies with betas greater than 1.

For example, using Value Line betas within a standard CAPM analysis increases the intercept from the risk-free rate up to the risk-free rate plus 35% of the market risk premium. From there, the slope of the line decreases from a raw beta estimate multiplied by the market-risk free premium to only 67% of the observed beta estimate by the market

risk premium. Thus, using the Value Line Blume adjustment of betas in the standard CAPM model increases the intercept point and reduces the slope of the security market line. Using an ECAPM with an observed (non-Blume-adjusted) beta estimate accomplishes nearly the same thing. Specifically, the ECAPM with an observed beta will increase the intercept point to the risk-free rate plus 25% of the market risk premium and change the slope of the line from the observed beta multiplied by the market risk premium to 75% of the raw beta multiplied by the market risk premium. The impact on the intercept point and the slope of the security market line are very comparable using a standard CAPM with Value Line Blume-adjusted betas or an ECAPM using observed betas. Relatedly, applying an ECAPM adjustment to already-adjusted Value Line betas has a substantially greater impact on the CAPM return estimate for companies with betas less than 1 and a substantially reduced CAPM return estimate for companies with betas greater than 1. For these reasons, an ECAPM analysis should not be employed in combination with Value Line adjusted betas.

Q. DO YOU HAVE ANY ISSUES WITH MR. MCKENZIE'S RP ANALYSIS?

A. Other than it should be accorded less weight, no, I do not.

Q. DO YOU HAVE ANY ISSUES WITH MR. MCKENZIE'S EE METHOD?

A. No, I do not.

Q. WHAT ARE YOUR ISSUES WITH MR. MCKENZIE'S NON-UTILITY BENCHMARKING (MCKENZIE DIRECT TESTIMONY, P. 49, LINE 20 – P. 53, LINE 7)?

A. Mr. McKenzie's Non-Utility Benchmarking presented in Direct Exhibit AMM-10 should not be relied upon in this case. Companies in the Non-Utility Group (NUG) are inherently riskier than regulated utilities because they are exposed to market volatility. Unlike regulated utilities, NUG companies cannot simply file for a price increase if they are not earning their required return. Instead, they are constrained by market forces when attempting to raise prices. In contrast, regulated utilities operate with what are essentially captive customers who lack alternatives. While an allowed ROE for a utility is not a guaranteed return, it provides regulated utilities with a significant opportunity to earn a fair return without competitive market pressures. Finally, the expected growth rates for the NUG group are short-term in nature, which, as discussed earlier, are unsuitable for use in a DCF model. For these reasons, the NUG analysis should not be relied upon in determining the allowed ROE.

Q. DO YOU HAVE ANY COMMENTS ON MR. MCKENZIE'S AND MR. STEVENS' CAPITAL STRUCTURE?

A. Yes, I do. While there is very little difference between my common equity recommendation of 50% and their recommendation of 50.52%, I support my recommendation. Additionally, my recommendation is supported by Exhibit AMM-11.

XI. CONCLUSION

Q. IN CONCLUSION, WHAT DO YOU RECOMMEND AS THE OVERALL COST OF CAPITAL OF BH NATURAL GAS?

A. I recommend an overall cost of capital of 7.02%, as shown in Exhibit SKB-7. The overall cost of capital reflects a 50%/50% common equity / long-term debt ratio.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit SKB-1

S. KEITH BERRY

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CURRENT POSITIONS

Professor Emeritus of Economics and Business
Hendrix College

Vice President
Economic & Financial Consulting Group, Inc., 1990-Present
Conway, AR 72032

Co-Chair, Return on Equity Work Group
Organization of MISO States

EDUCATION

Ph.D., Economics
Vanderbilt University, 1979

B.A., Mathematics
Hendrix College, 1973

PREVIOUS POSITIONS

Professor of Economics and Business
Hendrix College, 2002-2014

Director, Center for Entrepreneurial Studies
Hendrix College, 2001-2007

Chair, Department of Economics and Business –Supervisor of five faculty
Hendrix College, 2003-05

Associate Professor of Economics and Business
Hendrix College, 1994-2002

Assistant Professor of Economics and Business

Exhibit SKB-1

Hendrix College, 1989-1994

Director of Research and Policy Development-Supervisor of six policy analysts
Arkansas Public Service Commission, Little Rock, AR, 1986-1989

Manager of Rates and Finance Sections-Supervisor of six rate and financial analysts
Arkansas Public Service Commission, Little Rock, AR, 1979-1986

Instructor/Assistant Professor of Economics and Business
Hendrix College, Conway, AR, 1977-1979

Instructor
Vanderbilt University, 1976-77

CURRENT AND PAST CONSULTING ACTIVITIES WITH THE ARKANSAS PUBLIC SERVICE COMMISSION

I have been retained as a consultant and expert witness by the Arkansas Public Service Commission continuously since 1990. In that capacity, I have advised the Arkansas Commission, and filed testimony on behalf of the Arkansas Commission, on the following subjects:

(1) Regional Transmission Organizations;
(2) Independent Coordinator of Transmission;
(3) Locational marginal pricing;
(4) Resource Planning;
(5) Mergers;
(6) National Interest Electric Transmission Corridors;
(7) Transmission Planning;
(8) Standard Market Design;
(9) Demand Side Resources;
(10) System Pooling Agreements;
(11) Stranded Costs;
(11) FERC Rulemaking on Transmission Issues;
(13) Fuel Adjustment Clauses;
(14) Interruptible Rates;
(15) Avoided Cost Pricing;
(16) Nuclear decommissioning rates;
(17) Retail electric utility rate cases;
(18) Gas Distribution utility rate cases;
(19) Independent Transmission Companies;
(20) Cost of capital;
(21) Depreciation expense reflected in formula rates;

(22) Plant cancellation costs reflected in formula rates;
(23) Utility mergers;
(24) Nuclear plant purchases;
(25) Interruptible rates.

TECHNICAL ASSISTANCE PROVIDED

Technical assistance on cost of capital issues provided to District of Columbia Public Service Commission and Staff, Formal Case No. 1087, Pepco Electric Rate Case, 2011-12.

Technical assistance on cost of capital issues provided to District of Columbia Public Service Commission and Staff, Formal Case No. 1093, Washington Gas Light Company Rate Case, 2012.

Technical assistance on cost of capital issues provided to District of Columbia Public Service Commission and Staff, Formal Case No. 1103, Pepco, 2013-14.

Technical assistance on cost of capital issues provided to District of Columbia Public Service Commission and Staff, Formal Case No. 1137, Washington Gas Light, 2016.

Technical assistance on cost of capital issues provided to District of Columbia Public Service Commission and Staff, Formal Case No. 1139, Pepco, 2016-17.

TESTIMONY OR REPORTS PRESENTED TO COMMISSIONS, COURTS OR AGENCIES

Arizona Corporation Commission, Docket No. W-02060A-23-0339 (et al.). Testimony concerning cost of capital and financing for various Liberty Utilities companies. January, 2025.

The Public Utilities Commission of Ohio, Case No. 24-0468-EL-AIR (et al.), Testimony concerning cost of capital for Ohio Edison, Cleveland Electric Illuminating, and Toledo Edison. January 2025.

Federal Energy Regulatory Commission, Docket No. EL20-72. Testimony concerning SERI Money Pool, November, 2021 and May 2022.

Exhibit SKB-1

Federal Energy Regulatory Commission, Docket No. EL21-56. Affidavit concerning performance of Grand Gulf. March, 2021.

Federal Energy Regulatory Commission, Docket No. EL20-72. Affidavit concerning Unit Power Sales Agreement, September 2020.

Nebraska Public Service Commission, Docket No. NG-109. Testimony concerning Black Hills Nebraska Gas. September 2020.

Arizona Corporation Commission, Docket No. 19-0028. Testimony concerning the cost of capital of Tucson Electric Power, October, 2019 and December, 2019.

AAA Case No. 01-18-0004-0072. Testimony concerning the cost of capital for White Hall Water a subsidiary of Liberty Utilities. April, 2019 and March, 2019.

Federal Energy Regulatory Commission, Docket No. EL17-41, EL18-142, and EL18-204. Testimony concerning the cost of capital of System Energy Resources, Inc. January, 2019, August, 2019, December, 2019, February, 2020, June, 2020, and August, 2020.

Federal Energy Regulatory Commission, Docket No. EL14-12 and EL15-45. Testimony concerning the cost of capital for the MISO transmission owners. February, 2019 and April, 2019.

Federal Energy Regulatory Commission, Docket No. EL17-41. Affidavit concerning the cost of capital of System Energy Resources, Inc. January, 2017.

Federal Energy Regulatory Commission, Docket No. EL09-61-004. Testimony concerning bandwidth payments in the Entergy System Agreement. January-February, 2017.

Federal Energy Regulatory Commission, Docket No. EL01-88. Testimony concerning adjustments to 2005 bandwidth payments in the Entergy System Agreement. April, 2016.

Federal Energy Regulatory Commission, Docket No. EL10-65. Testimony concerning retroactive adjustments to bandwidth payments in the Entergy System Agreement. July-August, 2015.

Federal Energy Regulatory Commission, Docket No. EL13-432-000. Testimony concerning allocations of benefits from the Union Pacific-Entergy Settlement, June-July, 2014.

Federal Energy Regulatory Commission, Docket No. EL09-61-000. Testimony concerning calculations of Load Responsibility Ratios in the Entergy System Agreement, February-March, 2013.

Arizona Corporation Commission, Docket No. E-01933A-12-0291, Testimony concerning the cost of capital of Tucson Electric Power, December, 2012.

Federal Energy Regulatory Commission, Docket No. EL12-1384-000, Testimony concerning inclusion of cancelled production costs on Entergy's bandwidth calculations. October, 2012.

U.S. District Court for the Middle District of Louisiana, Civil Action No.09-100-RET-CN, United States of America et al. v. Louisiana Generating, LLC. Expert Report concerning the financial integration between Louisiana Generating, LLC and NRG Energy, August, 2012

Federal Energy Regulatory Commission, Docket No. EL12-1384-000. Affidavit concerning impact of cancelled production costs on Entergy's bandwidth calculations. May, 2012.

Federal Energy Regulatory Commission, Docket No. EL12-1384-000. Affidavit concerning impact of cancelled production costs on Entergy's bandwidth calculations. April, 2012.

Federal Energy Regulatory Commission, Docket No. EL01-88-000. Affidavit concerning increase in EAI bandwidth payments for seven months in the year 2005. January, 2012.

Missouri Public Service Commission, Case No. HR-2011-0241. Testimony concerning the cost of capital of Veolia Energy Kansas City, Inc., September, 2011.

North Dakota Public Service Commission, Case Nos. PU-10-6576 and PU11-55. Testimony concerning cost of capital of Northern States Power Minnesota operating in North Dakota, August, 2011.

Federal Energy Regulatory Commission, Docket No. EL11-57-000. Affidavit concerning impact of cancelled production costs on Entergy's bandwidth calculations. August, 2011.

Federal Energy Regulatory Commission, Docket No. ER10-2001. Testimony concerning depreciation expense used in bandwidth calculations. April, 2011.

Federal Energy Regulatory Commission, Docket No. EL10-55-000. Testimony concerning depreciation expense used in bandwidth calculations. October, 2010.

Federal Energy Regulatory Commission, Docket No. EL09-1224-000. Testimony concerning 2009 bandwidth calculations for Entergy Operating Companies. January and February, 2010.

Connecticut Department of Public Utility Control. Participation in task force that performed a Management Audit of the Connecticut Light & Power Company, May, 2009.

Federal Energy Regulatory Commission, Docket No. ER09-636-000. Affidavit concerning Entergy Arkansas notice of intent to withdraw from the Entergy System Agreement, April, 2009.

Federal Energy Regulatory Commission, Docket No. EL08-51-000. Testimony concerning recovery of Spindletop regulatory asset in 2008 bandwidth remedy. February, 2009.

Federal Energy Regulatory Commission, Docket No. ER08-1056-000. Testimony concerning inclusion of certain Evangeline gas costs in 2008 bandwidth calculations for Entergy, January, 2009.

Federal Energy Regulatory Commission, Docket No. ER08-1056-000. Affidavit on 2008 bandwidth remedy on Entergy System. July 2008.

Federal Energy Regulatory Commission, Docket No. ER07-956-000. Testimony concerning Entergy System Agreement 2007 bandwidth effects of imprudence and depreciation, February-March, 2008.

Federal Energy Regulatory Commission, Docket No. EC07-70-000. Affidavit concerning Entergy acquisition of Calcasieu Power, LLC.

Maryland Public Service Commission, Case No. 9062. Testimony concerning the cost of capital of Chesapeake Utilities Corporation, August, 2006.

Federal Energy Regulatory Commission, Docket No. EL06-76-000. Affidavit in Complaint by APSC concerning production costs on the Entergy System, April, 2006.

Federal Energy Regulatory Commission, Docket No. ER03-583-000, et al. Testimony concerning purchased power agreements on Entergy System, November, 2003.

Federal Energy Regulatory Commission, Docket No. ER03-753-000. Testimony concerning unit power rate schedule on Entergy System, November, 2003.

Federal Energy Regulatory Commission, Docket No. EL01-88-000.
Testimony opposing production cost equalization on the Entergy System, March, 2003, April, 2003, and July, 2003.

Securities and Exchange Commission, File No. 70-9785, Affidavit concerning issues associated with exempt wholesale generators for American Electric Power, September, 2002.

Federal Energy Regulatory Commission, Docket No. EL01-88-000.
Affidavit opposing production cost equalization on the Entergy System, July, 2001.

Federal Energy Regulatory Commission, Docket Nos. EL00-66-000 et al.
Affidavit concerning production cost equalization on the Entergy System, May, 2001.

State of Arkansas General Assembly, Testimony concerning HB 1411 regarding funding of the White River Navigation Project, January, 2001.

Federal Energy Regulatory Commission, Docket Nos. EL00-66-000 et al.
Testimony concerning modification of Entergy System Agreement to accommodate

deregulation and interruptible rates, December, 2000, January, 2001, and February, 2001.

Federal Energy Regulatory Commission, Docket Nos. EL98-40-000 et al.
Testimony concerning the merger of American Electric Power and Central and South West, May, 1999 and June, 1999.

Federal Energy Regulatory Commission, Docket No. EC99-18-000
Affidavit concerning the proposed acquisition of Pilgrim Nuclear Unit by Entergy Corporation, January, 1999.

Securities and Exchange Commission, File No. 70-9049
Affidavit concerning financial risk of diversification of Entergy Corporation, October, 1998.

Arkansas Public Service Commission, Docket No. 98-081-TF
Testimony concerning off-peak rates, March, 1998.

"Report on the Cost of Equity of New York Power Authority," December, 1997.

State of Arkansas General Assembly
Economic Policy Analysis of Telecommunications Reform Act of 1997, January, 1997.

Securities and Exchange Commission, File No. 70-8725
Affidavit concerning financial risk of diversification of Southern Company, October, 1996 and January, 1997.

Federal Energy Regulatory Commission, Docket No. ER95-53-000
Testimony concerning the equalization of nuclear decommissioning costs of Entergy, October, 1996.

Securities and Exchange Commission, File No. 70-8809
Affidavit concerning financial risk of diversification of Central and Southwest. May, 1996.

"Report on the Cost of Equity of New York Power Authority," January, 1996.

Federal Energy Regulatory Commission, Docket No. ER95-1042-000
Testimony concerning the cost of capital and nuclear decommissioning of System Energy Resources, October, 1995.

Federal Energy Regulatory Commission, Docket No. ER95-53-000
Affidavit concerning nuclear decommissioning cost equalization on the Entergy System. June, 1995.

"Report on the Development of Electric Utility and Railroad Comparable Samples for the Tax Division of the Arkansas Public Service Commission," February, 1995.

Exhibit SKB-1

Federal Energy Regulatory Commission, Docket No. EL94-13-000
Testimony concerning the merger of Entergy and Gulf States Utilities. October, 1994.

Arkansas Public Service Commission, Docket No. 94-355-U
Testimony concerning the cost of capital of Louisiana-Nevada Transit. October, 1994.

Oklahoma Corporation Commission, PUD 940000354
Testimony concerning the cost of capital of Arkansas Louisiana Gas Co. July, 1994.

Arkansas Public Service Commission, Docket No. 94-175-U
Testimony concerning the cost of capital of Arkansas Louisiana Gas Co. June, 1994.

Securities and Exchange Commission, File No. 70-8339
Affidavit concerning the merger of Central and Southwest and El Paso Electric. April, 1994.

Federal Energy Regulatory Commission, Docket Nos. EC94-7-000 and ER94-898-000
Testimony concerning the merger of Central and Southwest and El Paso Electric. February, 1994.

Arkansas Public Service Commission, Docket No. 93-081-U
Testimony concerning the cost of debt of Arkansas Louisiana Gas Co. October, 1993.

Federal Energy Regulatory Commission, Docket Nos. EC92-21-000 and ER92-806-00
Testimony concerning the merger of Entergy and Gulf States Utilities. March, 1993.

Federal Energy Regulatory Commission, Docket Nos. ER92-341-000, EL92-35-000, and EL92-36-000
Testimony concerning the cost of capital of System Energy Resources. December, 1992.

Securities and Exchange Commission, File No. 70-8059
Affidavit concerning the merger of Entergy and Gulf States Utilities. November, 1992.

Oklahoma Corporation Commission, PUD 0001317
Testimony concerning the cost of capital and a weather normalization adjustment clause for Arkansas Louisiana Gas Co. May, 1992.

Kansas Corporation Commission, Docket No. 181,200-U
Testimony concerning the cost of capital and a weather normalization adjustment clause for Arkansas Louisiana Gas Co. May, 1992.

Arkansas Public Service Commission, Docket No. 92-032-U
Testimony concerning a weather normalization adjustment clause for Arkansas Louisiana

Gas Co. February, 1992.

Arkansas Public Service Commission, Docket No. 89-143-C
Testimony concerning franchise fee or tax on AT&T in the City of Little Rock. January, 1992.

Federal Energy Regulatory Commission, Docket No. EL90-48-000
Testimony concerning the spin-off of a coal unit on the Entergy System. January, 1992.

Arkansas State Banking Commission
Economic and Financial Report on the Feasibility of the Proposed First Community Bank, Conway, Arkansas (prepared by Economic & Financial Consulting Group, Inc.), May, 1991

Arkansas Public Service Commission, Docket No. 90-133-U
Testimony concerning non-traffic sensitive costs on telephone systems. November, 1990.

Federal Energy Regulatory Commission, Docket Nos. ER89-678-000 and EL90-16-000
Testimony concerning the cost of capital and nuclear decommissioning of System Energy Resources. November, 1990

Arkansas Public Service Commission, Docket No. 90-004-U
Testimony concerning the capital structure of Arkansas Western Gas Co. October, 1990.

Arkansas Public Service Commission, Docket No. 88-115-TF
Testimony concerning phase-in plan for Arkansas Power and Light Co. September, 1988.

Arkansas Public Service Commission, Docket No. 87-201-U
Testimony concerning the cost of capital of GTE Southwest, Inc. August, 1988.

Arkansas Public Service Commission, Docket No. 87-166-TF
Testimony concerning nuclear decommissioning trust fund of Arkansas Power and Light Co. January, 1988.

Arkansas Public Service Commission, Docket No. 87-070-U
Testimony concerning the cost of capital of Arkansas Louisiana Gas Co. September, 1987.

Arkansas Public Service Commission, Docket No. 87-071-U
Testimony concerning the cost of capital of Arkansas Energy Resources. August, 1987.

Federal Energy Regulatory Commission, Docket Nos. EL86-58-000 and EL86-59-000
Testimony concerning the cost of capital of System Energy Resources, Inc. and Middle South Services. March, 1987

Arkansas Public Service Commission, Docket No. 87-028-U

Testimony concerning a preferred stock issuance by Arkla. March, 1987.

Arkansas Public Service Commission, Docket No. 84-165-U
Testimony concerning the cost of capital of Southwestern Bell. February, 1987.

Arkansas Public Service Commission, Docket No. 86-243-TF
Testimony concerning incentive rates for Arkansas Power and Light Co. January, 1987.

Securities and Exchange Commission, File No. 70-7299
Affidavit concerning a preferred stock issuance by System Energy Resources. December, 1986.

Arkansas Public Service Commission, Docket No. 86-175-TF
Testimony concerning incentive rates for Arkansas Power and Light Co. September, 1986.

Arkansas Public Service Commission, Docket No. 86-147-TF
Testimony concerning a tax adjustment rider for Arkansas Power and Light Co. August, 1986.

Arkansas Public Service Commission, Docket No. 86-112-TF
Testimony concerning seasonally differentiated rates of Arkansas Power and Light Co. June, 1986.

Arkansas Public Service Commission, Docket No. 86-090-U
Testimony concerning gas transportation policy. June, 1986.

Arkansas Public Service Commission, Docket No. 85-299-U
Testimony concerning cost allocations between customer classes on Arkansas Power and Light Co. February, 1986.

Arkansas Public Service Commission, Docket No. 84-249-U
Testimony concerning the cost of capital, incentive rates, and phase-in plan for Arkansas Power and Light Co. May, 1985.

Arkansas Public Service Commission, Docket No. 85-104-TF
Testimony concerning interruptible incentive rates for Arkansas Power and Light Co. May, 1985.

Arkansas Public Service Commission, Docket No. 85-043-U
Testimony concerning a rate freeze for Arkansas Louisiana Gas Co. February, 1985.

Arkansas Public Service Commission, Docket No. 84-084-U
Testimony concerning cost allocations and phase-in plan for Arkansas Electric Cooperative

Corporation. September, 1984.

Arkansas Public Service Commission, Docket No. 84-199-U
Testimony concerning the cost of capital, rate design, and class cost allocations for Arkansas Power and Light Co. September, 1984.

Arkansas Public Service Commission, Docket No. F-007
Testimony concerning fuel and gas adjustment clauses. May, 1984.

Arkansas Public Service Commission, Docket No. 83-161-U
Testimony concerning the cost of capital and replacement cost pricing for Arkansas Louisiana Gas Co. March 1984.

Arkansas Public Service Commission, Docket No. 83-253-U
Testimony concerning the cost of capital of AT&T. January, 1984.

Arkansas Public Service Commission, Docket No. 83-153-U
Testimony concerning the cost of capital of Allied Telephone Co. December, 1983.

Arkansas Public Service Commission, Docket No. 83-206-U
Testimony concerning a rate reduction for Arkansas Power and Light. December, 1983

Arkansas Public Service Commission, Docket No. 83-045-U
Testimony concerning the cost of capital and customer stock purchase plan on Southwestern Bell. September, 1983.

Arkansas Public Service Commission, Docket No. 81-104-AP-2
Testimony concerning nuclear fuel negative salvage costs of Arkansas Power and Light Co. July, 1983.

Arkansas Public Service Commission, Docket No. 82-314-U
Testimony concerning the cost of capital and customer stock purchase plan on Arkansas Power and Light Co. April, 1983.

Federal Energy Regulatory Commission, RM-80-36-000
Comments concerning a generic rate of return. December, 1982.

Illinois Commerce Commission, Docket No. 82-0152
Testimony concerning the cost of capital of Illinois Power Co. July, 1982.

Arkansas Public Service Commission, Docket No. 81-260-U
Testimony concerning the rate of return of Arkansas Electric Cooperative Corporation. June, 1982.

Arkansas Public Service Commission, Docket No. 82-037-U
Testimony concerning the cost of capital for Southwestern Bell. May, 1982.

Arkansas Public Service Commission, Docket No. 81-349-U
Testimony concerning the cost of capital of Associated Natural Gas Co. April, 1982.

Arkansas Public Service Commission, Docket No. TD-80-06
Testimony concerning overall capitalization rate. November, 1981.

Arkansas Public Service Commission, Docket No. 81-161-U
Testimony concerning the cost of capital of Oklahoma Gas and Electric. October, 1981.

Arkansas Public Service Commission, Docket No. 81-144-U
Testimony concerning the cost of capital and nuclear decommissioning trust funds for Arkansas Power and Light Co. September, 1981.

Arkansas Public Service Commission, Docket No. U-3136
Testimony concerning the cost of capital of Southwestern Electric Power Co. April, 1981.

Arkansas Public Service Commission, Docket No. U-3117
Testimony concerning an econometric model for directory assistance for Southwestern Bell Co. April, 1981.

Arkansas Public Service Commission, Docket No. U-3071
Testimony concerning the rate of return and an econometric model of demand for Arkansas Electric Cooperative Corp. July, 1980.

Arkansas Public Service Commission, Docket No. U-3089
Testimony concerning the rate of return of North Arkansas Telephone Cooperative. July, 1980.

Arkansas Public Service Commission, Docket No. U-3096
Testimony concerning the cost of capital of United Telephone Co. March, 1980.

Arkansas Public Service Commission, Docket No. U-3052
Testimony concerning the cost of capital of Associated Natural Gas Co. March, 1980.

Arkansas Public Service Commission, Docket No. U-3036
Testimony concerning the cost of capital of United Telephone Co. November, 1979.

HONORS AND AWARDS

Exhibit SKB-1

Wincott Visiting Research Fellowship
University of Buckingham, United Kingdom, Fall, 1997

Earhart Fellowship (with Nicholas Georgescu-Roegen)
Vanderbilt University, 1975-1976

Graduate School Assistantship
Vanderbilt University, 1973-1976

Mosley Economics Award
Hendrix College, 1973

Hogan Math Award
Hendrix College, 1972

Alpha Chi (scholastic),
Hendrix College

Rensselaer Math and Science Award, 1968

PUBLICATIONS

"A Comparison of Pay-as-Bid and Market Clearing Price Bidding Processes in Electric Utility Auctions," *Managerial and Decision Economics*, *35*, 2014, pp.258-263.

"Sub-Optimal Generation Portfolio Variance with Rate of Return Regulation," *Technology and Investment, 1*, 2010, pp. 114-17.

"Firm Incentives for Invention Prizes With Multiple Winners," *Eastern Economic Journal*, *32*, 2006, pp. 83-95.

"Generation Search Costs and Ramsey Pricing in a Partially Deregulated Electric Utility Industry," *Journal of Economics and Business*, *54*, 2002, pp. 331-343.

"Substitution Between Bundled and Unbundled Products After Deregulation in Electricity Generation," *Eastern Economic Journal*, *26*, 2000, pp. 455-68.

"Stranded Costs, Access Charges, and Ramsey Pricing in the U.S. Electric Utility Industry," *The Quarterly Review of Economics and Finance*, *40*, 2000, pp. 503-17.

"Excess Returns in Electric Utility Mergers During Transition to Competition," *Journal of Regulatory Economics*, *18*, 2000, pp.175-88.

"Interest Rate Risk and Utility Risk Premia During 1982-93," *Managerial and Decision Economics*, *19*, 1998, pp. 127-35.

"Asymmetric Demand Information in Regulation," *Studies in Economics and Finance*, *18*, 1998, pp. 129-41.

"Utility Mergers and the Cost of Capital," *Journal of Financial and Strategic Decisions*, *11*, 1998, pp.73-82.

"Interest Rate Risk and Utility Bond and Dividend Yields," *Advances in Investment Analysis and Portfolio Management*, Volume III, 1995, pp. 183-191.

"Rent-Seeking With Multiple Winners," *Public Choice*, *8*, 1993, pp. 437-43.

"A Risk-Adjusted Approach for Assessing Factors that Determine Utilities' Allowed Returns on Equity," (with Timothy Mason), *The Review of Industrial Organization*, *8*, 1993, pp. 113-23.

"Ramsey Pricing in the Presence of Risk," *Managerial and Decision Economics*, March-April, 1992, pp. 111-17.

"The Impact of Consumers on the Dissipation of Rents," *Eastern Economic Journal*, July-September, 1991, pp. 345-49.

"Expected Rate Minimization and Excess Capacity in Regulated Utilities," *The Quarterly Review of Economics and Business*, Volume 30, Number 3, Fall 1990, pp. 85-95.

"Flotation Cost Allowance Methodologies: A Synthesis Using Present Value Analysis," *The Financial Review*, Volume 25, Number 3, August, 1990, pp.487-500.

"The Allocation of Risk Between Stockholders and Ratepayers in Regulated Utilities," *Land Economics*, Volume 64, Number 2, May, 1988, pp. 114-24.

"Rate-of-Return Regulation and Demand Uncertainty with a Symmetric Regulatory Constraint," *The American Economist*, Fall, 1987, pp. 8-12.

"The Relevance of Quasi Rationality in Competitive Markets: Comment," *American Economic Review*, Volume 77, Number 3, June, 1987, pp. 496-8.

"The Ratepayer and Stockholder under Alternative Regulatory Policies: Comment," *Land Economics*, Volume 63, Number 2, May, 1987, pp. 201-5.

"The Impact of Nuclear Power Plant Construction Activity on the Electric Utility Industry's Cost of Capital," (with Samuel Loudenslager), *The Energy Journal*, Volume 8, Number 2, April, 1987, pp.

63-75.

"When is Excess Capacity Desirable?" *New Regulatory and Management Strategies in a Changing Market Environment*, Institute of Public Utilities, 1987, pp. 358-371.

"Random Pseudo-Disturbance Generators in a Stochastic Simulation of an Econometric Model,"(with Cliff Huang), *Journal of Statistical Computation and Simulation*, Vol.22, Nos. 3 and 4, pp. 285-302.

"The Quarterly Cost of Equity: Implications for Setting the Annual Return on Equity," *Electric Ratemaking*, Volume 2, Number 2, April/May, 1983, pp.8-10.

Book Review of *Issues in Public-Utility Pricing and Regulation*, edited by Michael A. Crew, Lexington. Mass.: D.C. Heath & Co., 1980, in *Southern Economic Journal*, Volume 48, Number 4, April, 1982, pp. 1112-3.

"The Discounted Cash Flow Formula: Validation and Estimation," *Proceedings of the Second NARUC Biennial Regulatory Information Conference*, pp.397-400.

PRESENTATIONS

"Offer Curve Behavior for Merchant Plants in Electric Utility Regional Transmission Organizations", 2005 Southern Economics Association Meetings, Washington, D.C.

"Deans, Teams, and Faculty Dreams: Cooperation in Hard Work," Speaker, Session at 57th Annual Meeting of the American Conference of Academic Deans, New Orleans, January, 2001.

"Changes in Risk in Electric Utility Mergers During Transition to Competition", 1999 Southern Economic Association Convention.

"Stranded Cost in the U.S. Electric Utility Industry: Last Gasp of Ramsey Pricing?" Discussion Paper, Wincott Series, University of Buckingham, United Kingdom, December, 1997.

"Interest Rate Risk and Utility Risk Premia During 1982-93," 1994 Southern Economic Association Convention.

"Interest Rate Risk and Utility Bond and Dividend Yields," 1992 Western Economic Association Convention.

"Scaling Up Nuclear Decommissioning Costs," NARUC Advanced Regulatory Studies Program, Williamsburg, VA, 1992.

"Assessing Factors That Determine Utilities' Allowed Returns on Equity: A Risk-Adjusted Institutional Approach," (with Timothy Mason), 1989 Southern Economic Association Convention.

"The Grand Gulf Experience," Sixty-Fifth National Conference of Regulatory Utility Commission Engineers, Hot Springs, AR, 1987.

"Some Fundamental Principles in the Determination of a Utility's Cost of Capital," Seventh Annual Western Utility Rate Seminar, Salt Lake City, Utah, 1987.

"A Critique of Various Phase-in Plans," NARUC Advanced Regulatory Studies Program, Williamsburg, VA, 1986.

"Principles in the Determination of a Utility's Cost of Capital," Thirteenth Annual Eastern NARUC Utility Rate Seminar, Ft. Lauderdale, Florida, 1985.

"Nuclear Unit Construction and Electric Utilities' Cost of Capital," Western Economic Association Convention, 1984.

"Current Issues in Utility Regulation," Fifth Annual Seminar Series, Hendrix College, 1984.

"The Economics of Two-Part Rate Structures for Regulated Utilities," Midwest Economics Association Convention, 1981.

COLLEGIATE SERVICE

Chair, Department of Economics and Business. While Chair I led the Department in the development of an International Business Minor. This will be a precursor to an International Business Major. 2003-05

Director, Center for Entrepreneurial Studies, Hendrix College. I obtained $200,000 in external funding for the Center's start-up. The Center brought Secretary of Commerce Don Evans, former Secretary of HUD Jack Kemp, and former Council of Economic Advisors Chair Dr. Glenn Hubbard to speak to the Hendrix campus. Additionally, the Center sponsored a number of Business Roundtables where local businesspeople spoke to Hendrix students. In 2004, the Center provided supervision for a Hendrix Team that was a semi-finalist in the Arkansas Governor's Business Plan Competition. 2001-2007.

Faculty Advisor, Phi Beta Lambda, the Collegiate Division of Future Business Leaders of America, 2002-2005

Chair, Committee on Curriculum, Hendrix College, 1998-2002. Responsible for development of

new General Education Requirements as Hendrix moved from a trimester calendar to a semester calendar

Member of Search Committee for Provost for Hendrix College, 2002

Member of Faculty Committee that assisted in the writing of a $3.9 million grant to Hendrix College from the Robert & Ruby Priddy Charitable Trust, 2002

Hendrix College Alumni Association Board of Governors Awards Committee, 1999-2000

Chair, Committee on Student Life, Hendrix College, 1995-96

OTHER EXPERIENCE

Presentation on China Odyssey III at Conway Rotary Club, November, 2007.

Faculty leadership on China Odyssey III trip to China for Hendrix students. The focus of the Odyssey was entrepreneurship in China. May, 2007.

"Symposium on Business and the Liberal Arts: Integrating Professional and Liberal Education," Sponsored by the Council of Independent Colleges, Chicago, IL, May, 2007.

Member, eSTEM Public Charter Schools, Inc. Board of Directors, Little Rock, AR, 2007-2013

Discussant at 2005 American Economics Association/TPUG Session.

Chair, Finance Committee, Trinity United Methodist Church, 2005-06, Little Rock, AR.

Reviewer for *Quarterly Review of Economics and Finance, Eastern Economic Journal, Journal of Economic Surveys, Contemporary Economic Policy, Economics and Politics, Land Economics*, *The American Economist*, *Managerial and Decision Economics*, *International Journal of Energy Systems*, *Journal of Economics and Business,* and *IEEE PES Transactions on Power Systems*

Blue Ribbon Panel, advice to Frueauff Foundation concerning modification of its investment objectives, 2003

Discussant at 2001 Southern Economics Association Convention

"Report on the Economic Feasibility of the White River Navigation Project," February, 2000

Member, Board of the Arkansas Policy Foundation, 1999-2012

Exhibit SKB-1

"The Democratization of Capitalism on Wall Street," *Log Cabin Democrat*, Conway, Arkansas, June 7, 1999

Panelist on Governor's Economic Summit, Roundtable on Tax and Regulatory Policy, June 9-10, 1998, Little Rock, AR

"Taxes and Savings in Arkansas," Murphy Commission Report, May, 1998

"Feasibility Analysis of the Formation of a Local Electric Utility in Batesville and Independence County," with Mike Hughes and W.W. Elrod,II, April, 1998

Discussant at 1999 Southern Economics Association Convention

Discussant at 1996 Western Economics Association Convention

Discussant at 1994 Southern Economics Association Convention

Discussant at 1993 Southern Economics Association Convention

Participant on judges' panel for selection of outstanding Arkansas businesses and executives in 1988 for *Arkansas Business*

Lecturer, Business Leaders Day, 1988, University of Arkansas, Fayetteville, Arkansas

Research Advisory Committee, National Regulatory Research Institute, 1986-1989, Deputy Chairman (1988-1989)

Subcommittee on Electricity, National Association of Regulatory Utility Commissioners, 1987-1989

Subcommittee on Economics, National Association of Regulatory Utility Commissioners, 1979-1987

Exhibit SKB-2

Cost of Equity for Black Hills Nebraska

Method	Cost of Equity	Weight	Weighted Cost of Equity
DCF	8.68%	50%	4.34%
CAPM	10.11%	25%	2.53%
RP	10.54%	20%	2.11%
EE	8.85%	5%	0.44%

Weighted Average **9.42%**

Exhibit SKB-3

DCF Cost of Equity

Company	Dividend Yield (1)	g1 (2)	g2 (3)	g3 (4)	g4 (5)	k1 ((1)*(2)/2)+(2)	k2 ((1)*(3)/2)+(3)	k3 ((1)*(4)/2)+(4)	k4 ((1)*(5)/2)+(5)
Atmos Energy Corp.	2.35%	6.15%	7.64%	8.16%	7.94%	8.57%	10.07%	10.60%	10.38%
Chesapeake Utilities	2.04%	4.79%	7.33%	8.86%	7.67%	6.88%	9.45%	10.99%	9.79%
New Jersey Resources	3.78%	4.79%	2.55%	5.80%	5.96%	8.66%	6.38%	9.69%	9.86%
Ni Source Inc.	2.42%	7.69%	5.16%	4.40%	5.04%	10.20%	7.64%	6.87%	7.52%
Northwest Natural Holding	4.75%	5.79%	3.06%	0.47%	6.64%	10.68%	7.89%	5.23%	11.55%
ONE Gas	3.65%	4.25%	4.40%	4.47%	3.73%	7.99%	8.14%	8.21%	7.45%
Southwest Gas	3.40%	7.44%	2.03%	2.26%	4.32%	10.96%	5.46%	5.69%	7.78%
Spire Inc.	4.27%	4.92%	2.42%	4.81%	7.30%	9.30%	6.75%	9.19%	11.73%
Average						9.16%	7.72%	8.31%	9.51%
Overall Average							**8.67%**		

Notes: Dividends from Value Line; Prices from Yahoo Finance; growth rates calculated from Value Line

CAPM MODEL 1 FOR BLACK HILLS NEBRASKA Exhibit SKB-4

Company	Risk-Free Rate	Risk Premium	Beta	Cost of Equity Ke
	(1)	(2)	(3)	(4)=(1) + (3)*(2)
Atmos Energy Corp.	4.72%	4.90%	0.9	9.13%
Chesapeake Utilities	4.72%	4.90%	0.85	8.89%
New Jersey Resources	4.72%	4.90%	1	9.62%
Ni Source Inc.	4.72%	4.90%	0.95	9.38%
Northwest Natural Holding	4.72%	4.90%	0.85	8.89%
ONE Gas	4.72%	4.90%	0.85	8.89%
Southwest Gas	4.72%	4.90%	0.95	9.38%
Spire Inc.	4.72%	4.90%	0.9	9.13%
		Average Beta	0.91	
			Average	**9.16%**

0.0472

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Sep. 3, 2016).
(b) Average of weighted average earnings growth rates from IBES for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Sep. 5, 2016) with weight 2/3 and long-term growth with weight 1/3
(c) Six-month average yield on 30-year Treasury bonds for Mar. - Aug. 2016 from the Federal Reserve Board at http://www.federalreserve.gov/releases/h15/data/htm.
(d) The Value Line Investment Survey (Jul. 29, Aug. 19, & Sep. 16, 2016).
(e) www.finance.yahoo.com (Sep. 8, 2016).
(f) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

CAPM Model 2 For Black Hills Nebraska

Exhibit SKB-5

Company	Div Yield (1)	Proj. Growth (2)	Cost of Equity (3)=(1) + (2)	Risk-Free Rate (4)	Risk Premium (5)=(3)-(4)	Beta (6)	Cost of Equity Ke (4)+(6)*(5)
Atmos Energy Corp.	2.20%	9.51%	11.71%	4.72%	6.99%	0.9	11.01%
Chesapeake Utilities	2.20%	9.51%	11.71%	4.72%	6.99%	0.85	10.66%
New Jersey Resources	2.20%	9.51%	11.71%	4.72%	6.99%	1	11.71%
Ni Source Inc.	2.20%	9.51%	11.71%	4.72%	6.99%	0.95	11.36%
Northwest Natural Holding	2.20%	9.51%	11.71%	4.72%	6.99%	0.85	10.66%
ONE Gas	2.20%	9.51%	11.71%	4.72%	6.99%	0.85	10.66%
Southwest Gas	2.20%	9.51%	11.71%	4.72%	6.99%	0.95	11.36%
Spire Inc.	2.20%	9.51%	11.71%	4.72%	6.99%	0.9	11.01%
						Average	**11.05%**

0.022 0.1171 0.0472

(a) Weighted average for dividend-paying stocks in the S&P 500 based on data from www.valueline.com (Sep. 3, 2016).
(b) Average of weighted average earnings growth rates from IBES for dividend-paying stocks in the S&P 500 based on data from http://finance.yahoo.com (retrieved Sep. 5, 2016) with weight 2/3 and long-term growth with weight 1/3
(c) Six-month average yield on 30-year Treasury bonds for Mar. - Aug. 2016 from the Federal Reserve Board at http://www.federalreserve.gov/releases/h15/data/htm.
(d) The Value Line Investment Survey (Jul. 29, Aug. 19, & Sep. 16, 2016).
(e) www.finance.yahoo.com (Sep. 8, 2016).
(f) Duff & Phelps, "2016 Valuation Handbook - Guide to Cost of Capital," John Wiley & Sons (2016) at Table 7.3.

Expected Earnings Model For Black Hills Exhibit SKB-6

Company	Expected Return 2025	Expected Return 2028
Atmos Energy Corp.	8.82%	9.37%
Chesapeake Utilities	8.68%	9.90%
New Jersey Resources	12.62%	12.35%
Ni Source Inc.	7.86%	8.58%
Northwest Natural Holding	8.07%	8.08%
ONE Gas	7.52%	8.31%
Southwest Gas	6.80%	7.99%
Spire Inc.	8.41%	8.33%
Average	8.60%	9.11%
Overall Average	**8.85%**	

Exhibit SKB-7

Overall Rate of Return for Black Hills Nebraska

Capital Component	Proportion	Cost	Weighted Cost
Common Equity	50%	9.42%	4.71%
Long-Term Debt	50%	4.61%	2.31%

Overall Rate of Return **7.02%**

Exhibit SKB-8

BLACK HILLS CORP. NYSE-BKH

RECENT PRICE 56.44 | P/E RATIO 13.8 (Trailing: 14.4 Median: 17.0) | RELATIVE P/E RATIO 0.74 | DIV'D YLD 4.8% | VALUE LINE

TIMELINESS 4 Lowered 6/27/25
SAFETY 2 Raised 10/18/24
TECHNICAL 2 Lowered 6/27/25
BETA .85 (1.00 = Market)

18-Month Target Price Range
Low-High Midpoint (% to Mid)
$41-$71 $56 (0%)

2028-30 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(+60%)	16%
Low	65	(+15%)	8%

Institutional Decisions

	3Q2024	4Q2024	1Q2025
to Buy	206	204	221
to Sell	155	161	170
Hld's(000)	71247	71882	62625

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	© VALUE LINE PUB. LLC	28-30
High:	62.1	53.4	64.6	72.0	68.2	82.0	87.1	72.8	80.9	74.0	65.6	62.2								
Low:	47.1	36.8	44.7	57.0	50.5	60.8	48.1	58.2	59.1	46.4	49.3	54.9								
	32.58	33.29	28.96	26.55	28.67	31.20	25.48	29.47	31.38	29.24	28.22	27.02	30.11	38.60	34.18	30.47	*32.05*	*33.80*	Revenues per sh	*37.65*
	5.41	4.88	4.01	5.59	5.93	6.25	5.67	6.28	7.15	6.61	7.02	7.41	7.41	7.85	7.76	7.58	*7.75*	*7.95*	"Cash Flow" per sh	*8.75*
	2.32	1.66	1.01	1.97	2.61	2.89	2.83	2.63	3.38	3.47	3.53	3.73	3.74	3.97	3.91	3.91	*4.10*	*4.30*	Earnings per sh A	*5.00*
	1.42	1.44	1.46	1.48	1.52	1.56	1.62	1.68	1.81	1.93	2.05	2.17	2.29	2.41	2.50	2.60	*2.70*	*2.80*	Div'd Decl'd per sh B ■	*3.10*
	8.90	12.04	10.03	7.90	7.97	8.92	8.90	8.89	6.09	7.62	13.31	12.22	10.47	9.14	8.15	11.09	*11.50*	*11.50*	Cap'l Spending per sh	*12.00*
	27.84	28.02	27.53	27.88	29.39	30.80	28.63	30.25	31.92	36.36	38.42	40.79	43.05	45.31	47.15	50.12	*51.50*	*53.00*	Book Value per sh C	*56.00*
	38.97	39.27	43.92	44.21	44.50	44.67	51.19	53.38	53.54	60.00	61.48	62.79	64.74	66.10	68.20	69.84	*73.00*	*74.00*	Common Shs Outst'g D	*77.00*
	9.9	18.1	31.1	17.1	18.2	19.0	16.1	22.3	19.5	16.8	21.2	17.0	17.7	18.1	15.2	14.5	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*15.5*
	.66	1.15	1.95	1.09	1.02	1.00	.81	1.17	.98	.91	1.13	.87	.96	1.05	.85	.80			Relative P/E Ratio	*.85*
	6.2%	4.8%	4.6%	4.4%	3.2%	2.8%	3.5%	2.9%	2.7%	3.3%	2.7%	3.4%	3.5%	3.4%	4.2%	4.6%			Avg Ann'l Div'd Yield	*4.0%*
	1304.6	1573.0	1680.3	1754.3	1734.9	1696.9	1949.1	2551.8	2331.3	2127.7	*2340*	*2500*	Revenues ($mill)	*2900*
	128.3	140.3	186.5	192.5	214.5	232.9	236.7	258.4	262.2	273.1	*295*	*320*	Net Profit ($mill)	*385*
	35.8%	25.1%	28.7%	19.2%	13.0%	12.2%	2.8%	8.5%	8.5%	8.5%	*13.0%*	*13.0%*	Income Tax Rate	*13.0%*
	2.7%	5.3%	2.7%	1.4%	3.3%	2.5%	2.0%	2.4%	2.4%	2.5%	*2.5%*	*2.5%*	AFUDC % to Net Profit	*2.5%*
	56.0%	66.5%	64.5%	57.5%	57.1%	57.9%	59.7%	54.6%	54.2%	56.5%	*56.0%*	*56.0%*	Long-Term Debt Ratio	*55.5%*
	44.0%	33.5%	35.5%	42.5%	42.9%	42.1%	40.3%	45.4%	45.8%	43.5%	*44.0%*	*44.0%*	Common Equity Ratio	*44.5%*
	3332.7	4825.8	4818.4	5132.4	5502.2	6089.5	6914.0	6602.3	7016.5	7751.7	*8100*	*8600*	Total Capital ($mill)	*9900*
	3259.1	4469.0	4541.4	4854.9	5503.2	6019.7	6449.2	6797.9	7119.3	7629.9	*8150*	*8650*	Net Plant ($mill)	*10100*
	4.9%	4.0%	5.2%	5.0%	4.9%	5.0%	4.5%	5.1%	3.7%	3.5%	*3.5%*	*3.5%*	Return on Total Cap'l	*4.0%*
	8.8%	8.7%	10.9%	8.8%	9.1%	9.1%	8.5%	8.6%	8.2%	7.8%	*8.0%*	*8.0%*	Return on Shr. Equity	*8.5%*
	8.8%	8.7%	10.9%	8.8%	9.1%	9.1%	8.5%	8.6%	8.2%	7.8%	*8.0%*	*8.0%*	Return on Com Equity E	*8.5%*
	3.8%	3.3%	5.3%	3.9%	3.8%	3.8%	3.3%	3.4%	2.9%	2.6%	*3.0%*	*3.0%*	Retained to Com Eq	*3.0%*
	57%	62%	52%	55%	58%	58%	61%	61%	64%	66%	*66%*	*66%*	All Div'ds to Net Prof	*62%*
Fixed Charge Cov. (%)					281	254	261													

CAPITAL STRUCTURE as of 3/31/25
Total Debt $4311.5 mill. **Due in 5 Yrs** $1660.0 mill.
LT Debt $3951.6 mill. **LT Interest** $195.0 mill.
(Total Interest Coverage: 2.6x)
Leases, Uncapitalized Annual rentals $2.2 mill.

Pension Assets-12/24 $308.6 mill.
Oblig. $348.1 mill.
Pfd Stock None

Common Stock 72,509,377 shs.
as of 5/5/25

MARKET CAP: $4.1 billion (Mid Cap)

ELECTRIC OPERATING STATISTICS

	2022	2023	2024
% Change Retail Sales (KWH)	+3.4	+1.5	+2.1
Avg. Indust. Use (MWH)	NA	NA	NA
Avg. Indust. Revs. per KWH (¢)	NA	NA	NA
Capacity at Yearend (Mw)	NA	NA	NA
Peak Load, Summer (Mw)	1107	1101	1103
Annual Load Factor (%)	NA	NA	NA
% Change Customers (yr-end)	+1.0	+.9	+1.0

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '22-'24 to '28-'30
Revenues	2.5%	4.0%	*1.5%*
"Cash Flow"	3.0%	2.5%	*2.0%*
Earnings	4.5%	2.5%	*3.5%*
Dividends	5.0%	5.0%	*3.5%*
Book Value	4.5%	5.5%	*3.0%*

QUARTERLY REVENUES ($ mill.)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2022	823.6	474.2	462.6	791.4	2551.8
2023	921.2	411.3	407.1	591.7	2331.3
2024	726.4	402.6	401.6	597.1	2127.7
2025	805.2	*410*	*410*	*714.8*	*2340*
2026	*825*	*450*	*450*	*775*	*2500*

EARNINGS PER SHARE A

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2022	1.82	.52	.54	1.11	3.97
2023	1.73	.35	.67	1.17	3.91
2024	1.87	.33	.35	1.37	3.91
2025	1.87	*.40*	*.43*	*1.40*	*4.10*
2026	*1.92*	*.42*	*.46*	*1.50*	*4.30*

QUARTERLY DIVIDENDS PAID B ■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2021	.565	.565	.565	.595	2.29
2022	.595	.595	.595	.625	2.41
2023	.625	.625	.625	.625	2.50
2024	.65	.65	.65	.65	2.60
2025	.676	.676			

% TOT. RETURN 7/7/25

	THIS STOCK	VL ARITH.* INDEX
1 yr.	9.8	14.6
3 yr.	-10.0	44.6
5 yr.	19.4	96.9

Target Price Range 2028 | 2029 | 2030

BUSINESS: Black Hills Corporation is a holding company for Black Hills Energy, which serves 222,340 electric customers in CO, SD, WY and MT, and 1.12 million gas customers in NE, IA, KS, CO, WY, and AR. Has coal mining sub. Acq'd utility ops. from Aquila 7/08; SourceGas 2/16. Discontinued gas marketing in '11; gas & oil E&P in '17. '24 Elec. rev. breakdown: residential, 34%; commercial, 38%; industrial, 23%; other, 5%. Generating sources: coal, 35%; gas, 26%; wind, 9%; purchased, 30%. Fuel costs: 34% of revs. '24 deprec. rate: 2.9%-3.5%. Has 2,874 employees. Chairman: Steven R. Mills. President & CEO: Linden R. Evans. Inc.: SD. Address: 7001 Mount Rushmore Rd., P.O. Box 1400, Rapid City, SD 57709-1400. Tele: 605-721-1700. Internet: www.blackhillscorp.com.

Black Hills is on track to deliver modest earnings gains in 2025. The company reported solid results in the March interim, as diluted earnings per share of $1.87 met expectations. The recent quarter benefited from new rates in Colorado, improved rider recovery, and more favorable weather. These largely offset higher operating, financing, and depreciation expenses. Leadership reaffirmed its share-net projection of between $4.00 and $4.20, emphasizing strong confidence in its 4-6% growth outlook.

Black Hills is making excellent progress with its *Ready Wyoming* transmission project. The endeavor, at approximately 260 miles in length, represents the largest electric transmission project in company history. *Ready Wyoming* will interconnect the company's Wyoming electric system with its South Dakota electric system, providing long-term cost stability, greater resiliency, and energy accessibility to its customers, which include data centers. Wyoming Electric has successfully procured all required regulatory approvals and land rights-of-way from landowners, and continues to construct the project in multiple segments. We expect the $350 million project to be completed and in service by year-end. Separately, the company is also advancing its plans to deliver new electric generation resources in South Dakota and Colorado.

Leadership targets contribution from data centers to more than double to 10% or more of earnings by late decade. During the recent quarter, Wyoming Electric served a record peak load of 344 megawatts on February 12th, an increase of nearly 10% over the previous all-time peak of 314 megawatts in January 2024, driven by data center demand growth. The company possesses a pipeline exceeding one gigawatt of data center demand from existing customers.

Black Hills shares are ranked 4 (Below Average) for Timeliness. The equity does offer a generous dividend yield that makes it suitable for conservative, income-oriented accounts. Note, as well, that BKH stock carries exemplary marks for Financial Strength, Price Stability and Earnings Predictability, as well as an Above Average (2) ranking for Safety.

Steven Brachman *July 18, 2025*

Company's Financial Strength	A
Stock's Price Stability	90
Price Growth Persistence	30
Earnings Predictability	100

(A) Diluted EPS. Excl. nonrec. gains/(losses): '15, ($3.54); '16, ($1.26); '17, 14¢; '18, $1.31; '19, (25¢); '20, (8¢); discont. ops.: '09, 7¢; '11, 23¢; '12, (16¢); '17, (31¢); '18, (12¢). Qtly. EPS may not sum to full year due to rounding. Next egs. report due early Aug. **(B)** Div'ds paid in early March, June, Sept., and Dec. ■ Div'd reinv. plan avail. **(C)** Incl. deferred chgs. and intangibles in '24: $22.62/sh. **(D)** In mill. **(E)** Rate base: Net orig. cost. Rate allowed on com. eq. in SD in '15: none specified; in CO in '17: 9.37%. Regulatory Climate: Average.

Exhibit SKB-9

McKenzie DCF Estimates Without Exclusion of Alleged Outliers

	Company	V Line	IBES	Zacks	br+sv Growth
1	Atmos Energy Corp.	8.5%	9.5%	9.6%	9.1%
2	Chesapeake Utilities	7.2%	n/a	n/a	8.5%
3	New Jersey Resource	8.9%	n/a	n/a	11.8%
4	NiSource Inc.	12.4%	11.1%	11.1%	9.3%
5	Northwest Natural	11.4%	10.9%	n/a	10.6%
6	ONE Gas, Inc.	7.8%	n/a	8.4%	7.4%
7	Southwest Gas	13.5%	n/a	10.1%	7.1%
8	Spire Inc.	9.0%	n/a	10.3%	9.9%
		9.82%	**10.50%**	**9.91%**	**9.22%**

Note: Based on Direct Exhibit AMM-4, page 3 with no exclusion of alleged outliers.

BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

In the Matter of the Application of Black Hills Nebraska Gas, LLC d/b/a Black Hills Energy, Rapid City, South Dakota, seeking approval of a general rate increase.	)	Application No. NG-124
	)	**AFFIDAVIT OF WITNESS**

STATE OF Arkansas)
) ss.
COUNTY OF Pulaski)

I, Stanley Keith Berry, being first duly sworn on oath, depose and state that I am the witness identified in the foregoing prepared testimony filed in the above-captioned action and I am familiar with its contents, and that the facts set forth therein are true to the best of my knowledge, information, and belief.

Stanley Keith Berry

SUBSCRIBED and sworn to before me this 12 day of August, 2025.

(SEAL) RYAN WILSON Commission No. 0000 1692 NOTARY PUBLIC My Comm. Exp. 04-30-2034 PULASKI CO., ARKANSAS

Notary Public

My Commission Expires: April 30 2034