

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**ELECTRONIC APPLICATION OF COLUMBIA)
GAS OF KENTUCKY, INC. FOR AN)
ADJUSTMENT OF RATES; APPROVAL OF)
DEPRECIATION STUDY; APPROVAL OF TARIFF)
REVISIONS; AND OTHER RELIEF)**

**CASE NO.
2024-00092**

**DIRECT TESTIMONY
AND EXHIBITS
OF
RICHARD A. BAUDINO**

**ON BEHALF OF THE
OFFICE OF THE ATTORNEY GENERAL OF THE
COMMONWEALTH OF KENTUCKY**

**J. Kennedy and Associates, Inc.
570 Colonial Park Drive, Suite 305
Roswell, GA 30075**

August 14, 2024

PUBLIC REDACTED VERSION

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TABLE OF CONTENTS

I. QUALIFICATIONS AND SUMMARY.....	1
II. ROE GUIDELINES AND REVIEW OF ECONOMIC CONDITIONS	4
III. DETERMINATION OF FAIR RATE OF RETURN.....	13
DCF Model.....	14
Capital Asset Pricing Model.....	21
Recommended ROE and Capitalization	31
IV. RESPONSE TO COLUMBIA GAS OF KENTUCKY ROE TESTIMONY	36
Proxy Groups.....	40
DCF Analyses.....	41
CAPM and ECAPM.....	44
Risk Premium Analyses	51

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DIRECT TESTIMONY OF RICHARD A. BAUDINO

I. QUALIFICATIONS AND SUMMARY

1 **Q. Please state your name and business address.**

2 A. My name is Richard A. Baudino. My business address is J. Kennedy and
3 Associates, Inc. (“Kennedy and Associates”), 570 Colonial Park Drive, Suite 305,
4 Roswell, Georgia 30075.

5 **Q. What is your occupation and by whom are you employed?**

6 A. I am a consultant with Kennedy and Associates.

7 **Q. Please describe your education and professional experience.**

8 A. I received my Master of Arts degree with a major in Economics and a minor in
9 Statistics from New Mexico State University in 1982. I also received my Bachelor
10 of Arts Degree with majors in Economics and English from New Mexico State in
11 1979.

12 I began my professional career with the New Mexico Public Service
13 Commission Staff in October 1982 and was employed there as a Utility Economist.
14 During my employment with the Staff, my responsibilities included the analysis of
15 a broad range of issues in the ratemaking field. Areas in which I testified included
16 cost of service, rate of return, rate design, revenue requirements, analysis of

1 sale/leasebacks of generating plants, utility finance issues, and generating plant
2 phase-ins.

3 In October 1989, I joined the utility consulting firm of Kennedy and
4 Associates as a Senior Consultant where my duties and responsibilities covered
5 substantially the same areas as those during my tenure with the New Mexico Public
6 Service Commission Staff. I became Manager in July 1992 and was named
7 Director of Consulting in January 1995. Currently, I am a consultant with Kennedy
8 and Associates.

9 Exhibit RAB-1 summarizes my expert testimony experience.

10 **Q. On whose behalf are you testifying?**

11 A. I am submitting Direct Testimony on behalf of the Office of the Attorney General
12 of the Commonwealth of Kentucky ("OAG").

13 **Q. What is the purpose of your Direct Testimony?**

14 A. The purpose of my Direct Testimony is to address the allowed return on equity
15 ("ROE") and overall rate of return on rate base for Columbia Gas of Kentucky, Inc.
16 ("Columbia Kentucky" or "Company"). In so doing, I will also address the
17 Company's proposed capital structure and the cost of its short-term and long-term
18 debt.

19 I will also offer my response to the proposed cost of equity and overall cost
20 of capital recommended by Columbia Kentucky witness Vincent Rea.

21 **Q. Please summarize your conclusions and recommendations.**

1 A. I recommend that the Kentucky Public Service Commission ("Commission")
2 authorize an allowed ROE for Columbia Kentucky of 9.60%. My recommended
3 ROE is based on: (1) the results of a discounted cash flow ("DCF") analysis applied
4 to a proxy group of 7 natural gas distribution companies and (2) Capital Asset
5 Pricing Model ("CAPM") analyses using historical and forecasted risk premiums
6 as well as publicly available estimates of market risk premiums from other sources.
7 My recommendation fully reflects current economic and financial market
8 conditions, which I will describe in more detail in Section II of my Direct
9 Testimony. A 9.60% ROE provides a fair return to investors on a relatively low-
10 risk regulated gas distribution utility investment like Columbia Kentucky.

11 I will also address the Company's requested capital structure. The
12 Company's requested capital structure for the fully forecasted test year ending
13 December 31, 2025, consists of 52.64% common equity, 45.53% long-term debt,
14 and 1.83% short-term debt.¹ For the purposes of this case, I accept Columbia
15 Kentucky's proposed capital structure.

16 Based on my analysis, I also accepted the Company's proposed cost of
17 short-term debt of 5.25%.² However, I have slightly reduced Mr. Rea's
18 recommended cost of long-term debt from 4.88%³ to 4.84%. I did this based on

¹ Direct Testimony of Vincent V. Rea ("Rea Testimony") at 53.

² *Id.* at 56.

³ *Id.*

1 updated costs for projected debt issuances included in Columbia Kentucky's
2 proposed cost of debt.

3 My recommended overall cost of capital is 7.35%.

4 I also recommend that the Commission reject the Company's proposal to
5 eliminate the lower allowed ROE on its Safety Modification and Replacement
6 Program ("SMRP") Rider. Based on the Commission's current practice, I
7 recommend that an ROE of 9.50% be applied to the SMRP.

8 In Section IV of my testimony I will respond to Company witness Rea's
9 Direct Testimony and his ROE recommendation of 10.80% based on a range of
10 10.55% to 11.05%.⁴ I will evaluate Mr. Rea's approaches to estimating the allowed
11 ROE and demonstrate that his 10.80% recommendation grossly overstates a fair
12 rate of return for Columbia Kentucky. This recommendation should be rejected by
13 the Commission, as it would harm Kentucky ratepayers by contributing to an
14 inflated revenue requirement.

15 **II. ROE GUIDELINES AND REVIEW OF ECONOMIC CONDITIONS**

16 **Q. What are the main guidelines to which you adhere in estimating the cost of**
17 **equity?**

18 A. Generally speaking, the estimated cost of equity should be comparable to the
19 returns of other firms with similar risk structures and should be sufficient for the
20 firm to attract capital. These are the basic standards set out by the United States
21 Supreme Court in *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591

⁴ Rea Testimony at 3, 4, and 12.

1 (1944), and *Bluefield W.W. & Improv. Co. v. Public Service Comm'n*, 262 U.S. 679
2 (1922).

3 From an economist's perspective, the notion of "opportunity cost" plays a
4 vital role in estimating the ROE. One measures the opportunity cost of an
5 investment equal to what one would have obtained in the next best alternative. For
6 example, suppose that an investor decides to purchase the stock of a publicly traded
7 regulated gas utility. That investor will make the decision based on the expectation
8 of dividend payments and perhaps some appreciation in the stock's value over time;
9 however, that investor's opportunity cost is measured by what she or he could have
10 invested in as the next best alternative. That alternative could have been another
11 utility stock, a utility bond, a mutual fund, a money market fund, or any other
12 number of investment vehicles.

13 The key determinant in deciding whether to invest, however, is based on
14 comparative levels of risk. Our hypothetical investor would not invest in a
15 particular regulated gas distribution utility stock if it offered a return lower than
16 other investments of similar risk. The opportunity cost simply would not justify
17 such an investment. Thus, the task for the rate of return analyst is to estimate a
18 return on equity that is equivalent to that being offered by other risk-comparable
19 firms.

20 **Q. Please provide the Commission an overview of important economic factors**
21 **that affect your estimate of the allowed ROE for Columbia Kentucky.**

22 A. The following discussion presents my overview of certain key factors in the
23 economy that are important influences on the current investor required ROE. These

1 factors include the current level of interest rates, current levels of inflation, the
2 effects of unemployment and economic growth, and stock market volatility.

3 **Q. Does the level of interest rates affect the allowed ROE for regulated utilities?**

4 A. Generally, yes. The common stock of regulated utilities tends to be interest rate
5 sensitive. This means that the cost of equity for regulated utilities tends to rise and
6 fall with changes in interest rates. For example, as interest rates rise, the cost of
7 equity will also rise, and vice versa when interest rates fall. This relationship is due
8 in large part to the capital-intensive nature of regulated industries, including gas
9 distribution companies, that rely heavily on both debt and equity to finance their
10 regulated investments.

11 **Q. Before you continue, please provide a brief explanation of how the Federal**
12 **Reserve Board (“Fed”) uses interest rates to affect conditions in the financial**
13 **markets.**

14 A. Generally, the Fed uses monetary policy to implement certain economic goals. The
15 Fed explained its monetary policy as follows:

16 Monetary policy in the United States comprises the Federal
17 Reserve’s actions and communications to promote maximum
18 employment, stable prices, and moderate long-term interest rates--
19 the economic goals the Congress has instructed the Federal Reserve
20 to pursue.⁵

21 One of the Fed’s primary tools for conducting monetary policy is setting the
22 federal funds rate. The federal funds rate is the interest rate set by the Fed that

⁵ Monetary Policy (Aug. 2, 2024), <https://www.federalreserve.gov/monetarypolicy.htm>.

1 banks and credit unions charge each other for overnight loans of reserve balances.
2 Traditionally the federal funds rate directly influences short-term interest rates,
3 such as the Treasury bill rate and interest rates on savings and checking accounts.
4 The federal funds rate has a more indirect effect on long-term interest rates, such
5 as the 30-Year Treasury bond and private and corporate long-term debt. Long-term
6 interest rates are set more by market forces that influence the supply and demand
7 of loanable funds.

8 **Q. Describe the trend in interest rates since 2007.**

9 A. Until recently, the overall trend in interest rates in the U.S. and the world economy
10 had been lower and this continued into 2020-2021 as governments and central
11 banks, including the Fed, instituted programs in response to the economic shocks
12 brought about by the COVID-19 pandemic. The trend of lower interest rates was
13 precipitated by the 2007 financial crisis and severe recession that followed in
14 December 2007. In response to this economic crisis, the Fed undertook a series of
15 steps to stabilize the economy, ease credit conditions, and lower unemployment and
16 interest rates. These steps are commonly known as Quantitative Easing (“QE”) and
17 were implemented in three distinct stages: QE1, QE2, and QE3. The Fed’s stated
18 purpose of QE was “to support the liquidity of financial institutions and foster
19 improved conditions in financial markets.”⁶

⁶ *Credit and Liquidity Programs and the Balance Sheet*, Monetary Policy, FED. RESERVE BD., (May 10, 2021). https://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm.

1 In 2022, however, the Fed began an aggressive policy of raising short-term
2 interest rates in response to concerns about persistently high inflation in the
3 economy, which began to be a problem in 2021. After the Fed reduced the federal
4 funds rate to nearly 0% through 2021, it was increased several times in 2022 and
5 2023 and as of the filing of my Direct Testimony now stands at a target range of
6 5.25% - 5.50%. In its press release issued July 24, 2024, the Fed stated the
7 following:

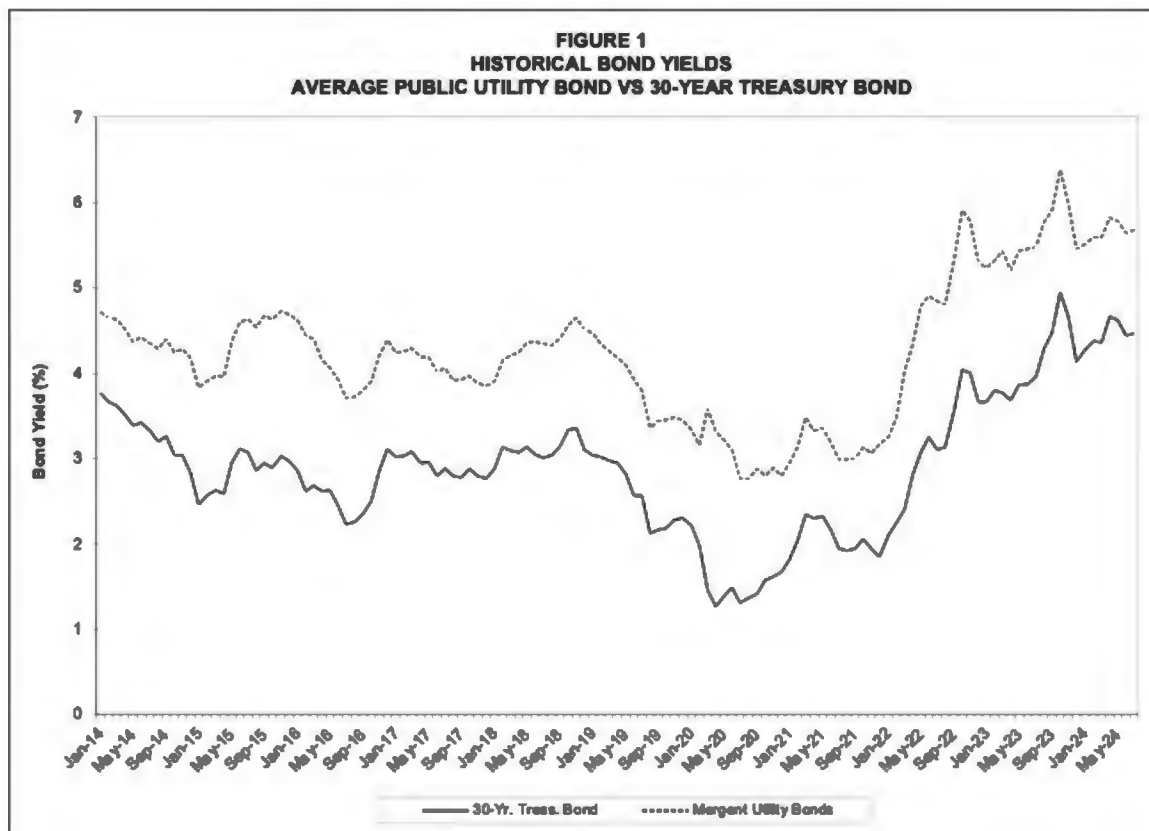
8 Recent indicators suggest that economic activity has
9 continued to expand at a solid pace. Job gains have moderated, and
10 the unemployment rate has moved up but remains low. Inflation has
11 eased over the past year but remains somewhat elevated. In recent
12 months, there has been some further progress toward the
13 Committee's 2 percent inflation objective.

14 The Committee seeks to achieve maximum employment and
15 inflation at the rate of 2 percent over the longer run. The Committee
16 judges that the risks to achieving its employment and inflation goals
17 continue to move into better balance. The economic outlook is
18 uncertain, and the Committee is attentive to the risks to both sides
19 of its dual mandate.

20 In support of its goals, the Committee decided to maintain
21 the target range for the federal funds rate at 5-1/4 to 5-1/2 percent.
22 In considering any adjustments to the target range for the federal
23 funds rate, the Committee will carefully assess incoming data, the
24 evolving outlook, and the balance of risks. The Committee does not
25 expect it will be appropriate to reduce the target range until it has
26 gained greater confidence that inflation is moving sustainably
27 toward 2 percent. In addition, the Committee will continue reducing
28 its holdings of Treasury securities and agency debt and agency
29 mortgage-backed securities. The Committee is strongly committed
30 to returning inflation to its 2 percent objective.⁷

⁷ *Federal Reserve issues FOMC statement*, Press Release, FED. RESERVE BD., (July 31, 2024), <https://www.federalreserve.gov/newsevents/pressreleases/monetary20240731a.htm> .

1 Figure 1 below presents a graph that tracks the 30-Year Treasury bond yield
 2 and the Mergent average utility bond yield. The graph covers the period from
 3 January 2014 through July 2024.

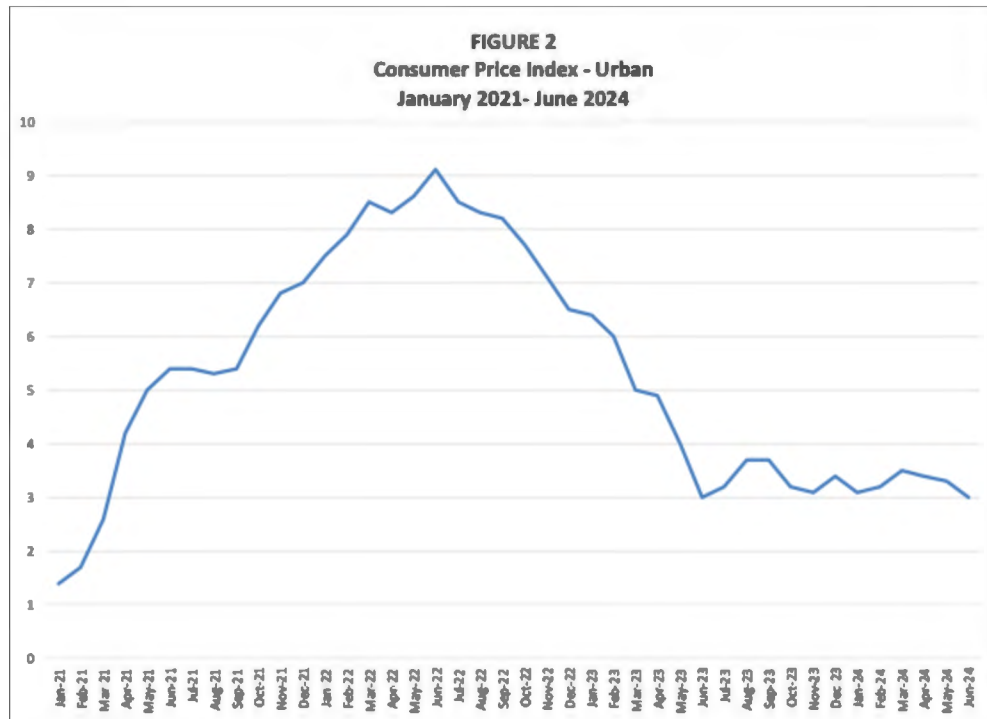


4
 5 Figure 1 graphically shows the steep increase in long-term bond yields since
 6 2022. The 30-year Treasury Bond yield increased from 2.10% in January 2022 to
 7 4.95% in October 2023, an increase of 2.85%, or 285 basis points. The Mergent
 8 average public utility bond yield increased during that same period from 3.25% to
 9 6.38%, an increase of 3.25%, or 318 basis points.

10 Recent long-term bond yields have been lower since October 2023, with the
 11 30-year Treasury Bond yield at 4.46% in July 2024. The Mergent average public
 12 utility bond yield was 5.68% in July 2024.

1 **Q. What has been the recent experience with inflation?**

2 A. Figure 2 presents monthly annualized inflation data from January 2021 through
3 June 2024, the most recent monthly data that was available to me when I prepared
4 my Direct Testimony.



5

6 Figure 2 shows that inflation greatly accelerated in 2021, peaked in June
7 2022 at 9.1%, then declined substantially through June 2023 to 3.0%. Inflation has
8 remained below 4.0% since May 2023 and was 3.0% in June 2024.

9 **Q. What are the expectations for inflation, interest rates, and other economic**
10 **indicators going forward?**

11 A. The Federal Reserve Bank of Philadelphia publishes the *Survey of Professional*
12 *Forecasters* (“Survey”), in which a panel of 34 forecasters provide projections for
13 several economic variables, including growth in Gross Domestic Product (“GDP”),
14 inflation, and unemployment, as well as short-term and long-term interest rates.

1 The most recent edition of the Survey, dated May 10, 2024, provided the following
2 forecasts:

- 3 • Consumer Price Index (“CPI”) inflation is expected to average 3.1% for
4 2024, 2.4% for 2025, and 2.3% for 2026. Over the next 10 years, the
5 forecasters expect CPI inflation to average 2.33% per year.
- 6 • 10-Year Treasury bond yield is forecasted to be 4.3% in 2024, 4.0% in
7 2025, and 3.9% in 2026.
- 8 • An unemployment rate of 3.9% is forecasted for 2024 and 4.1% for 2025.
- 9 • Real growth in GDP of 2.5% is forecasted in 2024 and 1.9% in 2025.⁸

10 The Fed’s economic projections as of June 12, 2024, showed the following
11 median forecasts:

- 12 • Personal Consumption Expenditures (“PCE”) inflation rate of 2.6% for
13 2024, 2.3% for 2025, and longer run inflation at 2.0%;
- 14 • Unemployment rate of 4.0% for 2024 and 4.2% for 2025, with a longer run
15 unemployment rate of 4.2%; and
- 16 • Growth in real GDP of 2.1% for 2024, 2.0% for 2025 with a longer run
17 growth rate of 1.8%.⁹

18 **Q. Based on the interest rate data and the forecasts you presented, what are your**
19 **conclusions with respect to general economic conditions at this time?**

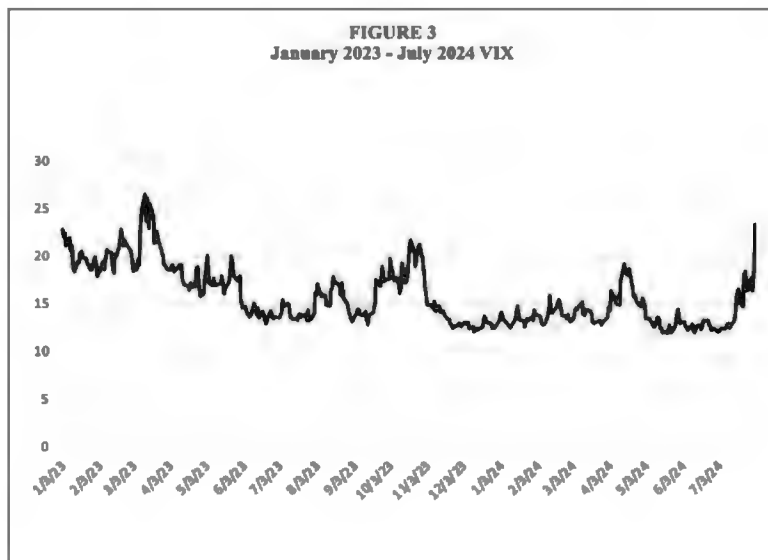
⁸ Second Quarter Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia (May 10, 2024), <https://www.philadelphiafed.org/-/media/frbp/assets/surveys-and-data/survey-of-professional-forecasters/2024/spfq224.pdf>.

⁹ Summary of Economic Projections, Federal Reserve Board (June 12, 2024), <https://www.federalreserve.gov/monetarypolicy/files/fomeprojtabl20240612>.

1 A. There appears to be a consensus for around 2.0% growth in real GDP in 2024 –
 2 2025. The U.S. unemployment rate forecasted to be about 4.0% through 2025. CPI
 3 Inflation is forecasted to be 3.1% through 2024 but decline below that level in 2025
 4 and thereafter. The forecasted yield on the 10-Year Treasury Bond for 2024, 4.3%,
 5 is expected to decline slightly in 2025 and 2026.

6 **Q. Please provide the Commission with some additional background information**
 7 **regarding market volatility since the beginning of 2022.**

8 A. A widely used measure of market volatility is the Chicago Board Options Exchange
 9 (“CBOE”) Volatility Index (“VIX”), also called the “fear index” or “fear gauge.”
 10 Basically, the VIX measures the market’s expectations for volatility over the next
 11 30-day period. The higher the VIX, the greater the expectation of volatility and
 12 market risk. Figure 3 presents the VIX from January 1, 2023 through July 31,
 13 2024.¹⁰



14

¹⁰Historical Data for Cboe VIX Index and Other Volatility Indices, CBOE, https://www.cboe.com/tradable_products/vix/vix_historical_data/.

1 Figure 3 shows the significant increase in market volatility during March
2 2023, then a gradual decline through August 2023. The VIX high in 2023 was
3 26.85 on March 14. As of August 31, 2023, the VIX stood at 13.57, a substantial
4 decline in expected market volatility since the 2023 high. The VIX rose again
5 through October 2023, then declined again with a relatively small increase in April
6 2024. In July 2024, the VIX increased again, ending July at 23.39. Despite the
7 recent increase in the VIX, the 2024 yearly average through July is only 14.02. By
8 way of comparison, the average VIX values for 2022 and 2023 were 25.64 and
9 16.84, respectively. Thus, the “fear index” for 2024 so far has moderated compared
10 to the last 2 years.

11 **Q. How have utilities fared recently compared to the overall stock market?**

12 A. Since January 2, 2024, the Standard and Poor’s (“S&P”) 500 Utilities index rose
13 from 326.37 to a closing price of 369.64 on July 31, 2024. This represents a
14 percentage increase of 13.3%. During the same period, the S&P’s 500 index
15 increased from 4,742.83 to 5,522.30, a percentage increase of 16.4%.

16 **III. DETERMINATION OF FAIR RATE OF RETURN**

17 **Q. Please describe the methods you employed in estimating a fair rate of return**
18 **for the regulated gas distribution operations of Columbia Kentucky.**

19 A. I employed two methods of estimating the ROE for Columbia Kentucky: the
20 Discounted Cash Flow (“DCF”) model and the Capital Asset Pricing Model
21 (“CAPM”). I applied these ROE estimation techniques to a group of proxy gas
22 distribution companies that was developed by Company witness Rea and
23 supplemented with an additional company, bringing the total number of companies

1 in the proxy group to seven. My DCF analyses are based on the standard constant
 2 growth form of the model that employs four different growth rate forecasts from
 3 the Value Line Investment Survey, Yahoo! Finance, and Zacks. I also employed
 4 Capital Asset Pricing Model (“CAPM”) analyses using both historical and forward-
 5 looking data, as well as sources that provide additional recommendations for the
 6 market risk premium portion of the CAPM. The results from the DCF and CAPM
 7 support the reasonableness of my ROE recommendation to the Commission.

8 **DCF Model**

9 **Q. Please describe the basic DCF approach.**

10 A. The basic DCF approach is rooted in valuation theory. It is based on the premise
 11 that the value of a financial asset is determined by its ability to generate future net
 12 cash flows. In the case of a common stock, those future cash flows generally take
 13 the form of dividends and appreciation in stock price. The value of the stock to
 14 investors is the discounted present value of future cash flows. The general equation
 15 is:

$$16 \quad V = \frac{R}{(1+r)} + \frac{R}{(1+r)^2} + \frac{R}{(1+r)^3} + \dots + \frac{R}{(1+r)^n}$$

17 *Where:* V = asset value
 18 R = yearly cash flows
 19 r = discount rate

20 This is no different from determining the value of any asset from an
 21 economic point of view; however, the commonly employed DCF model makes
 22 certain simplifying assumptions. One is that the stream of income from the equity
 23 share is assumed to be perpetual; that is, there is no salvage or residual value at the

1 end of some maturity date (as is the case with a bond). Another important
 2 assumption is that financial markets are reasonably efficient; that is, they correctly
 3 evaluate the cash flows relative to the appropriate discount rate, thus rendering the
 4 stock price efficient relative to other alternatives. Finally, the model I typically
 5 employ also assumes a constant growth rate in dividends. The fundamental
 6 relationship employed in the DCF method is described by the formula:

$$7 \quad k = D_1/P_0 + g$$

8 Where: *D₁* = the next period dividend
 9 *P₀* = current stock price
 10 *g* = expected growth rate
 11 *k* = investor-required return

12 Using this formula, it is apparent that “k” must reflect the investors’
 13 expected return. Use of the DCF method to determine an investor-required return
 14 is complicated by the need to express investors’ expectations relative to dividends,
 15 earnings, and book value over an infinite time horizon. Financial theory suggests
 16 that stockholders purchase common stock on the assumption that there will be some
 17 change in the rate of dividend payments over time. We assume that the rate of
 18 growth in dividends is constant over the assumed time horizon, but the model could
 19 easily handle varying growth rates if we knew what they were. Finally, the relevant
 20 time frame is prospective rather than retrospective.

21 **Q. Please describe your approach for selecting a proxy group of companies.**

22 A. My first step was to choose a proxy group of companies with a risk profile that is
 23 reasonably reflective of the risks facing a low risk, regulated gas distribution utility
 24 such as Columbia Kentucky. I reviewed the gas proxy group selected by Mr. Rea

1 and the selection criteria he used. This “Gas LDC Group” consisted of regulated
2 natural gas distribution companies from the Value Line Investment Survey. Mr.
3 Rea presented his selection criteria for this group on pages 25 - 27 of his Direct
4 Testimony.

5 In response to the OAG’s First Request for Information, No. 187, Mr. Rea
6 listed the companies that were excluded from his Gas LDC Group: Chesapeake
7 Utilities Corp., Southwest Gas Holdings, and UGI Corporation. The response
8 noted that Chesapeake Utilities was excluded because (1) it did not have current
9 credit ratings from either Moody’s or S&P’s and (2) less than 50% of its operating
10 income came from regulated gas utility operations. In the last Columbia Kentucky
11 rate case, I agreed with Mr. Rea’s gas proxy group, which excluded Chesapeake
12 Utilities. In this case, however, the Gas LDC Group consists of only six companies,
13 which could raise concerns regarding the relatively small size of the group. I
14 reevaluated Chesapeake Utilities in this case and decided that it could reasonably
15 be included in my gas proxy group. First, according to Value Line, 70.6% of
16 Chesapeake Utilities’ revenue is derived from regulated energy operations
17 consisting of gas distribution and transmission operations and electric operations.
18 Second, Chesapeake Utilities carries a Value Line Safety Rank of 2, which is
19 consistent with Mr. Rea’s second criterion for inclusion in the proxy group. Third,
20 although Chesapeake Utilities does not have a credit rating from Moody’s or S&P,
21 it is a financially healthy company based upon my review of its 2023 Annual
22 Report. There was nothing in its financial reports that would suggest it would not
23 carry an investment grade credit rating. Thus, I chose to include Chesapeake
24 Utilities in my gas proxy group, bringing the total number of companies to seven.

1 **Q. Did Mr. Rea present other proxy groups for consideration in his ROE**
2 **analyses?**

3 A. Yes. Mr. Rea also included a Combination Utility Group in his ROE analyses,
4 which he discussed beginning on page 35 of his Direct Testimony. This group
5 consists of nine combination gas and electric utilities. My understanding is that
6 Mr. Rea primarily relied on his Gas LDC Group for his ROE recommendation and
7 that the Combination Utility Group was a supplementary analysis.

8 I do not recommend that the Commission place reliance on the Combination
9 Utility Group because the members of this group are largely regulated electric
10 companies with some involvement in gas distribution operations. However, I will
11 present a separate DCF analysis for the Combination Utility Group for
12 informational purposes only and compare the results with those from my proxy
13 group.

14 **Q. What was your first step in determining the DCF return on equity for the**
15 **proxy group?**

16 A. I first determined the current dividend yield, D_1/P_0 , from the basic equation. My
17 general practice is to use six months as the most reasonable period over which to
18 estimate the dividend yield. The six-month period I used covered the months from
19 February through July 2024. The annualized dividend divided by the average
20 monthly price represents the average dividend yield for each month in the period.

21 The resulting average six-month dividend yield for the proxy group is
22 3.89%. I also provide the most recent three-month average dividend, which is
23 3.83%. These calculations are shown in Exhibit RAB-2.

1 **Q. Having established the average dividend yield, how did you determine the**
2 **investors' expected growth rate for the proxy group?**

3 A. The investors' expected growth rate, in theory, correctly forecasts the constant rate
4 of growth in dividends. The dividend growth rate is a function of earnings growth
5 and the payout ratio, neither of which is known precisely for the future. We refer
6 to a perpetual growth rate since the DCF model has no arbitrary cut-off point. We
7 must estimate the investors' expected growth rate because there is no way to know
8 with absolute certainty what investors expect the growth rate to be in the short term,
9 much less in perpetuity.

10 For my analysis in this proceeding, I used three major sources of analysts'
11 forecasts for growth: Value Line, Zacks, and Yahoo! Finance. This is the method
12 I typically use for estimating growth for my DCF calculations.

13 **Q. Please briefly describe Value Line, Zacks, and Yahoo! Finance.**

14 A. Value Line is a widely used and respected source of investor information that
15 covers approximately 1,700 companies in its Standard Edition and several thousand
16 in its Plus Edition. It is updated quarterly and probably represents the most
17 comprehensive of all investment information services. It provides both historical
18 and forecasted information on a number of important data elements. Value Line
19 neither participates in financial markets as a broker nor works for the utility industry
20 in any capacity of which I am aware.

21 Zacks gathers opinions from a variety of analysts on earnings growth
22 forecasts for numerous firms including regulated water utilities. The estimates of
23 the analysts responding are combined to produce consensus average estimates of

1 earnings growth. I obtained Zacks' earnings growth forecasts from its web site.
2 Like Zacks, Yahoo! Finance also compiles and reports consensus analysts'
3 forecasts of earnings growth. I also obtained these estimates from Yahoo!
4 Finance's website.

5 **Q. Why did you rely on analysts' forecasts in your analysis?**

6 A. ROE analysis is a forward-looking process. Five-year or ten-year historical growth
7 rates may not accurately represent investor expectations for future dividend and
8 earnings growth. Analysts' forecasts for earnings and dividend growth provide
9 better proxies for the expected growth component in the DCF model than historical
10 growth rates. Analysts' forecasts are also widely available to investors and one can
11 reasonably assume that they influence investor expectations.

12 **Q. Please explain how you used analysts' dividend and earnings growth forecasts**
13 **in your constant growth DCF analysis.**

14 Q. Columns (1) through (4) of Exhibit RAB-3 show the forecasted dividend and
15 earnings growth rates from Value Line and the earnings growth forecasts from
16 Zacks and Yahoo! Finance for the companies in the proxy group. It is important to
17 include dividend growth forecasts in the DCF model since the model calls for
18 forecasted cash flows and Value Line is the only source of which I am aware that
19 forecasts dividend growth.

20 There were Zacks forecasts that were unavailable for three companies in the
21 proxy group: Chesapeake Utilities, New Jersey Resources, and Northwest Natural
22 Holding Co. With three out of the seven Zacks forecasts missing, I chose to use
23 the Yahoo! Finance growth rates for these companies to fill out the missing Zacks

1 numbers. In my view, this is a reasonable approach since the Yahoo! Finance
2 growth rates are consensus forecasts similar to Zacks.

3 **Q. Using this information, how did you determine the DCF ROE for the proxy**
4 **group?**

5 A. To estimate the expected dividend yield (D_1), the current dividend yield must be
6 moved forward in time to account for dividend increases over the next twelve
7 months. I estimated the expected dividend yield by multiplying the current
8 dividend yield by one plus one-half the expected growth rate.

9 Exhibit RAB-3 presents my standard method of calculating dividend yields,
10 growth rates, and ROE for the proxy group. The proxy group DCF ROE section
11 shows the application of each of four growth rates to the current dividend yield of
12 3.89% to calculate the expected dividend yield. I then added the expected growth
13 rates to the expected dividend yield. My DCF ROE was calculated using two
14 different methods. Method 1 uses the average growth rates for the proxy group and
15 Method 2 utilizes the median growth rates.

16 **Q. What are the results of your constant growth DCF model?**

17 A. For Method 1 (average growth rates), the results range from 8.62% to 10.10%, with
18 the average of these results being 9.61%. For Method 2 (median growth rates), the
19 results range from 8.47% to 10.51%, with the average of these results being
20 9.84%.¹¹

¹¹ Refer to Exhibit RAB-4 for these results.

1 **Capital Asset Pricing Model**

2 **Q. Briefly summarize the CAPM approach.**

3 A. The theory underlying the CAPM approach is that investors, through diversified
4 portfolios, may combine assets to minimize the total risk of the portfolio.
5 Diversification allows investors to diversify away all risks specific to a particular
6 company and be left only with market risk that affects all companies. Thus, the
7 CAPM theory identifies two types of risks for a security: company-specific risk and
8 market risk. Company-specific risk includes such events as strikes, management
9 errors, marketing failures, lawsuits, and other events that are unique to a particular
10 firm. Market risk includes inflation, business cycles, war, variations in interest
11 rates, and changes in consumer confidence. Market risk tends to affect all stocks
12 and cannot be diversified away. The idea behind the CAPM is that diversified
13 investors are rewarded with returns based on market risk.

14 Within the CAPM framework, the expected return on a security is equal to
15 the risk-free rate of return plus a risk premium that is proportional to the security's
16 market, or non-diversifiable risk. Beta is the factor that reflects the inherent market
17 risk of a security and measures the volatility of a particular security relative to the
18 overall market for securities. For example, a stock with a beta of 1.0 indicates that
19 if the market rises by 15%, that stock will also rise by 15%. This stock moves in
20 tandem with movements in the overall market. Stocks with a beta of 0.5 will only
21 rise or fall 50% as much as the overall market. With an increase in the market of
22 15%, this stock will only rise 7.5%. Stocks with betas greater than 1.0 will rise and

1 fall more than the overall market. Thus, beta is the measure of the relative risk of
 2 individual securities vis-à-vis the market.

3 Based on the foregoing discussion, the equation for determining the return
 4 for a security in the CAPM framework is:

$$5 \quad K = R_f + \beta(MRP)$$

6 *Where:* K = *Required Return on equity*
 7 R_f = *Risk-free rate*
 8 MRP = *Market risk premium*
 9 β = *Beta*

10 This equation tells us about the risk/return relationship posited by the
 11 CAPM. Investors are risk averse and will only accept higher risk if they expect to
 12 receive higher returns. These returns can be determined in relation to a stock's beta
 13 and the market risk premium ("MRP"). The general level of risk aversion in the
 14 economy determines the MRP. If the risk-free rate of return is 3.0% and the
 15 required return on the total market is 15%, then the risk premium is 12%. Any
 16 stock's risk premium can be determined by multiplying its beta by the MRP. Its
 17 total return may then be estimated by adding the risk-free rate to that risk premium.
 18 Stocks with betas greater than 1.0 are considered riskier than the overall market and
 19 will have higher required returns. Conversely, stocks with betas less than 1.0 will
 20 have required returns lower than the market as a whole.

21 **Q. In general, are there concerns regarding the use of the CAPM in estimating**
 22 **the ROE?**

23 A. Yes. There is some controversy surrounding the use of the CAPM and its accuracy
 24 regarding expected returns. There is substantial evidence that beta is not the

1 primary factor for determining the risk of a security. For example, Value Line's
2 "Safety Rank" is a measure of total risk, not its calculated beta coefficient. Dr.
3 Burton Malkiel, author of *A Random Walk Down Wall Street* noted the following
4 in his best-selling book on investing:

5 Second, as Professor Richard Roll of UCLA has argued, we must
6 keep in mind that it is very difficult (indeed probably impossible) to
7 measure beta with any degree of precision. The S&P 500 Index is
8 not "the market." The total stock market contains many thousands
9 of additional stocks in the United States and thousands more in
10 foreign countries. Moreover, the total market includes bonds, real
11 estate, commodities, and assets of all sorts, including one of the most
12 important assets any of us has - the human capital built up by
13 education, work, and life experience. Depending on exactly how you
14 measure "the market" you can obtain very different beta values.¹²

15 Shannon Pratt and Roger Grabowski, authors of *Cost of Capital*, also stated
16 the following with respect to the CAPM:

17 Even though the capital asset pricing model (CAPM) is the most
18 widely used method of estimating the cost of equity capital, the
19 accuracy and predictive power of beta as the sole measure of risk
20 have increasingly come under attack. As a result, alternative
21 measures of risk have been proposed and tested. That is, despite its
22 wide adoption, academics and practitioners alike have questioned
23 the usefulness of CAPM in accurately estimating the cost of equity
24 capital and the use of beta as a reliable measure of risk.¹³

25 As a practical matter, there is substantial judgment involved in estimating
26 the required market return and MRP. In theory, the CAPM requires an estimate of
27 the return on the total market for investments, including stocks, bonds, real estate,
28 etc. It is nearly impossible for the analyst to estimate such a broad-based return.

¹² Burton G. Malkiel, *A Random Walk Down Wall Street*, 219 (2023 ed. 2023).

¹³ Shannon Pratt & Roger Grabowski, *Cost of Capital* 269 (5th ed 2014).

1 Often in utility cases, a market return is estimated using the S&P 500. However,
2 as Dr. Malkiel pointed out, this is a limited source of information with respect to
3 estimating the investor's required return for all investments. In practice, the total
4 market return and MRP estimates face limitations to estimation and, ultimately,
5 their usefulness in quantifying the investor required CAPM ROE.

6 In the final analysis, a considerable amount of judgment must be employed
7 in determining the market return and expected risk premium elements of the CAPM
8 equation. The analyst's application of judgment can significantly influence the
9 results obtained from the CAPM. My experience with the CAPM indicates that it
10 is prudent to use a wide variety of data in estimating investor-required returns. Of
11 course, the range of results may also be wide, indicating the challenge in obtaining
12 a reliable estimate from the CAPM.

13 **Q. How did you estimate the market return and MRP of the CAPM?**

14 A. I used three approaches to estimate the MRP portion of the CAPM equation. First,
15 I will present an approach that uses the expected return on the market and is
16 forward-looking. Second, I will present an approach that employs three historical
17 MRPs based on actual stock and bond returns. Third, I will present other published
18 sources that estimate the current investor required MRP.

19 **Q. Please describe your forward-looking approach to estimating the MRP.**

20 A. The first source I used was the Value Line Summary and Index dated July 26, 2024.
21 The Value Line Summary and Index provides data with which one may calculate a
22 DCF estimate on the companies that Value Line follows. Value Line presents a

1 median estimated dividend yield for all dividend paying stocks (2.10%) and the
2 median estimated 3–5-year price appreciation potential of all stocks in the Value
3 Line universe (45%). The estimated 3-5-year appreciation estimate translates into
4 an annualized appreciation number, or growth rate, of 9.73%. I present Value
5 Line’s projected annual returns on page 1 of Exhibit RAB-4. The DCF ROE result
6 is 11.83%.

7 **Q. Please continue with your MRP analysis.**

8 A. The second source I considered came from Kroll, which compiled a study of
9 historical returns on the stock market in its *Cost of Capital Navigator: U.S. Cost of*
10 *Capital Module* and is part of its Cost of Capital Navigator subscription service.
11 Kroll provides services to clients in 140 countries covering valuation, compliance
12 and regulation, corporate finance and restructuring, and other areas. Kroll now
13 provides the Cost of Capital Navigator service that was formerly provided by Duff
14 and Phelps.

15 Some analysts employ historical data to estimate the MRP of stocks over
16 the risk-free rate. The assumption is that a risk premium calculated over a long
17 period of time is reflective of investor expectations going forward. Exhibit RAB-
18 4, page 2, presents the calculation of the market returns and MRPs using the
19 historical data from Kroll.

20 **Q. Please explain how these historical MRPs are calculated.**

21 A. Exhibit RAB-4, page 2, shows the arithmetic average of yearly historical stock
22 market returns over the historical period from 1926 – 2023. The average annual

1 income return for the 20-year Treasury bond is subtracted from these historical
2 stock returns to obtain the historical MRP of stock returns over long-term Treasury
3 bond income returns. The resulting historical MRP is 7.17%.

4 **Q. Did you add any additional measures of historical risk premiums in this case?**

5 A. Yes. Kroll reported the results of a study by Dr. Roger Ibbotson and Dr. Peng Chen
6 indicating that the historical risk premium of stock returns over long-term
7 government bond returns has been significantly influenced upward by substantial
8 growth in the price/earnings (“P/E”) ratio.¹⁴ Kroll noted that this growth in the P/E
9 ratio for stocks was subtracted out of the historical risk premium to arrive at an
10 adjusted “supply side” historical arithmetic MRP. The most recent “supply side”
11 historical MRP is 6.22%, which I have also included in Exhibit RAB-4, page 2.

12 **Q. Is there additional evidence that the growth in the P/E ratio should be removed**
13 **from the historical risk premium?**

14 A. Yes. William Goetzman and Roger Ibbotson wrote the following regarding the
15 supply-side approach to estimating the equity risk premium:

16 There are several ways in which one might estimate an expected risk
17 premium used for forecasting. One way is to extrapolate historical
18 risk premiums, as did Ibbotson and Sinquefeld. Another is to use
19 investor demand models based upon investor risk aversion, as did
20 Mehra and Precott. A third way is to look at the type of returns that
21 the corporate sector supplies. Diermeir, Ibbotson, and Siegel (1984)
22 and later Ibbotson and Chen (2003) used this supply approach. They
23 extrapolated the cash flows and earnings growth generated by
24 companies themselves. These forecasts tend to give somewhat
25 lower historical risk premiums, primarily because part of the total
26 return of the stock market has come from price-to-earnings ratio

¹⁴ *Kroll Cost of Capital Navigator: U.S. Cost of Capital Module*, Basic Building Blocks of the Cost of Equity Capital – Risk-free Rate and Equity Risk Premium (Abridged), pp. 4 – 6.

1 expansion. This expansion is not predicated to continue on
2 indefinitely and is removed from the expected risk premium.¹⁵
3

4 **Q. Are there other concerns regarding using the use of historical MRPs for**
5 **estimating the investor required ROE?**

6 A. Yes. A historical MRP calculated over a long period of time may not reflect current
7 investor expectations and requirements. For example, Pratt and Grabowski
8 presented a detailed discussion of the sources of potential upward bias and
9 overstatement of the long-term historical risk premium.¹⁶ One potential source of
10 bias they analyzed was the historical period of 1942 – 1951, which included
11 government-imposed stability in interest rates for government bonds during the
12 Second World War. Pratt and Grabowski named this period “WWII Interest Rate
13 Bias” and estimated that it resulted in an overstatement of the long-run historical
14 risk premium of 117 basis points, or 1.17%. Pratt and Grabowski also considered
15 the supply-side MRP, which I considered and presented earlier.

16 Kroll analyzed and calculated the so-called World War II Interest Rate Bias
17 and subtracted it from the supply-side ERP of 6.22%, resulting in an adjusted
18 historical ERP of 5.24%. I also present this historical ERP on page 2 of Exhibit
19 RAB-4.

20 In addition to the foregoing discussions, Dr. Aswath Damodaran of the
21 Stern Business School observed the following regarding the use of historical MRPs:

¹⁵ William N. Goetzmann & Roger G. Ibbotson, Handbook of the Equity Risk Premium 522-523 (Rajnish Mehra ed., Elsevier B.V., 2008).

¹⁶ Pratt and Grabowski, Cost of Capital, 119 – 131 (Wiley, 5th ed.)

1 Given how widely the historical risk premium approach is used, it
2 is surprising that the flaws in the approach have not drawn more
3 attention. Consider first the underlying assumption that investors’
4 risk premiums have not changed over time and that the average risk
5 investment (in the market portfolio) has remained stable over the
6 period examined. We would be hard pressed to find anyone who
7 would be willing to sustain this argument with fervor. The obvious
8 fix for this problem, which is to use a more recent time period, runs
9 directly into a second problem, which is the large noise associated
10 with historical risk premium estimates. While these standard errors
11 may be tolerable for very long time periods, they clearly are
12 unacceptably high when shorter periods are used.¹⁷

13 Although the simple, unadjusted long-run historical risk premium is widely
14 used and available to investors, it is flawed and likely to overstate the investor
15 expected risk premium for forecasting purposes. It should be viewed with a great
16 deal of caution and supplemented with other sources as I have done here.

17 **Q. Did you consider any other sources for estimating the MRP?**

18 A. Yes, I also considered four other sources for estimating the MRP.

19 First, Kroll provides a recommendation for the MRP for the United States.
20 Its recommended MRP as of June 5, 2024 is 5.00%.¹⁸

21 Second, KMPG Corporate Finance and Evaluations produces an estimate of
22 the MRP based on its market valuation analyses. The markets included in KMPG’s

¹⁷ *Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2022 Edition, Updated: March 23, 2022*, Aswath Damodaran, Stern School of Business.

¹⁸ <https://www.kroll.com/-/media/kroll-images/pdfs/kroll-lowers-its-recommended-us-equity-risk-premium-effective-june-5-2024.pdf>

1 analyses are the S&P 500, Financial Times Stock Exchange (FTSE), and STOXX
2 600. As of June 30, 2024, KMPG recommended a MRP of 5.0%.¹⁹

3 Third, Dr. Aswath Damodaran provides monthly estimates of the MRP
4 using what he calls an implied risk premium approach. Dr. Damodaran is a
5 professor of finance at the Stern School of Business at New York University and is
6 a researcher on the topic of MRPs, among other things. As of July 1, 2024, Dr.
7 Damodaran estimated an MRP in the range of 3.91% - 5.90%, with an average of
8 4.39%.²⁰

9 Fourth, Pablo Fernandez, Diego Garcia, and Lucia Acin prepared and
10 published a study entitled *Survey: Market Risk Premium and Risk-Free Rate used*
11 *for 96 countries in 2024*.²¹ This is a comprehensive survey of finance and economics
12 professors, analysts, and managers of companies regarding their expectations for the
13 market risk premium and risk-free rate for purposes of calculating the required return on
14 equity in various countries. This survey has been published yearly since 2008. The authors
15 received 1,287 survey responses for the MRP and risk-free rate for the United States. The
16 average and median MRP for 2024 was 5.50%.

17 These MRPs are presented on page 3 of Exhibit RAB-4.

18 **Q. How did you determine the risk-free rate?**

¹⁹<https://indialogue.io/clients/reports/public/5d9da61986db2894649a7ef2/5d9da63386db2894649a7ef5>.

²⁰Aswath Damodaran, Damodaran Online (last visited July 19, 2024),
https://pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm (accessed July 19, 2024).

²¹ Fernandez, Garcia, and Acin, *Survey: Market Risk Premium and Risk-Free Rate used for 96 countries in 2024*, IESE Business School, March 10, 2024.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4754347.

1 A. I considered a six-month average of the 30-year Treasury bond yield from February
2 through July 2024. These yields are shown in Exhibit RAB-4, page 1. The six-
3 month average 30-Year Treasury Bond yield is 4.49%. This six-month period
4 tracks the six-month period I used for stock prices in my DCF analyses.

5 **Q. Please summarize your calculated MRP estimates with the forward-looking**
6 **data from Value Line, the historical MRPs, and the four other sources you**
7 **described.**

8 A. The MRPs from Exhibit RAB-4, pages 1 through 3 are as follows:

- 9 • Value Line forward-looking risk premium 7.35%
- 10 • Historical risk premium 5.24% - 7.17%
- 11 • Kroll 5.00%
- 12 • KMPG 5.00%
- 13 • IESE Survey 5.50%
- 14 • Average Damodaran MRP 4.39%

15 **Q. How did you determine the value for beta?**

16 A. I obtained the betas for the companies in the proxy group from the most recent
17 Value Line reports at the time I prepared my Direct Testimony and analyses. The
18 average of the Value Line betas for the proxy group is 0.88.²²

19 **Q. Please summarize the CAPM results.**

²² Refer to Exhibit RAB-4, page 1.

1 A. The forward-looking CAPM ROE estimate is 10.94%.²³ Using historical risk
 2 premiums, the CAPM results range from 9.09% to 10.79%.²⁴ Regarding the Kroll,
 3 KMPG, IESE Survey, and Damodaran MRPs, the CAPM estimates range from
 4 8.34% to 9.32%.²⁵

5 **Recommended ROE and Capitalization**

6 Q. Please summarize the cost of equity results for your DCF and CAPM analyses.

7 A. Table 1 summarizes my ROE results using the DCF and CAPM for the proxy group.

TABLE 1 SUMMARY OF ROE ESTIMATES	
<u>DCF Methodology</u>	
Average Growth Rates	
- High	10.10%
- Low	8.62%
- Average	9.61%
Median Growth Rates:	
- High	10.51%
- Low	8.47%
- Average	9.84%
<u>CAPM Methodology</u>	
Forward-looking Market Return:	10.94%
Historical Risk Premium:	
- Arithmetic Mean	10.79%
- Supply side MRP	9.95%
- Supply side Less WWI Bias	9.09%
Kroll MRP	8.88%
KMPG MRP	8.88%
IESE MRP Survey	9.32%
Damodaran MRP	8.34%

8

²³ *Id.*

²⁴ *Id.* at page 2.

²⁵ *Id.* at page 3.

1 **Q. What is your recommended ROE for Columbia Kentucky?**

2 A. I recommend that the Commission adopt an ROE of 9.60% for Columbia Kentucky.

3 I make this recommendation based on a recommended range of 8.47% -
4 10.51% for the DCF model and 8.90% - 10.0% for the CAPM. My recommended
5 ROE is also equivalent to the average DCF result for the proxy group (9.61%).

6 Regarding the CAPM results, the forward-looking CAPM ROE of 10.94%
7 is high and in my opinion represents an outlier. This is due to an unsustainably
8 high growth rate for the market of 9.73%. Given recent forecasts of long run GDP
9 growth of around 4.0%, a 9.73% constant growth rate to infinity simply cannot be
10 sustained indefinitely. This causes an overstatement of the expected market return
11 and my forward-looking CAPM result. I will discuss this in more detail in my
12 response to Mr. Rea in Section IV of my Direct Testimony.

13 I would also note that the 10.79% historical CAPM result in my range is
14 also likely overstated due to the inflated unadjusted historical 7.17% MRP. Please
15 refer to my earlier discussion of the historical risk premiums for the reasoning and
16 research supporting this conclusion.

17 **Q. What were the DCF results you obtained using Mr. Rea's Combination Utility**
18 **Group?**

19 A. Please refer to Exhibits RAB-5 and RAB-6 for the DCF results for the Combination
20 Utility Group. I used the same six-month historical period for stock prices and the
21 same inputs for dividend and earnings growth. Please note that I used Yahoo!
22 Finance earnings growth estimates for unavailable Zacks estimates for Avista,
23 Black Hills Corp., MGE Energy, and Northwestern Corp. The average DCF results

1 for Methods 1 and 2 are 9.60% and 9.88%, respectively. As I previously stated in
2 my Direct Testimony, I do not recommend the Commission use the Combination
3 Utility Group to set the ROE for Columbia Kentucky. However, the DCF results
4 for the Combination Utility Group are very close to the DCF results for my proxy
5 group.

6 **Q. Did you reproduce the CAPM results for the Combination Utility Group?**

7 A. No. I chose not to perform the CAPM results for the Combination Utility Group.
8 The average beta for this group is 0.90, slightly higher than the proxy group beta of
9 0.88. The CAPM results would thus be slightly higher for the Combination Utility
10 Group but would not affect my recommendation.

11 **Q. Did you review the Company's requested capital structure in this case?**

12 A. Yes. Based on my review I conclude that the Company's requested capital structure
13 is reasonable. It is consistent with the Company's recent historical capital
14 structures as well and the capital structure that was adopted in the settlement in
15 Columbia Kentucky's last rate proceeding.

16 **Q. Based on your review of Mr. Rea's testimony and supporting work papers and**
17 **schedules, do you accept the proposed costs of short-term and long-term debt**
18 **and preferred stock?**

19 A. I recommend the Commission adopt the Company's proposed cost of short-term
20 debt. Regarding the cost of long-term debt, I recommend that the cost of the
21 proposed 2024 and 2025 issuances be updated based on more recent information
22 provided by the Company.

1 On page 56 of his Direct Testimony, Mr. Rea proposed including forecasted
 2 long-term debt issuances at debt cost rates of 6.25% for 2024 and 6.0% for 2025.
 3 The OAG's First Request for Information, No. 190, requested the actual cost of
 4 debt for 2024 when issued. The Company responded that the actual debt cost rate
 5 for the June 2024 issue was 5.9124%. Since the June 2024 debt cost rate is known
 6 and measurable, and lower than Mr. Rea's forecasted rate, I recommend that the
 7 2024 and 2025 debt issuances all be lowered to a cost rate of 5.9124%. Please refer
 8 to Exhibit RAB-7 for the calculation of the revised cost of long-term debt, which is
 9 4.84%.

10 Further, throughout the pendency of this case, if Columbia Kentucky
 11 provides revised forecasts that show lower costs for the remaining debt issue in
 12 2024 and the two debt issues in 2025, the Company should provide a revised cost
 13 of long-term debt with the lower forecasts.

14 **Q. Please present your recommended weighted cost of capital in this case.**

15 A. My recommended weighted cost of capital for Columbia Kentucky is 7.35%.

16 Please refer to Table 2 below for the calculations.

	<u>Pct.</u>	<u>Cost</u>	<u>Weighted</u> <u>Cost</u>
Long-term Debt	45.53%	4.840%	2.20%
Short-term Debt	1.83%	5.250%	0.10%
Common Equity	52.64%	9.600%	5.05%
Total	100.00%		7.35%

1 **Q. On pages 51 and 52 of his Direct Testimony, Mr. Rea proposed to eliminate**
2 **the lower ROE that the Commission currently applies to investments collected**
3 **through Columbia Kentucky’s SMRP Rider. Please respond to this proposed**
4 **change in the treatment of SMRP investments.**

5 A. Mr. Rea’s proposal to increase the ROE applied to investments in the Company’s
6 SMRP Rider should be rejected by the Commission. Mr. Rea’s proposal is based
7 on the Company’s proposed change to its SMRP, which would not roll capital
8 tracker investments into base rates as it has done in past rate cases. However, the
9 Commission has a long-standing policy of reducing the allowed ROE on capital
10 tracker investments such as the SMRP.

11 Recently, the Commission’s policy on tracker mechanisms was clearly set
12 forth in its Order in Case No. 2022-00372.²⁶ In that case, Duke Energy Kentucky
13 proposed to move the investments from its Earnings Sharing Mechanism (“ESM”)
14 into base rates from the ESM. The Commission’s Order states the following:

15 Duke Kentucky proposed to move recovery of the return on rate base
16 and the related depreciation and property tax expenses from Rider
17 ESM to base rates from four capital projects that are in service. The
18 Attorney General opposed the roll-in and recommended that these
19 costs continue to be recovered through Rider ESM, which according
20 to Duke Kentucky’s discovery responses would reduce the
21 requested increase in revenue by \$12.076 million. Duke Kentucky
22 stated it does not oppose the adjustment and provided corrections to
23 the calculations provided in discovery, which stated that the actual
24 revenue requirement decrease is \$3.290 million. The Commission
25 finds that this adjustment as proposed by the Attorney General
26 should be accepted and reduces the base revenue requirement and
27 base rate increase by \$3.290 million.²⁷

²⁶ Case No. 2022-00372, *Electronic Application of Duke Energy Kentucky, Inc. for 91) An Adjustment of Electric Rates; 92) Approval of new Tariffs; (3) Approval of Accounting Practices to Establish Regulatory Assets and Liabilities; and (4) All Other Required Approvals and Relief* (Ky. PSC Oct. 12, 2023), Order at 10 – 11.

²⁷ *Id.*

1 Regarding the allowed ROE on the ESM investments, the Commission stated the
2 following:

3 The Commission continues to view capital riders, such as the ESM,
4 as providing lower risk to the utility due to the automatic cost
5 recovery and true-up components in the ESM and Duke Kentucky's
6 gas pipeline replacement program. As such, the Commission finds
7 that a 10-basis point reduction in the ROE component of the ESM from
8 9.75 percent to 9.65 percent is fair, just, and reasonable.²⁸
9

10 It is clear from the Commission's Order that it applies a lower ROE to tracking
11 mechanisms such as the ESM and Columbia Kentucky's SMRP due to the lower-risk
12 nature of the collection of costs,²⁹ which assure the utility dollar-for-dollar collection.
13 The collection of the costs through the tracker, rather than through base rates, will not
14 affect the application of the lower ROE.

15 Thus, whether or not the Commission approves the Company's proposed
16 change to its SMRP, it should continue its past practice of applying a lower ROE to the
17 SMRP investments. Based on the 10 basis point reduction in the Commission's Order
18 in the Duke Energy Kentucky case, I recommend the Commission allow an ROE for
19 the Company's SMRP rider of 9.50%.

20 **IV. RESPONSE TO COLUMBIA GAS OF KENTUCKY ROE TESTIMONY**

21 **Q. Please summarize your conclusions with respect to Mr. Rea's ROE**
22 **recommendation.**

23 **A. Mr. Rea's recommended ROE range of 10.55% - 11.05% substantially overstates the**
24 **investor required ROE for a low risk gas distribution utility like Columbia Kentucky.**

²⁸ *Id.* at 41 – 42.

²⁹ See Case No. 2021-00214, *Electronic Application of Atmos Energy Corporation for an Adjustment of Rates* (Ky. PSC May 19, 2022), Order at 48.

1 Based on his recommended range, Mr. Rea explained on pages 3 and 4 of his Direct
2 Testimony that his recommended ROE is 10.80%. This recommendation should also
3 be rejected by the Commission. I will demonstrate subsequently how Mr. Rea's
4 analyses systematically inflated his DCF, CAPM, and risk premium results.

5 **Q. How did Mr. Rea develop his recommended ROE range for Columbia**
6 **Kentucky?**

7 A. Mr. Rea employed three proxy groups in his analyses and applied the following
8 models to each group: the DCF model, the traditional CAPM, the CAPM with a
9 size adjustment, the Empirical CAPM ("ECAPM"), and the risk premium model.
10 The cost of equity using these models is summarized on page 11, Table VVR-1 of
11 Mr. Rea's Direct Testimony. Table VVR-2 on page 12 of his Direct Testimony
12 further summarizes his results using the median and the mean. For the DCF, the
13 median and mean results were 10.44%. For the CAPM, the median and mean
14 results ranged from 11.14% - 11.27%. For the risk premium model, the median
15 and mean results were 10.93%. From these measures of central tendency, Mr. Rea
16 concluded that a reasonable range of results is 10.55% - 11.05%.

17 **Q. Are you aware of recent allowed ROEs from the Commission?**

18 A. Yes. In its Order in Case No. 2023-00191 for Kentucky-American Water Company
19 dated May 3, 2024, the Commission allowed a ROE of 9.70%³⁰ and a common

³⁰ Case No. 2023-00191, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, A Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions* (Ky. PSC May 3, 2024), Order at 40.

1 equity ratio of 52.22%.³¹ Granted that this Order applied to a regulated water
2 company under the Commission's jurisdiction, but it serves to illustrate how
3 excessive Mr. Rea's 10.80% is compared to the allowed ROE in this recent Order.

4 **Q. What are the recent ROEs allowed by regulatory commissions generally?**

5 A. Mr. Rea cited the document entitled *RRA Regulatory Focus, Major Rate Case*
6 *Decisions in the U.S. - January - December 2023* in footnote 21 on page 37 of his
7 Direct Testimony. According to this document, which the Company provided
8 under confidential seal in response to the OAG's First Request for Information 195
9 (Attachment A), the average commission allowed ROE in fully litigated gas
10 distribution rate cases was █████ in 2022 and █████ in 2023.³² Once again, these
11 ROEs are substantially lower than Mr. Rea's recommended 10.80% ROE and
12 underscore the unreasonableness of his recommendation.

13 Please note that I do not recommend that the Commission authorize an ROE
14 for Columbia Kentucky based on the average allowed ROEs from other
15 commissions around the country. Rather, I recommend that the Commission base
16 its ROE decision on the analyses presented in this case. I am including the average
17 commission-allowed ROE information here as additional information for the
18 Commission to consider and because the Commission cited Regulatory Research
19 Associates in its Final Order in Case No. 2016-00162.³³

³¹ *Id.* at 26 – 29.

³² Columbia Kentucky's confidential response to the Attorney General's First Request for Information, Item 195, Confidential Attachment A.

³³ Case No. 2016-00162, *Application of Columbia Gas of Kentucky, Inc. for an Increase in Base Rates* (Ky. PSC Dec. 22, 2016), Order at 8.

1 **Q. Are you familiar with a recent settlement and Order involving Northern**
2 **Indiana Public Service Company (“NIPSCO”), a NiSource affiliate?**

3 A. Yes. On July 31, 2024 the Indiana Utility Regulatory Commission (“IRUC”)
4 approved a Stipulation and Settlement Agreement (“the Settlement”) in Cause No.
5 45967 involving NIPSCO’s request to increase its gas service rates. The Settlement
6 resolved all issues in the case, including the allowed ROE and capital structure.

7 The Settlement included a 9.75% ROE. Pages 8 and 9 of the Order stated:

8 The Settling Parties have stipulated an ROE of 9.75%. Mr. Sears
9 testified this ROE is within the range of evidence presented by
10 NIPSCO, the OUCC and Industrial Group. He noted the agreed
11 ROE is also within the range of Commission authorized ROEs or
12 negotiated ROEs for other investor-owned utilities in Indiana.
13 Specifically, the agreed ROE is slightly lower than the negotiated
14 NIPSCO ROE of 9.80% reflected in the settlement approved by the
15 Commission on August 2, 2023 in Cause No. 45772; the negotiated
16 AES Indiana ROE of 9.90% reflected in the settlement pending
17 approval before the Commission in Cause No. 45911; and the
18 negotiated I&M ROE of 9.85% reflected in the settlement pending
19 approval before the Commission in Cause No. 45933. It is 10 basis
20 points lower than NIPSCO’s current ROE, which was approved by
21 the Commission as part of a settlement in Cause No. 45621. The
22 agreed ROE is also supported by the NIPSCO’s witness Vincent V.
23 Rea. He testified the national average of authorized ROEs granted
24 to vertically integrated electric utilities during 2023 and 2022 were
25 9.80 percent and 9.75 percent, respectively.³⁴

26
27 I do not recommend that the Commission use the negotiated and settled 9.75% ROE
28 from the NIPSCO case in the pending case, as this is a fully litigated case. I am
29 merely providing it as additional support for my proposition that Mr. Rea’s
30 recommended ROE for Columbia Kentucky is grossly overstated and should be
31 rejected by the Commission.

³⁴ <https://iurc.portal.in.gov/docketed-case-details/?id=35b97853-3a73-ee11-8dee-001dd8065be9>

1 **Proxy Groups**

2 **Q. Should the Commission rely on Mr. Rea's Non-Regulated Group in evaluating**
3 **the required ROE for Columbia Kentucky?**

4 A. No. Mr. Rea's inclusion of unregulated non-utility companies as an additional
5 method of evaluating the fair rate of return for Columbia Kentucky is inappropriate
6 and should be rejected by the Commission.

7 Utilities have protected markets, e.g. service territories, and may increase
8 the prices they charge in the face of falling demand or loss of customers. This is
9 contrary to competitive, unregulated companies who often lower their prices when
10 demand for their products decline. Obviously, the non-utility companies face risks
11 that lower risk regulated gas utilities like Columbia Kentucky do not face. As a
12 consequence, non-utility companies will have higher required returns from their
13 shareholders.

14 Mr. Rea's DCF results for the Non-Regulated Group bear this out. The
15 median results for the Non-Regulated Group range from 9.8% - 11.9% using
16 projected growth rates according to Mr. Rea's Attachment VVR-9, page 1 of 5.
17 Average results for the group range from 10.1% - 11.6%. This range would have
18 been even higher if Mr. Rea hadn't excluded what he considered to be certain high-
19 end results (18.0% for Brown-Forman). Both the average and median ranges are
20 above the DCF results I obtained for my proxy group. This underscores my point
21 that investors expect higher ROEs for these unregulated companies than they do for
22 regulated gas utilities like Columbia Kentucky. Thus, the Commission should
23 reject the use of the Non-Regulated Group.

1 **Q. For purposes of this case, then, will you focus your evaluation of Mr. Rea's**
2 **ROE analyses on the Gas LDC Group?**

3 A. Yes.

4 **DCF Analyses**

5 **Q. Please comment on Mr. Rea's DCF analyses.**

6 A. Mr. Rea presented the results of his Gas LDC Group DCF analyses in Table VVR-
7 7, page 69, of his Direct Testimony. These results ranged from 9.90% - 10.30%,
8 with Mr. Rea settling on a so-called "unadjusted" DCF estimate of 10.10%. Mr.
9 Rea then added adjustments that he characterized as "required" to the unadjusted
10 DCF estimate. He added a flotation cost adjustment that added 4 basis points and
11 a financial risk adjustment that added 30 basis points, or 0.30%, resulting in an
12 indicated DCF estimate of 10.44%.

13 Mr. Rea discussed the leverage adjustment in Appendix C of his Direct
14 Testimony. In Mr. Rea's view, this adjustment accounts for the financial risk
15 difference between market value and book value capital structures.³⁵

16 **Q. Is Mr. Rea's leverage adjustment of 0.30% to his DCF result appropriate?**

17 A. No. Mr. Rea's leverage adjustment is inappropriate, inflates his recommended DCF
18 result, and should be rejected by the Commission.

19 First, setting the allowed cost of capital for ratemaking purposes properly
20 utilizes book values of common equity, preferred stock, and long-term debt. The

³⁵ Rea Testimony at page 67, lines 13-16.

1 actual book values of capitalization support the utility's investment in plant in
2 service. With respect to the allowed return on common equity, commissions utilize
3 market returns on book value in order to fairly compensate the equity investor for
4 the use of his or her capital. Market-based returns are used for common equity
5 because, unlike debt, there is no contractual cost for common equity. Thus, the
6 return on equity must be determined using current market data, and then applied to
7 the percentage of equity in the capital structure based on book value.

8 It is inappropriate to inflate market-based ROE calculations from the DCF
9 with the leverage adjustment Mr. Rea proposed. Market prices can deviate from
10 book value for any number of reasons. For example, investors may expect utilities
11 to earn more than their required rate of return on equity, which would cause an
12 increase in market stock prices above book value per share. In uncertain times,
13 investors may view regulated utilities as safe investments, causing a flight to quality
14 and thereby bidding up stock prices.

15 Market based cost of equity estimates applied to the book value of equity is
16 the appropriate means in setting a fair rate of return on invested capital for a
17 regulated utility. Results from the DCF should not be adjusted upward to account
18 for or to prop up high market-to-book ratios, as Mr. Rea has done in this case.

19 In addition, it is highly doubtful that investors would take the complicated
20 and circuitous route to measuring their required returns on equity that Mr. Rea
21 proposed in his Direct Testimony. Instead, it is much more likely that investors
22 would take a more direct approach and use market data on stock prices and expected
23 growth to estimate a DCF return on equity.

1 Finally, I would note that bond rating agencies and securities analysts do
2 not assess a utility company's risk based on the market value of its capital structure,
3 but on the book value of its common equity. It is reasonable to assume that
4 investors assess capital structure risk in the same manner. Mr. Rea provides no
5 evidence that investors assess financial risk for regulated utility companies based
6 on the market value of common equity.

7 **Q. Should the Commission allow an adjustment for flotation costs in this**
8 **proceeding?**

9 A. No. A flotation cost adjustment attempts to recognize and collect the costs of issuing
10 common stock. Such costs typically include legal, accounting, and printing costs as
11 well as broker fees and discounts. However, it is likely that flotation costs are already
12 accounted for in current stock prices and that adding an adjustment for flotation costs
13 is double counting. A DCF model using current stock prices should already account
14 for investor expectations regarding the collection of flotation costs. Multiplying the
15 dividend yield by a 4% flotation cost adjustment, for example, essentially assumes
16 that the current stock price is wrong and that it must be adjusted downward to increase
17 the dividend yield and the resulting cost of equity. This is not an appropriate
18 assumption regarding investor expectations or current stock prices. Stock prices most
19 likely already account for flotation costs, to the extent that such costs are even
20 considered by investors.

21 Further, the Commission has long-standing precedent explicitly rejecting
22 flotation cost adjustments in its past Orders. In the aforementioned Case No. 2023-
23 00191, the Commission stated in its Final order that, “the Commission further

1 reiterates that it continues to reject the use of flotation cost adjustments, financial risk
2 adjustments, and explicit size adjustments in the ROE analyses...”³⁶

3 **Q. Please comment on Mr. Rea's DCF results for the Gas LDC Group.**

4 A. First, I agree with Mr. Rea's emphasis on analysts' forecasts for the growth
5 component of the DCF model. However, Mr. Rea should have also considered
6 Value Line's dividend growth forecast as well. Dividends are the cash flows
7 actually received by investors and with Value Line being a trusted source of
8 information, I believe that it is reasonable to consider Value Line's projection of
9 dividend growth as well.

10 Second, I recommend that the Commission rely on my DCF results that
11 have updated information on stock prices and analysts' forecasts for the gas proxy
12 group.

13 Third, I recommend that the Commission rely on my proxy group for
14 purposes of setting the allowed ROE for Columbia Kentucky.

15 **CAPM and ECAPM**

16 **Q. What was the basis for Mr. Rea's risk-free rate in his CAPM analyses?**

17 A. On page 80 of his Direct Testimony, Mr. Rea testified that he considered interest
18 rate forecasts from *Blue Chip Financial Forecasts* and utilized 4.21% as a proxy
19 for the prospective risk-free rate.

³⁶ Case No. 2023-00191, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates, A Certificate of Public Convenience and Necessity for Installation of Advanced Metering Infrastructure, Approval of Regulatory and Accounting Treatments, and Tariff Revisions* (Ky. PSC May 3, 2024), Order at 38 – 39.

1 **Q. Should Mr. Rea have also considered current yields on 30-Year Treasury**
2 **Bonds in his CAPM/ECAPM analyses?**

3 A. Yes. Current interest rates provide tangible evidence of investor preferences and
4 required returns for Treasury securities. Moreover, securities markets are efficient
5 and most likely reflect investors' expectations about future interest rates.

6 It is important to realize that investor expectations of changes in future
7 interest rates, if any, are likely already embodied in current securities prices, which
8 include debt securities and stock prices. Current interest rates provide tangible and
9 verifiable market evidence of investor return requirements today and these are the
10 interest rates and bond yields that should be used in both the CAPM and in the bond
11 yield plus risk premium analyses. To the extent that investors give forecasted
12 interest rates any weight at all, they are likely already incorporated in current
13 securities prices.

14 For purposes of this case, I used a six-month average yield of the 30-Year
15 Treasury Bond, which at this time is 4.49%. This is higher than the forecasted
16 4.21% yield used by Mr. Rea. This suggests that the consensus forecasts are that
17 long-term interest rates will fall in the near future.

18 **Q. How did Mr. Rea estimate the expected MRP for his CAPM/ECAPM**
19 **analyses?**

20 A. Mr. Rea used both historical and prospective measures to estimate the risk premium
21 for the CAPM/ECAPM methods. The prospective measures included DCF
22 analyses applied to the S&P 500 and the Value Line 1,700 stock universe of
23 companies. The historical measure he used was based on the historical return data
24 from Kroll's *Cost of Capital Navigator*.

1 Regarding the prospective measures, Mr. Rea estimated the DCF return on
2 the S&P 500 using the constant growth approach, with an average growth rate of
3 10.84%, resulting in an estimated market return of 12.51%. The resulting MRP
4 using this approach is 8.30% (12.51% less the risk-free rate of 4.21%).

5 Applying this MRP to the CAPM equation using Mr. Rea's relevered beta
6 of 0.935, and his projected risk-free rate of 4.21% results in the following CAPM
7 ROE:

$$8 \qquad \qquad \qquad \text{CAPM ROE} = 4.21\% + (.935 * 8.30\%) = 11.97\%$$

9 Mr. Rea's CAPM result using his projected S&P 500 MRP is so far out of
10 line with recently allowed ROEs as I described earlier that it should be rejected out
11 of hand. Moreover, if we added his proposed size adjustment of 0.64%, which I
12 will address later, the CAPM ROE would be 12.61%. I note once again that I do
13 not recommend that the Commission base its ROE determination on the allowed
14 returns in other regulatory jurisdictions. Rather, I cited allowed returns as a rough
15 benchmark by which the Commission can judge the reasonableness of Mr. Rea's
16 CAPM result and how excessive it is compared to recent experience. Indeed, a
17 CAPM result of either 11.97% or 12.61% is clearly unreasonable and I recommend
18 it be rejected by the Commission.

19 **Q. Why is Mr. Rea's projected MRP for the S&P 500 overstated?**

20 A. The problem with Mr. Rea's projected MRP for the S&P 500 stems from his
21 overstated expected growth rate of 10.84%. According to Mr. Rea's Attachment
22 VVR-11, page 2 of 6, this growth rate was derived from Bloomberg's growth
23 estimate for the S&P 500 Index.

1 This projected growth rate is unsustainably high in that it vastly exceeds
2 both the historical and projected GDP growth rates for the United States. I note
3 that the Value Line forward-looking growth rate I used in my CAPM analysis,
4 9.73%, is also excessive and provides further support for its exclusion by the
5 Commission. Based on data from the Bureau of Economic Analysis, U.S.
6 Department of Commerce, I calculated that the compound yearly growth rate for
7 U.S. GDP from 1929 - 2023 was 6.1%. Regarding forecasts of GDP, projections
8 that I referenced in Section II of my testimony show even lower forecasted GDP
9 growth than the historical average I calculated. For example, the Fed projections
10 called for longer-run real GDP growth of 1.8% and PCE inflation of 2.0%. This
11 translates into forecasted nominal GDP of 3.80%. The Congressional Budget
12 Office also projects growth in real GDP through 2033 of 1.80% and CPI inflation
13 of 2.0%.³⁷ If we assume forecasted long run nominal GDP growth of around 4.0%,
14 then the S&P 500 constant growth rate of 10.84% cannot be sustained over the long
15 run. Using this growth rate will inevitably lead to an overstatement in the long-run
16 expected market return, the associated MRP, and the CAPM ROE result.

17 In *Cost of Capital*, Pratt and Grabowski noted the following with respect to
18 growth rates that significantly exceed growth in GDP:

19 The growth rate assumed in calculating the terminal value is a
20 compound growth rate *in perpetuity*, which is a very long time. At
21 a growth rate of 20% compounded annually, the company's revenues
22 would soon exceed the gross domestic product (GDP) of the United
23 States and eventually that of the world. Long-term growth rates
24 exceeding the real growth in GDP plus inflation are generally not
25 sustainable. Most analysts use more conservative growth rates in

³⁷ Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2024 – 2034*, June 2024, <https://www.cbo.gov/system/files/2024-06/60039-Outlook-2024.pdf>

1 calculating the terminal value. Generally, the long-term growth rate
2 only applies to the existing enterprise or core business net cash
3 flows, consistent with the net cash flow projections in the discounted
4 cash flow method³⁸

5
6 Since the constant growth DCF requires a sustainable long-run growth rate,
7 Mr. Rea's projected market return and MRP estimate for the S&P 500 are
8 overstated and should be rejected by the Commission.

9 **Q. Did Mr. Rea consider the MRPs from sources that you presented in your**
10 **testimony?**

11 A. No. As I cited earlier in my Direct Testimony, Kroll and KMPG currently
12 recommend an MRP of 5.0%, the average of the Damodaran MRPs is 4.39%, the
13 IESE Survey study contained a 5.50% MRP, and the historical MRPs range from
14 5.24% - 7.17%. Mr. Rea's MRP range for the Gas LDC Group is 7.15% - 7.32%
15 and fails to consider many other published and publicly available MRPs that are
16 much lower.

17 Finally, I note that in the authoritative corporate finance textbook by
18 Brealey, Myers, Allen, and Edmans the authors stated: "We have no official
19 position on the issue, but we believe that a range of 5 to 8 percent is reasonable for
20 the risk premium in the United States."³⁹ Mr. Rea's recommended MRP is near the
21 top of this range.

22 **Q. On pages 82 through 84 of his Direct Testimony, Mr. Rea demonstrated how**
23 **he applied the Hamada equation to "re-lever" the Value Line betas for his Gas**
24 **LDC Group, his Combination Utility Group, and his Non-Regulated Group.**

³⁸ Shannon Pratt and Roger Grabowski, *Cost of Capital* 1195 (Wiley, 5th ed.)

³⁹ Richard A. Brealey, Stewart C. Myers, Franklin Allen and Alex Edmans, *Principles of Corporate Finance*, page 189; McGraw-Hill/Irwin, 14th Edition, 2023.

1 **What is your recommendation regarding Mr. Rea's proposed re-levered Value**
2 **Line betas?**

3 A. The Commission should reject Mr. Rea's reformulated beta estimate. The appropriate
4 beta to use in the CAPM is one that investors expect based on a stock's relative price
5 movements with the overall market. Mr. Rea introduced a highly questionable
6 adjustment to published Value Line betas based on differences between market and
7 book value capital structures. His claim that a leveraged beta should be used in the
8 CAPM for ratemaking purposes is erroneous. He provides no evidence that investors
9 in utility company stocks use the calculation of a re-levered beta he presented in his
10 testimony. It is more reasonable to assume that, to the extent investors rely on the
11 CAPM model, they likely rely on widely published beta estimates from Value Line
12 and other sources. Mr. Rea's re-levered beta calculation increased the published Value
13 Line beta for the Gas LDC Group from 0.88 to 0.935 and further served to inflate his
14 CAPM results.

15 **Q. Beginning on page 85 of his Direct Testimony, Mr. Rea explained why, in his**
16 **opinion, a size adjustment is required in the CAPM. Please address Mr. Rea's**
17 **testimony on this point.**

18 A. The data that Mr. Rea relied on to make this adjustment came from the Kroll *Cost*
19 *of Capital Navigator*. Mr. Rea calculated a size premium of 0.64% associated with
20 the smaller size of the Gas LDC Group. This size premium is based on the Decile
21 4 group from the Kroll study on size premiums, which is a subset of companies
22 with market capitalization similar to the Gas LDC Group.

23 The problem with Mr. Rea's approach is that the Decile 4 group of
24 companies contains many smaller and more risky unregulated companies.

1 Moreover, this Decile 4 group had an average beta of 1.13 - 1.19 depending on the
2 calculation method used by Kroll. These betas are far greater than the average
3 proxy group beta, which is 0.88 in my CAPM analyses. The beta comparison
4 indicates that the many unregulated companies in Decile 4 are riskier than regulated
5 gas distribution utilities like Columbia Kentucky. There is no evidence to suggest
6 that the size premium recommended by Mr. Rea applies to regulated gas utility
7 companies. I recommend that the Commission reject Mr. Rea's small size
8 adjustment of 0.75% in the CAPM.

9 Finally, as previously discussed, the Commission has long-standing
10 precedent explicitly rejecting size adjustments in its past Orders.

11 **Q. Please address Mr. Rea's use of the ECAPM, which he introduced on page 87**
12 **of his Direct Testimony.**

13 A. The ECAPM is designed to account for the possibility that the CAPM understates
14 the ROE for companies with betas less than 1.0. Mr. Rea applied an ECAPM
15 formula included in *Modern Regulatory Finance* by Dr. Roger Morin, which is set
16 forth on page 88 of his Direct Testimony.

17 The argument that an adjustment factor is needed to “correct” the CAPM
18 results for companies with betas less than 1.0 is further evidence of the lack of
19 accuracy inherent in the CAPM itself and with beta in particular, as I pointed out
20 in Section III of my Direct Testimony. The ECAPM adjustment also suggests that
21 published betas by such sources as Value Line are incorrect and that investors
22 should not rely on them in formulating their estimates using the CAPM. Finally,

1 although Mr. Rea cited the source of the ECAPM formula he used, he provides no
2 evidence that investors favor this version of the ECAPM over the standard CAPM.

3 **Risk Premium Analyses**

4 **Q. Before you address the specifics of Mr. Rea's risk premium (“RP”) analyses,**
5 **do you have any general comments regarding the risk premium method of**
6 **estimating the investor required ROE for regulated utilities?**

7 A. Yes. The bond yield plus risk premium approach is imprecise and can only provide
8 very general guidance on the current authorized ROE for a regulated gas utility.
9 Historical risk premiums can change substantially over time based on investor
10 preferences and market conditions. As such, this approach is a “blunt instrument,”
11 if you will, for estimating the ROE in regulated proceedings. In my view, a properly
12 formulated DCF model using current stock prices and growth forecasts is far more
13 reliable and accurate than the bond yield plus risk premium model that relies on a
14 historical analysis of risk premiums.

15 **Q. Please generally describe the RP approach to estimating the investor required**
16 **ROE.**

17 A. The RP approach applies the fundamental premise that investing in a bond is less
18 risky than investing in common stock and that common shareholders will require a
19 premium over bond yields to compensate for the additional risk. Common
20 shareholders will be paid dividends only after contractual debt service obligations
21 and preferred dividends are met. This is also true in the event a company is
22 liquidated, a scenario in which bond holders will be paid first and if any funds are
23 left after that, the common shareholder will be paid. Due to the inherent additional
24 risks common shareholders face compared to bond holders, there will be an

1 additional risk premium demanded by common shareholders for investing in the
2 common stock of any company. The RP method, then, attempts to quantify that
3 additional risk premium for stock returns over bond returns.

4 **Q. Please summarize and describe Mr. Rea's approach to estimating the RP**
5 **ROE.**

6 A. Mr. Rea began his discussion of the RP approach beginning on page 89 of his
7 Direct Testimony. With respect to the Gas LDC Group, Mr. Rea used a prospective
8 bond yield of 5.82%. Mr. Rea began with a forecasted Aaa rated corporate bond
9 yield of 5.02% from *Blue Chip Financial Forecasts*. He then added credit spreads
10 to reflect the difference between the forecasted Aaa bond yield and the yield on an
11 A-/A3 rated public utility bond. The additional credit spreads are shown on page 1
12 of Attachment VVR-12, page 1.

13 Mr. Rea then estimated risk premiums using both a total market approach
14 and a public utility index approach. Both of these approaches used historical and
15 forecasted data. Regarding the total market approach, Mr. Rea employed the same
16 prospective market return data that he used in his CAPM analyses. He also used
17 historical returns from the *Kroll 2023 SBBI Yearbook*. Subtracting the total
18 historical return for long-term corporate bonds (6.10%) from the total historical
19 return on large company stocks (12.0%) resulted in a historical RP of 5.90%. Using
20 the prospective return on the market of 11.53% and subtracting the forecasted Aaa
21 bond yield of 5.02% resulted in a RP of 6.51%. Mr. Rea averaged these two RPs,
22 resulting in an average RP of 5.8%. He then multiplied his re-levered beta for the

1 Gas LDC Group from his CAPM analysis, 0.935, by the RP of 6.21% and obtained
2 the adjusted RP applicable to the Gas LDC Group of 5.80%.

3 Mr. Rea began his discussion of his public utility index approach on page
4 99 of his Direct Testimony. The historical RP was based on historical returns for
5 the S&P 500 Utilities Index and historical yields for long-term A-rated utility
6 bonds. The resulting RP was 4.40%. For his currently implied RP analysis, Mr.
7 Rea used the expected return on the S&P 500 Utilities Index of 10.18% less recent
8 yields on A-rated utility bonds of 5.91%, with a resulting RP of 4.27%. The average
9 of the two RPs was 4.33%.

10 Mr. Rea testified on page 100 of his Direct Testimony that he placed equal
11 emphasis on the total market and public utility index approaches, concluding that
12 an RP of 5.07% is reasonable for the Gas LDC Group. Adding this RP to the
13 forecasted bond yield for the Gas LDC Group resulted in a RP ROE of 10.89%.
14 Mr. Rea then added 4 basis points for a flotation cost adjustment, resulting in a
15 10.93% RP ROE for the Gas LDC Group.

16 **Q. Is 10.93% a reasonable ROE for the Commission to consider for Columbia**
17 **Kentucky?**

18 A. No, it is not. The RPs calculated by Mr. Rea are greatly overstated for the following
19 reasons:

- 20 • Mr. Rea included an excessive projected market return for the S&P 500 of
21 12.51% in his RP calculation on VVR-12, page 4. I described earlier in my
22 testimony that this ROE calculation is inflated by an unsustainably high
23 growth rate.

- 1 • On page 4, of Attachment VVR-12, page, Mr. Rea included the historical
2 annual return on the S&P 500 of 12.00% from Kroll's SBBI 2023
3 Yearbook. Earlier I explained why MRPs based on this unadjusted
4 historical return number are likely overstated. Using this historical market
5 return number for his RP calculation will also likely result in an
6 overstatement of the RP on page 4 of Attachment VVR-12.
- 7 • Mr. Rea used the re-levered beta for the Gas LDC Group of 0.935, further
8 inflating his RP number on page 4 of Attachment VVR-12.
- 9 • Mr. Rea's projected Gas LDC Group bond yield of 5.82% is inflated based
10 on more recent data. According to the July Mergent Bond Record, the
11 average utility bond yield in July 2024 was 5.68%, and has averaged 5.66%
12 in 2024.

13 Given these flaws in Mr. Rea's RP analyses, I recommend the Commission
14 disregard his RP ROE results in this case.

15 **Q. Does this complete your Direct Testimony?**

16 A. Yes.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

ELECTRONIC APPLICATION OF COLUMBIA)	
GAS OF KENTUCKY, INC. FOR AN)	
ADJUSTMENT OF RATES; APPROVAL OF)	CASE NO.
DEPRECIATION STUDY; APPROVAL OF TARIFF)	2024-00092
REVISIONS; AND OTHER RELIEF)	

EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF

**OFFICE OF THE ATTORNEY GENERAL OF THE
COMMONWEALTH OF KENTUCKY**

**J. Kennedy and Associates, Inc.
570 Colonial Park Drive, Suite 305
Roswell, GA 30075**

August 14, 2024

PUBLIC REDACTED VERSION

RESUME OF RICHARD A. BAUDINO

EDUCATION

New Mexico State University, M.A.

Major in Economics

Minor in Statistics

New Mexico State University, B.A.

Economics

English

Thirty-nine years of experience in utility ratemaking and the application of principles of economics to the regulation of electric, gas, and water utilities. Broad based experience in revenue requirement analysis, cost of capital, rate of return, cost and revenue allocation, and rate design.

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

Cost of Capital for Electric, Gas and Water Companies

Electric, Gas, and Water Utility Cost Allocation and Rate Design

Revenue Requirements

Gas and Electric industry restructuring and competition

Fuel cost auditing

Ratemaking Treatment of Generating Plant Sale/Leasebacks

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

1989 to

Present: Kennedy and Associates: Director of Consulting, Consultant - Responsible for consulting assignments in revenue requirements, rate design, cost of capital, economic analysis of generation alternatives, electric and gas industry restructuring/competition and water utility issues.

1982 to

1989: New Mexico Public Service Commission Staff: Utility Economist - Responsible for preparation of analysis and expert testimony in the areas of rate of return, cost allocation, rate design, finance, phase-in of electric generating plants, and sale/leaseback transactions.

CLIENTS SERVED

Regulatory Commissions

Louisiana Public Service Commission
Georgia Public Service Commission
New Mexico Public Service Commission

Other Clients and Client Groups

Ad Hoc Committee for a Competitive Electric Supply System	Occidental Chemical
Air Products and Chemicals, Inc.	Peoples Industrial Intervenors
Arkansas Electric Energy Consumers	PSI Industrial Group
Arkansas Gas Consumers	Large Power Intervenors (Minnesota)
AK Steel	Tyson Foods
Armco Steel Company, L.P.	West Virginia Energy Users Group
Aqua Large Users Group	The Commercial Group
Assn. of Business Advocating Tariff Equity	Wisconsin Industrial Energy Group
Atmos Cities Steering Committee	South Florida Hospital and Health Care Assn.
Canadian Federation of Independent Businesses	PP&L Industrial Customer Alliance
CF&I Steel, L.P.	Philadelphia Area Industrial Energy Users Gp.
Cities of Midland, McAllen, and Colorado City	Philadelphia Large Users Group
Cities Served by Texas-New Mexico Power Co.	West Penn Power Intervenors
Cities Served by AEP Texas	Duquesne Industrial Intervenors
City of New York	Met-Ed Industrial Users Gp.
Climax Molybdenum Company	Penelec Industrial Customer Alliance
Connecticut Industrial Energy Consumers	Penn Power Users Group
Crescent City Power Users Group	Columbia Industrial Intervenors
Cripple Creek & Victor Gold Mining Co.	U.S. Steel & Univ. of Pittsburg Medical Ctr.
Dearborn Industrial Generation, LLC	Multiple Intervenors
General Electric Company	Maine Office of Public Advocate
Holcim (U.S.) Inc.	Missouri Office of Public Counsel
IBM Corporation	University of Massachusetts - Amherst
Industrial Energy Consumers	WCF Hospital Utility Alliance
Kentucky Industrial Utility Consumers	West Travis County Public Utility Agency
Kentucky Office of the Attorney General	Steering Committee of Cities Served by Oncor
Lexington-Fayette Urban County Government	Steering Committee of Cities Served by CoServ Gas, Ltd.
Large Electric Consumers Organization	Utah Office of Consumer Services
Newport Steel	Healthcare Council of the National Capital Area
North Carolina Attorney General's Office	Vermont Department of Public Service
Northwest Arkansas Gas Consumers	South Carolina Office of Regulatory Staff
Maryland Energy Group	Texas Industrial Energy Consumers

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
10/83	1803, 1817	NM	New Mexico Public Service Commission	Southwestern Electric Coop.	Rate design.
11/84	1833	NM	New Mexico Public Service Commission Palo Verde	El Paso Electric Co.	Service contract approval, rate design, performance standards for nuclear generating system
1983	1835	NM	New Mexico Public Service Commission	Public Service Co. of NM	Rate design.
1984	1848	NM	New Mexico Public Service Commission	Sangre de Cristo Water Co.	Rate design.
02/85	1906	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
09/85	1907	NM	New Mexico Public Service Commission	Jomada Water Co.	Rate of return.
11/85	1957	NM	New Mexico Public Service Commission	Southwestern Public Service Co.	Rate of return.
04/86	2009	NM	New Mexico Public Service Commission	El Paso Electric Co.	Phase-in plan, treatment of sale/leaseback expense.
06/86	2032	NM	New Mexico Public Service Commission	El Paso Electric Co.	Sale/leaseback approval.
09/86	2033	NM	New Mexico Public Service Commission	El Paso Electric Co.	Order to show cause, PVNGS audit.
02/87	2074	NM	New Mexico Public Service Commission	El Paso Electric Co.	Diversification.
05/87	2089	NM	New Mexico Public Service Commission	El Paso Electric Co.	Fuel factor adjustment.
08/87	2092	NM	New Mexico Public Service Commission	El Paso Electric Co.	Rate design.
10/87	2146	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Financial effects of restructuring, reorganization.
07/88	2162	NM	New Mexico Public Service Commission	El Paso Electric Co.	Revenue requirements, rate design, rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdiction	Party	Utility	Subject
01/89	2194	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Economic development.
1/89	2253	NM	New Mexico Public Service Commission	Plains Electric G&T Cooperative	Financing.
08/89	2259	NM	New Mexico Public Service Commission	Homestead Water Co.	Rate of return, rate design.
10/89	2262	NM	New Mexico Public Service Commission	Public Service Co. of New Mexico	Rate of return.
09/89	2269	NM	New Mexico Public Service Commission	Ruidoso Natural Gas Co.	Rate of return, expense from affiliated interest.
12/89	89-208-TF	AR	Arkansas Electric Energy Consumers	Arkansas Power & Light Co.	Rider M-33.
01/90	U-17282	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
09/90	90-158	KY	Kentucky Industrial Utility Consumers	Louisville Gas & Electric Co.	Cost of equity.
09/90	90-004-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Cost of equity, transportation rate.
12/90	U-17282 Phase IV	LA	Louisiana Public Service Commission	Gulf States Utilities	Cost of equity.
04/91	91-037-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Transportation rates.
12/91	91-410-EL-AIR	OH	Air Products & Chemicals, Inc., Armco Steel Co., General Electric Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Cost of equity.
05/92	910890-EI	FL	Occidental Chemical Corp.	Florida Power Corp.	Cost of equity, rate of return.
09/92	92-032-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost of equity, rate of return, cost-of-service.
09/92	39314	ID	Industrial Consumers for Fair Utility Rates	Indiana Michigan Power Co.	Cost of equity, rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
09/92	92-009-U	AR	Tyson Foods	General Waterworks	Cost allocation, rate design.
01/93	92-346	KY	Newport Steel Co.	Union Light, Heat & Power Co.	Cost allocation.
01/93	39498	IN	PSI Industrial Group	PSI Energy	Refund allocation.
01/93	U-10105	MI	Association of Businesses Advocating Tariff Equality (ABATE)	Michigan Consolidated Gas Co.	Return on equity.
04/93	92-1464-EL-AIR	OH	Air Products and Chemicals, Inc., Armco Steel Co., Industrial Energy Consumers	Cincinnati Gas & Electric Co.	Return on equity.
09/93	93-189-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Transportation service terms and conditions.
09/93	93-081-U	AR	Arkansas Gas Consumers	Arkansas Louisiana Gas Co.	Cost-of-service, transportation rates, rate supplements; return on equity; revenue requirements.
12/93	U-17735	LA	Louisiana Public Service Commission Staff	Cajun Electric Power Cooperative	Historical reviews; evaluation of economic studies.
03/94	10320	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric Co.	Trimble County CWIP revenue refund.
4/94	E-015/GR-94-001	MN	Large Power Intervenors	Minnesota Power Co.	Evaluation of the cost of equity, capital structure, and rate of return.
5/94	R-00942993	PA	PG&W Industrial Intervenors	Pennsylvania Gas & Water Co.	Analysis of recovery of transition costs.
5/94	R-00943001	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania charge proposals.	Evaluation of cost allocation, rate design, rate plan, and carrying
7/94	R-00942986	PA	Armco, Inc., West Penn Power Industrial Intervenors	West Penn Power Co.	Return on equity and rate of return.
7/94	94-0035-E-42T	WV	West Virginia Energy Users' Group	Monongahela Power Co.	Return on equity and rate of return.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
8/94	8652	MD	Westvaco Corp. Co.	Potomac Edison	Return on equity and rate of return.
9/94	930357-C	AR	West Central Arkansas Gas Consumers	Arkansas Oklahoma Gas Corp.	Evaluation of transportation service.
9/94	U-19904	LA	Louisiana Public Service Commission	Gulf States Utilities	Return on equity.
9/94	8629	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Transition costs.
11/94	94-175-U	AR	Arkansas Gas Consumers	Arkla, Inc.	Cost-of-service, rate design, rate of return.
3/95	RP94-343- 000	FERC	Arkansas Gas Consumers	NorAm Gas Transmission	Rate of return.
4/95	R-00943271	PA	PP&L Industrial Customer Alliance	Pennsylvania Power & Light Co.	Return on equity.
6/95	U-10755	MI	Association of Businesses Advocating Tariff Equity	Consumers Power Co.	Revenue requirements.
7/95	8697	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Cost allocation and rate design.
8/95	95-254-TF U-2811	AR	Tyson Foods, Inc.	Southwest Arkansas Electric Cooperative	Refund allocation.
10/95	ER95-1042 -000	FERC	Louisiana Public Service Commission	Systems Energy Resources, Inc.	Return on Equity.
11/95	I-940032	PA	Industrial Energy Consumers of Pennsylvania	State-wide - all utilities	Investigation into Electric Power Competition.
5/96	96-030-U	AR	Northwest Arkansas Gas Consumers	Arkansas Western Gas Co.	Revenue requirements, rate of return and cost of service.
7/96	8725	MD	Maryland Industrial Group	Baltimore Gas & Electric Co., Potomac Electric Power Co. and Constellation Energy Corp.	Return on Equity.
7/96	U-21496	LA	Louisiana Public Service Commission	Central Louisiana Electric Co.	Return on equity, rate of return.
9/96	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
1/97	RP96-199-000	FERC	The Industrial Gas Users Conference	Mississippi River Transmission Corp.	Revenue requirements, rate of return and cost of service.
3/97	96-420-U	AR	West Central Arkansas Gas Corp.	Arkansas Oklahoma Gas Corp.	Revenue requirements, rate of return, cost of service and rate design.
7/97	U-11220	MI	Association of Business Advocating Tariff Equity	Michigan Gas Co. and Southeastern Michigan Gas Co.	Transportation Balancing Provisions.
7/97	R-00973944	PA	Pennsylvania American Water Large Users Group	Pennsylvania-American Water Co.	Rate of return, cost of service, revenue requirements.
3/98	8390-U	GA	Georgia Natural Gas Group and the Georgia Textile Manufacturers Assoc.	Atlanta Gas Light	Rate of return, restructuring issues, unbundling, rate design issues.
7/98	R-00984280	PA	PG Energy, Inc. Intervenors	PGE Industrial	Cost allocation.
8/98	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Revenue requirements.
10/98	97-596	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric Co.	Return on equity, rate of return.
10/98	U-23327	LA	Louisiana Public Service Commission	SWEPSCO, CSW and AEP	Analysis of proposed merger.
12/98	98-577	ME	Maine Office of the Public Advocate	Maine Public Service Co.	Return on equity, rate of return.
12/98	U-23358	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity, rate of return.
3/99	98-426	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas and Electric Co	Return on equity.
3/99	99-082	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Co.	Return on equity.
4/99	R-984554	PA	T. W. Phillips Users Group	T. W. Phillips Gas and Oil Co.	Allocation of purchased gas costs.
6/99	R-0099462	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Balancing charges.
10/99	U-24182	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Cost of debt.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdiction	Party	Utility	Subject
10/99	R-00994782	PA	Peoples Industrial Intervenor	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenor	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenor	UGI Utilities, Inc.	Universal service costs, balancing, penalty charges, capacity Assignment.
01/00	8829	MD	Maryland Industrial Gr.	Baltimore Gas & Electric Co.	Revenue requirements, cost allocation, rate design.
02/00	R-00994788	PA	Penn Fuel Transportation	PFG Gas, Inc., and	Tariff charges, balancing provisions.
05/00	U-17735	LA	Louisiana Public Service Comm.	Louisiana Electric Cooperative	Rate restructuring.
07/00	2000-080	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric Co.	Cost allocation.
07/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket E)	LA	Louisiana Public Service Commission	Southwestern Electric Power Co.	Stranded cost analysis.
09/00	R-00005654	PA	Philadelphia Industrial And Commercial Gas Users Group.	Philadelphia Gas Works	Interim relief analysis.
10/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring, Business Separation Plan.
11/00	R-00005277 (Rebuttal)	PA	Penn Fuel Transportation Customers	PFG Gas, Inc. and North Penn Gas Co.	Cost allocation issues.
12/00	U-24993	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/01	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Stranded cost analysis.
04/01	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B) (Addressing Contested Issues)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring issues.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdct.	Party	Utility	Subject
04/01	R-00006042	PA	Philadelphia Industrial and Commercial Gas Users Group	Philadelphia Gas Works	Revenue requirements, cost allocation and tariff issues.
11/01	U-25687	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/02	14311-U	GA	Georgia Public Service Commission	Atlanta Gas Light	Capital structure.
08/02	2002-00145	KY	Kentucky Industrial Utility Customers	Columbia Gas of Kentucky	Revenue requirements.
09/02	M-00021612	PA	Philadelphia Industrial And Commercial Gas Users Group	Philadelphia Gas Works	Transportation rates, terms, and conditions.
01/03	2002-00169	KY	Kentucky Industrial Utility Customers	Kentucky Power	Return on equity.
02/03	02S-594E	CO	Cripple Creek & Victor Gold Mining Company	Aquila Networks – WPC	Return on equity.
04/03	U-26527	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
10/03	CV020495AB	GA	The Landings Assn., Inc.	Utilities Inc. of GA	Revenue requirement & overcharge refund
03/04	2003-00433	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric	Return on equity, Cost allocation & rate design
03/04	2003-00434	KY	Kentucky Industrial Utility Customers	Kentucky Utilities	Return on equity
4/04	04S-035E	CO	Cripple Creek & Victor Gold Mining Company, Goodrich Corp., Holcim (U.S.) Inc., and The Trane Co.	Aquila Networks – WPC	Return on equity.
9/04	U-23327, Subdocket B	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Fuel cost review
10/04	U-23327 Subdocket A	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Return on Equity
06/05	050045-EI	FL	South Florida Hospital and Health Care Assoc.	Florida Power & Light Co.	Return on equity
08/05	9036	MD	Maryland Industrial Group	Baltimore Gas & Electric Co.	Revenue requirement, cost allocation, rate design, Tariff issues.
01/06	2005-0034	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
03/06	05-1278-E-PC-PW-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Return on equity.
04/06	U-25116 Commission	LA	Louisiana Public Service	Entergy Louisiana, LLC	Transmission Issues
07/06	U-23327 Commission	LA	Louisiana Public Service	Southwestern Electric Power Company	Return on equity, Service quality
08/06	ER-2006-0314	MO	Missouri Office of the Public Counsel	Kansas City Power & Light Co.	Return on equity, Weighted cost of capital
08/06	06S-234EG	CO	CF&I Steel, L.P. & Climax Molybdenum	Public Service Company of Colorado	Return on equity, Weighted cost of capital
01/07	06-0960-E-42T Users Group	WV	West Virginia Energy	Monongahela Power & Potomac Edison	Return on Equity
01/07	43112	AK	AK Steel, Inc.	Vectren South, Inc.	Cost allocation, rate design
05/07	2006-661	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric	Return on equity, weighted cost of capital.
09/07	07-07-01	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power	Return on equity, weighted cost of capital
10/07	05-UR-103	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Return on equity
11/07	29797	LA	Louisiana Public Service Commission	Cleco Power :LLC & Southwestern Electric Power	Lignite Pricing, support of settlement
01/08	07-551-EL-AIR	OH	Ohio Energy Group	Ohio Edison, Cleveland Electric, Toledo Edison	Return on equity
03/08	07-0585, 07-0585, 07-0587, 07-0588, 07-0589, 07-0590, (consol.)	IL	The Commercial Group	Ameren	Cost allocation, rate design
04/08	07-0566	IL	The Commercial Group	Commonwealth Edison	Cost allocation, rate design
06/08	R-2008-2011621	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Cost and revenue allocation, Tariff issues

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
07/08	R-2008-2028394	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy	Cost and revenue allocation, Tariff issues
07/08	R-2008-2039634	PA	PPL Gas Large Users Group	PPL Gas	Retainage, LUFG Pct.
08/08	6680-UR-116	WI	Wisconsin Industrial Energy Group	Wisconsin P&L	Cost of Equity
08/08	6690-UR-119	WI	Wisconsin Industrial Energy Group	Wisconsin PS	Cost of Equity
09/08	ER-2008-0318	MO	The Commercial Group	AmerenUE	Cost and revenue allocation
10/08	R-2008-2029325	PA	U.S. Steel & Univ. of Pittsburgh Med. Ctr.	Equitable Gas Co.	Cost and revenue allocation
10/08	08-G-0609	NY	Multiple Intervenors	Niagara Mohawk Power	Cost and Revenue allocation
12/08	27800-U	GA	Georgia Public Service Commission	Georgia Power Company	CWIP/AFUDC issues, Review financial projections
03/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Capital Structure
04/09	E002/GR-08-1065	MN	The Commercial Group	Northern States Power	Cost and revenue allocation and rate design
05/09	08-0532	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation
07/09	080677-EI	FL	South Florida Hospital and Health Care Association	Florida Power & Light	Cost of equity, capital structure, Cost of short-term debt
07/09	U-30975	LA	Louisiana Public Service Commission	Cleco LLC, Southwestern Public Service Co.	Lignite mine purchase
10/09	4220-UR-116	WI	Wisconsin Industrial Energy Group	Northern States Power	Class cost of service, rate design
10/09	M-2009-2123945	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Smart Meter Plan cost allocation
10/09	M-2009-2123944	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Company	Smart Meter Plan cost allocation
10/09	M-2009-2123951	PA	West Penn Power Industrial Intervenors	West Penn Power	Smart Meter Plan cost allocation
11/09	M-2009-2123948	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Smart Meter Plan cost allocation

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdct.	Party	Utility	Subject
11/09	M-2009-2123950	PA	Met-Ed Industrial Users Group Penelec Industrial Customer Alliance, Penn Power Users Group	Metropolitan Edison, Pennsylvania Electric Co., Pennsylvania Power Co.	Smart Meter Plan cost allocation
03/10	09-1352-E-42T	WV	West Virginia Energy Users Group	Monongahela Power	Return on equity, rate of return Potomac Edison
03/10	E015/GR-09-1151	MN	Large Power Intervenors	Minnesota Power	Return on equity, rate of return
04/10	2009-00459	KY	Kentucky Industrial Utility Consumers	Kentucky Power	Return on equity
04/10	2009-00548 2009-00549	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
05/10	10-0261-E-GI	WV	West Virginia Energy Users Group	Appalachian Power Co./ Wheeling Power Co.	EE/DR Cost Recovery, Allocation, & Rate Design
05/10	R-2009-2149262	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Class cost of service & cost allocation
06/10	2010-00036	KY	Lexington-Fayette Urban County Government	Kentucky American Water Company	Return on equity, rate of return, revenue requirements
06/10	R-2010-2161694	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Rate design, cost allocation
07/10	R-2010-2161575	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Return on equity
07/10	R-2010-2161592	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Cost and revenue allocation
07/10	9230	MD	Maryland Energy Group	Baltimore Gas and Electric	Electric and gas cost and revenue allocation; return on equity
09/10	10-70	MA	University of Massachusetts-Amherst	Western Massachusetts Electric Co.	Cost allocation and rate design
10/10	R-2010-2179522	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Cost and revenue allocation, rate design
11/10	P-2010-2158084	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Transmission rate design
11/10	10-0699-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Co. & Wheeling Power Co.	Return on equity, rate of Return
11/10	10-0467	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation and rate design

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
04/11	R-2010-2214415	PA	Central Pen Gas Large Users Group	UGI Central Penn Gas, Inc.	Tariff issues, revenue allocation
07/11	R-2011-2239263	PA	Philadelphia Area Energy Users Group	PECO Energy	Retainage rate
08/11	R-2011-2232243	PA	AK Steel	Pennsylvania-American Water Company	Rate Design
08/11	11AL-151G	CO	Climax Molybdenum	PS of Colorado	Cost allocation
09/11	11-G-0280	NY	Multiple Intervenors	Corning Natural Gas Co.	Cost and revenue allocation
10/11	4220-UR-117	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
02/12	11AL-947E	CO	Climax Molybdenum, CF&I Steel	Public Service Company of Colorado	Return on equity, weighted cost of capital
07/12	120015-EI	FL	South Florida Hospitals and Health Care Association	Florida Power and Light Co.	Return on equity, weighted cost of capital
07/12	12-0613-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal for Century Aluminum
07/12	R-2012-2290597	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities Corp.	Cost allocation
09/12	05-UR-106	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Class cost of service, cost and revenue allocation, rate design
09/12	2012-00221 2012-00222	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
10/12	9299	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design Cost of equity, weighted cost of capital
10/12	4220-UR-118	WI	Wisconsin Industrial Energy Group	Northern States Power Company	Class cost of service, cost and revenue allocation, rate design
10/12	473-13-0199	TX	Steering Committee of Cities Served by Oncor	Cross Texas Transmission, LLC	Return on equity, capital structure
01/13	R-2012-2321748 et al.	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation
02/13	12AL-1052E	CO	Cripple Creek & Victor Gold Mining, Holcim (US) Inc.	Black Hills/Colorado Electric Utility Company	Cost and revenue allocations
06/13	8009	VT	IBM Corporation	Vermont Gas Systems	Cost and revenue allocation, rate design
07/13	130040-EI	FL	WCF Hospital Utility Alliance	Tampa Electric Co.	Return on equity, rate of return

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
08/13	9326	MD	Maryland Energy Group	Baltimore Gas and Electric	Cost and revenue allocation, rate design, special rider
08/13	P-2012-2325034	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities, Corp.	Distribution System Improvement Charge
09/13	4220-UR-119	WI	Wisconsin Industrial Energy Group	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
11/13	13-1325-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal, Felman Production
06/14	R-2014-2406274	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation, rate design
08/14	05-UR-107	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
10/14	ER13-1508 et al.	FERC	Louisiana Public Service Comm.	Entergy Services, Inc.	Return on equity
11/14	14AL-0660E	CO	Climax Molybdenum Co. and CFI Steel, LP	Public Service Co. of Colorado	Return on equity, weighted cost of capital
11/14	R-2014-2428742	PA	AK Steel	West Penn Power Company	Cost and revenue allocation
12/14	42866	TX	West Travis Co. Public Utility Agency	Travis County Municipal Utility District No. 12	Response to complain of monopoly power
3/15	2014-00371 2014-00372	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
3/15	2014-00396	KY	Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity, weighted cost of capital
6/15	15-0003-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Cost and revenue allocation, Infrastructure Replacement Program
9/15	15-0676-W-42T	WV	West Virginia Energy Users Gp.	West Virginia-American Water Company	Appropriate test year, Historical vs. Future
9/15	15-1256-G-390P	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Rate design for Infrastructure Replacement and Expansion Program
10/15	4220-UR-121	WI	Wisconsin Industrial Energy Gp.	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
12/15	15-1600-G-390P	WV	West Virginia Energy Users Gp.	Dominion Hope	Rate design and allocation for Pipeline Replacement & Expansion Prog.

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital
2/16	9406	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design, proposed Rider 5
3/16	39971	GA	GA Public Service Comm. Staff	Southern Company / AGL Resources	Credit quality and service quality issues
04/16	2015-00343	KY	Kentucky Office of the Attorney General	Atmos Energy	Cost of equity, cost of short-term debt, capital structure
05/16	16-G-0058 16-G-0059	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, service quality issues
06/16	16-0073-E-C	WV	Constellium Rolled Products Ravenswood, LLC	Appalachian Power Co.	Complaint; security deposit
07/16	9418	MD	Healthcare Council of the National Capital Area	Potomac Electric Power Co.	Cost of equity, cost of service, Cost and revenue allocation
07/16	160021-EI	FL	South Florida Hospital and Health Care Association	Florida Power and Light Co.	Return on equity, cost of debt, capital structure
07/16	16-057-01	UT	Utah Office of Consumer Svcs.	Dominion Resources, Questar Gas Co.	Credit quality and service quality issues
08/16	8710	VT	Vermont Dept. of Public Service	Vermont Gas Systems	Return on equity, cost of debt, cost of capital
08/16	R-2016-2537359	PA	AK Steel Corp.	West Penn Power Co.	Cost and revenue allocation
09/16	2016-00162	KY	Kentucky Office of the Attorney General	Columbia Gas of Ky.	Return on equity, cost of short-term debt
09/16	16-0550-W-P	WV	West Va. Energy Users Gp.	West Va. American Water Co.	Infrastructure Replacement Program Surcharge
01/17	46238	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring fencing and other conditions for acquisition, service quality and reliability
02/17	45414	TX	Cities of Midland, McAllen, and Colorado City	Sharyland Utilities, LP and Sharyland Dist. and Transmission Services, LLC	Return on equity
02/17	2016-00370 2016-00371	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
03/17	10580	TX	Atmos Cities Steering Committee	Atmos Pipeline Texas	Return on equity, capital structure, weighted cost of capital

**Expert Testimony Appearances
of
Richard A. Baudino
As of August 2024**

Date	Case	Jurisdct.	Party	Utility	Subject
03/17	R-3867-2013	Quebec, Canada	Canadian Federation of Independent Businesses	Gaz Metro	Marginal Cost of Service Study
05/17	R-2017-2586783	PA	Philadelphia Industrial and Commercial Gas Users Gp.	Philadelphia Gas Works	Cost and revenue allocation, rate design, Interruptible tariffs
08/17	R-2017-2595853	PA	AK Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design
8/17	17-3112-INV	VT	Vt. Dept. of Pubic Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
9/17	4220-UR-123	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
10/17	2017-00179	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity, cost of short-term debt
12/17	2017-00321	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
1/18	2017-00349	KY	Office of the Attorney General	Atmos Energy	Return on equity, cost of debt, weighted cost of capital
5/18	Fiscal Years 2019-2021 Rates	PA	Philadelphia Large Users Group	Philadelphia Water Department	Cost and revenue allocation
8/18	18-0974-TF	VT	Vt. Dept. of Public Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
8/18	48401	TX	Cities Served by Texas-New Mexico Power Company	Texas-New Mexico Power Co.	Return on equity, capital structure
8/18	18-05-16	CT	Connecticut Industrial Energy Consumers	Connecticut Natural Gas Co.	Cost and revenue allocation
9/18	9484	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design
9/18	2017-370-E	SC	South Carolina Office of Regulatory Staff	South Carolina Electric & Gas, Dominion Resources, SCANA	Return on equity, service quality standards, credit quality conditions
10/18	18-1115-G-390P	WV	West Va. Energy Users Group	Mountaineer Gas Company	Customer protections for Infrastructure Replacement and Expansion Program
12/18	R-2018-3003558, R-2018-3003561	PA	Aqua Large Users Group	Aqua Pennsylvania, Inc.	Cost and revenue allocation
02/19	UD-18-07	CCNO	Crescent City Power Users' Gp.	Entergy New Orleans, LLC	Return on equity, Reliability Incentive Mechanism, other proposed riders
03/19	2018-00358	KY	Office of the Attorney General	Kentucky American Water Co.	Return on equity, Qualified Infrastructure Program rider

**Expert Testimony Appearances
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As of August 2024**

Date	Case	Jurisdiction	Party	Utility	Subject
05/19	19-E-0065 19-G-0066	NY	City of New York	Consolidated Edison Co.	Cost and revenue allocation, rate design, tariff issues, fast-charging station incentives
05/2019	19-0513-TF	VT	Vt. Dept. of Public Service	Vermont Gas Systems	Return on equity, capital structure
06/2019	5-TG-100	WI	Wisconsin Industrial Energy Group	WEPCO, Wisconsin Gas, Wisconsin PS	Transportation and balancing issues
07/2019	49494	TX	Cities Served by AEP Texas	AEP Texas, Inc.	Return on equity, capital structure
08/2019	19-G-0309 19-G-0310	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, tariff issues and modifications
08/2019	19-0316-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Company	Cost and revenue allocation
8/2019	5-UR-109	WI	Wisconsin Industrial Energy Gp.	Wisconsin Electric Power Co., Wisconsin Gas, LLC	Cost Allocation, Class cost of service study
8/2019	6690-UR-126	WI	Wisconsin Industrial Energy Gp.	Wisconsin Public Service Corp.	Cost Allocation, Class cost of service study
9/2019	9610	MD	Maryland Energy Group	Baltimore Gas and Electric Co.	Cost and revenue allocation, rate design
12/2019	2019-00271	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
2/2020	49831	TX	Texas Industrial Energy Consumers	Southwestern Public Service Co.	Return on equity, capital structure, rate of return
2/2020	E-7. Sub 1214	NC	NC Attorney General's Office	Duke Energy Carolinas	Return on equity, capital structure, rate of return, economic conditions
2/2020	E-2. Sub 1219	NC	NC Attorney General's Office	Duke Energy Progress	Return on equity, capital structure, rate of return, economic conditions
5/2020	R-2019-3015162	PA	Industrial Energy Consumers of Pennsylvania	UGI Utilities, Inc.	Return on equity, cost of debt, revenue allocation, rate design
6/2020	20-G-0101	NY	Multiple Intervenors	Corning Natural Gas Corp.	Cost and revenue allocation
9/2020	R-2020-2019369	PA	AK Steel	Pennsylvania-American Water Company	Cost and revenue allocation, rate design
9/2020	20-035-04	UT	The Kroger Co.	Rocky Mountain Power	Cost and revenue allocation, rate design
10/2020	2020-00174	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Power Co.	Return on equity
3/2021	2020-00349	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Utilities Co.	Return on equity

**Expert Testimony Appearances
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As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
3/2021	2020-00350	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Louisville Gas and Electric Co.	Return on equity
3/2021	20-0746-G-42T	WV	West Va. Energy Users Group	Dominion Energy West Va.	Cost and revenue allocation, cost of equity
4/2021	17-12-03RE11	CT	Connecticut Industrial Energy Consumers	PURA Investigation Into Distribution System Planning	Economic development rates
6/2021	U-20940	MI	Dearborn Industrial Generation, LLC	DTE Gas Company	Cost and revenue allocation, rate design
7/2021	21-0043-G-PC	WV	West Va. Energy Users Group	Mountaineer Gas Co., UGI Corporation	Hold harmless conditions for utility acquisition
07/2021	U-35441	LA	Louisiana Public Service Commission	Southwestern Electric Power Company	Return on equity, cost of capital, service quality
08/2021	51802	TX	Texas Industrial Energy Consumers	Southwestern Public Service Company	Return on equity
09/21	2021-00190	KY	Kentucky Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity, cost of debt
09/21	2021-00183	KY	Kentucky Office of the Attorney General	Columbia Gas of Kentucky, Inc.	Return on equity, cost of debt, capital structure
09/21	21-0369-W-42T	WV	West Va. Energy Users Group	West Virginia-American Water Company	Revenue stabilization mechanism
09/21	2021-00185	KY	Kentucky Office of the Attorney General	Delta Natural Gas Company, Inc.	Return on equity, cost of debt, capital structure
09/21	2021-00214	KY	Kentucky Office of the Attorney General	Atmos Energy Corporation	Return on equity, common equity ratio
11/21	R-2021-3027385, R-2021-3027386	PA	Aqua Large Users Group	Aqua Pennsylvania, Inc.	Cost and revenue allocation, Rate design
11/21	21-G-0394	NY	Multiple Intervenors	Corning Natural Gas Corp.	Cost and revenue allocation
06/22	21-G-0577	NY	Multiple Intervenors	Liberty Utilities (St. Lawrence Gas) Corp.	Cost of revenue allocation, rate design
07/22	2022-89-G	SC	South Carolina Office of Regulatory Staff	Piedmont Natural Gas Co.	Return on equity, capital structure cost of capital
07/22	R-2022-3031672, R-2022-3031673	PA	Cleveland-Cliffs Steel	Pennsylvania American Water Company	Cost and revenue allocation, rate design

**Expert Testimony Appearances
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As of August 2024**

Date	Case	Jurisdict.	Party	Utility	Subject
10/22	2022-00147	KY	Kentucky Office of the Attorney General and the City of Clinton	Water Service Corporation of Kentucky	Cost of equity
12/22	2022-254-E	SC	South Carolina Office of Regulatory Staff	Duke Energy Progress	Cost of equity
12/22	22-08-08	CT	Connecticut Industrial Energy Consumers	United Illuminating Co.	Cost and revenue allocation, rate design, economic development rates
03/23	2022-00372	KY	Kentucky Office of the Attorney General	Duke Energy Kentucky, Inc.	Cost of equity, capital structure, weighted cost of capital
08/23	23-0280-G-42-T	WV	West Va. Energy Users Group	Mountaineer Gas Co.	Cost and revenue allocation, Rate design
09/23	6680-UR-124	WI	Wisconsin Industrial Energy Group	Wisconsin Power and Light Co.	Cost and revenue allocation, rate design
09/23	6690-UR-127	WI	Wisconsin Industrial Energy Group	Wisconsin Public Service Corp.	Revenue allocation, rate design
09/23	5-UR-110	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
09/23	2023-00191	KY	Kentucky Office of the Attorney General	Kentucky-American Water Co.	Return on equity, capital structure, and weighted cost of capital
10/23	2023-00159	KY	Ky. Office of the Attorney General, Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity
11/23	23-0460-E-42T	WV	West Virginia Energy Users Group	Monongahela Power Co. and The Potomac Edison Company	Return on equity, cost of capital
02/24	R-2023-3043189 C-2023-3044289 C-2023-3044375 PA		Cleveland-Cliffs Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design, revenue decoupling rider
03/24	R-2023-3044549 PA		Peoples Industrial Intervenors	Peoples Natural Gas Company	Cost and revenue allocation, rate design
08/24	2024-00092		Kentucky Office of the Attorney General	Columbia Gas of Kentucky	Return on equity, Cost of capital

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24
Atmos Energy Corp.	High Price (\$)	115.820	119.050	119.360	121.480	118.380	128.730
	Low Price (\$)	110.460	111.255	110.970	110.970	114.240	113.460
	Avg. Price (\$)	113.140	115.153	115.165	116.225	116.310	121.095
	Dividend (\$)	0.805	0.805	0.805	0.805	0.805	0.805
	Mo. Avg. Div.	2.85%	2.80%	2.80%	2.77%	2.77%	2.66%
	6 mos. Avg.	2.77%					
Chesapeake Utilities	High Price (\$)	107.3950	108.2150	107.7500	114.290	113.310	120.840
	Low Price (\$)	98.2450	99.3600	98.3200	105.760	102.640	104.560
	Avg. Price (\$)	107.750	104.100	103.035	110.025	107.975	112.700
	Dividend (\$)	0.5900	0.5900	0.5900	0.5900	0.6400	0.6400
	Mo. Avg. Div.	2.19%	2.27%	2.29%	2.14%	2.37%	2.27%
	6 mos. Avg.	2.26%					
New Jersey Resources	High Price (\$)	42.630	43.550	43.940	45.120	44.720	47.340
	Low Price (\$)	39.440	40.960	40.620	41.580	41.700	41.680
	Avg. Price (\$)	43.200	42.170	42.280	43.350	43.210	44.510
	Dividend (\$)	0.420	0.420	0.420	0.420	0.420	0.420
	Mo. Avg. Div.	3.89%	3.98%	3.97%	3.88%	3.89%	3.77%
	6 mos. Avg.	3.90%					
NiSource Inc.	High Price (\$)	26.440	27.720	28.250	29.440	29.230	31.550
	Low Price (\$)	24.795	25.710	26.260	27.600	27.830	28.420
	Avg. Price (\$)	25.618	26.715	27.255	28.520	28.530	29.985
	Dividend (\$)	0.2650	0.2650	0.2650	0.2650	0.2650	0.2650
	Mo. Avg. Div.	4.14%	3.97%	3.89%	3.72%	3.72%	3.54%
	6 mos. Avg.	3.83%					
Northwest Natural Holding Co.	High Price (\$)	39.770	38.430	39.200	39.190	38.000	41.020
	Low Price (\$)	34.950	35.580	35.250	35.170	34.820	35.100
	Avg. Price (\$)	37.360	37.005	37.225	37.180	36.410	38.060
	Dividend (\$)	0.488	0.488	0.488	0.488	0.488	0.488
	Mo. Avg. Div.	5.22%	5.27%	5.24%	5.24%	5.36%	5.12%
	6 mos. Avg.	5.24%					
ONE Gas, Inc.	High Price (\$)	62.990	64.680	65.140	66.520	64.310	71.780
	Low Price (\$)	57.740	58.500	60.270	58.310	59.740	61.540
	Avg. Price (\$)	60.365	61.590	62.705	62.415	62.025	66.660
	Dividend (\$)	0.660	0.660	0.660	0.660	0.660	0.660
	Mo. Avg. Div.	4.37%	4.29%	4.21%	4.23%	4.26%	3.96%
	6 mos. Avg.	4.22%					

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24
Spire, Inc.	High Price (\$)	60.70	61.68	62.39	63.500	62.090	68.020
	Low Price (\$)	56.99	58.51	57.27	58.490	57.770	58.640
	Avg. Price (\$)	58.845	60.095	59.830	60.995	59.930	63.330
	Dividend (\$)	0.755	0.755	0.755	0.755	0.755	0.755
	Mo. Avg. Div.	5.13%	5.03%	5.05%	4.95%	5.04%	4.77%
	6 mos. Avg.	4.99%					
Monthly Avg. Dividend Yield		3.97%	3.94%	3.92%	3.85%	3.91%	3.73%
6-month Avg. Dividend Yield		3.89%					
3-Month Avg. Dividend Yield		3.83%					

Source: finance.yahoo.com

PROXY GROUP
DCF Growth Rate Analysis

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) <u>Zacks</u>	(4) Yahoo! <u>Finance</u>
1 Atmos Energy Corp.	7.50%	7.00%	7.00%	7.40%
2 Chesapeake Utilities	8.00%	6.50%	7.60%	7.60%
3 New Jersey Resources	5.00%	5.00%	6.00%	6.00%
4 NiSource Inc.	4.50%	9.50%	6.00%	7.50%
5 Northwest Natural Holding Co.	0.50%	6.50%	2.80%	2.80%
6 ONE Gas, Inc.	2.50%	3.50%	5.00%	5.00%
7 Spire, Inc.	4.50%	4.50%	5.00%	6.36%
Averages	4.64%	6.07%	5.63%	6.09%
Median	4.50%	6.50%	6.00%	6.36%

Sources: Value Line Investment Survey, May 24, 2024

Yahoo! Finance and Zacks growth rates retrieved August 3, 2024

Note: Yahoo! growth rate was used for unavailable Zacks growth rate for Chesapeake Utilities, New Jersey Resources, and Northwest Natural Holding Co.

PROXY GROUP DCF RETURN ON EQUITY					
	(1) Value Line <u>Dividend Gr.</u>	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earning Gr.</u>	(4) Yahoo! <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
Method 1:					
Dividend Yield	3.89%	3.89%	3.89%	3.89%	3.89%
Proxy Group Average Growth Rate	4.64%	6.07%	5.63%	6.09%	5.61%
Expected Dividend Yield	<u>3.98%</u>	<u>4.00%</u>	<u>4.00%</u>	<u>4.01%</u>	<u>4.00%</u>
DCF Return on Equity	8.62%	10.07%	9.63%	10.10%	9.61%
Method 2:					
Dividend Yield	3.89%	3.89%	3.89%	3.89%	3.89%
Proxy Group Median Growth Rate	4.50%	6.50%	6.00%	6.36%	5.84%
Expected Dividend Yield	<u>3.97%</u>	<u>4.01%</u>	<u>4.00%</u>	<u>4.01%</u>	<u>4.00%</u>
DCF Return on Equity	8.47%	10.51%	10.00%	10.37%	9.84%

**PROXY GROUP
Capital Asset Pricing Model Analysis**

Value Line Forward-Looking MRP

Line <u>No.</u>		<u>Value Line</u>
1	Market Required Return Estimate	11.83%
2	Risk-free Rate of Return, 30-Year Treasury Bond	4.49%
3	Risk Premium	
4	(Line 1 minus Line 2)	7.35%
5	Proxy Group Beta	0.88
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	6.46%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	10.94%

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

Proxy Group Betas:

Value
Line

	<u>Avg. Yield</u>		<u>Value Line</u>
Feb-24	4.38%	Atmos Energy Corp.	0.85
Mar-24	4.36%	Chesapeake Utilities	0.80
Apr-24	4.66%	New Jersey Resources	1.00
May-24	4.62%	NiSource Inc.	0.95
Jun-24	4.44%	Northwest Natural Holding Co.	0.85
Jul-24	<u>4.46%</u>	ONE Gas, Inc.	0.85
6 month average	4.49%	Spire, Inc.	<u>0.85</u>
3 month average	4.51%	Average	0.88
Source: Federal Reserve data		Source: Value Line Investment Survey	

Value Line Projected Return Data:

Median Esimtated Div. Yield	2.10%
3 - 5 Year Price Appreciation	45.00%
Estimated Annualized Price Appreciation	9.73%
Est. Annual Total Return	11.83%

Source: Value Line Summary and Index,
July 26, 2024

PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	Arithmetic Mean	Supply Side ERP	Supply Side Less WWII Bias
Long-Term Annual Return on Stocks	12.04%		
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>4.87%</u>		
Historical Market Risk Premium	7.17%	6.22%	5.24%
Proxy Group Beta, Value Line	<u>0.88</u>	<u>0.88</u>	<u>0.88</u>
Beta * Market Premium	6.30%	5.46%	4.60%
Risk-free Rate of Return	<u>4.49%</u>	<u>4.49%</u>	<u>4.49%</u>
CAPM Cost of Equity, Value Line Beta	<u>10.79%</u>	<u>9.95%</u>	<u>9.09%</u>

Source: Kroll Cost of Capital Navigator

PROXY GROUP
Capital Asset Pricing Model Analysis
Other Market Risk Premium Sources

	<u>IESE Survey 2024</u>	<u>KMPG</u>	<u>Kroll</u>	<u>Damodarin Average MRP</u>
Market Risk Premium	5.50%	5.00%	5.00%	4.39%
Gas Proxy Group Beta	0.88	0.88	0.88	0.88
Beta times MRP	4.83%	4.39%	4.39%	3.86%
Risk-free Rate of Return	<u>4.49%</u>	<u>4.49%</u>	<u>4.49%</u>	<u>4.49%</u>
CAPM Cost of Equity	9.32%	8.88%	8.88%	8.34%

COMBINATION UTILITY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24
Alliant Energy Corp.	High Price (\$)	49.870	50.480	50.610	52.310	52.030	56.790
	Low Price (\$)	46.980	46.800	47.230	49.050	49.250	50.530
	Avg. Price (\$)	48.425	48.640	48.920	50.680	50.640	53.660
	Dividend (\$)	0.480	0.480	0.480	0.480	0.480	0.480
	Mo. Avg. Div.	3.96%	3.95%	3.92%	3.79%	3.79%	3.58%
	6 mos. Avg.	3.83%					
Avista Corp.	High Price (\$)	34.600	35.090	36.120	38.910	37.240	39.820
	Low Price (\$)	31.910	32.700	33.000	35.840	33.580	33.450
	Avg. Price (\$)	33.255	33.895	34.560	37.375	35.410	36.635
	Dividend (\$)	0.480	0.480	0.480	0.480	0.480	0.480
	Mo. Avg. Div.	5.77%	5.66%	5.56%	5.14%	5.42%	5.24%
	6 mos. Avg.	5.47%					
Black Hills Corp.	High Price (\$)	53.000	54.630	55.140	58.800	56.760	59.820
	Low Price (\$)	49.340	51.070	50.730	54.120	51.660	53.220
	Avg. Price (\$)	51.170	52.850	52.935	56.460	54.210	56.520
	Dividend (\$)	0.650	0.650	0.650	0.650	0.650	0.650
	Mo. Avg. Div.	5.08%	4.92%	4.91%	4.61%	4.80%	4.60%
	6 mos. Avg.	4.82%					
CMS Energy Corp.	High Price (\$)	58.950	60.870	60.970	63.700	63.440	65.170
	Low Price (\$)	55.100	56.750	56.610	60.160	58.540	58.500
	Avg. Price (\$)	57.025	58.810	58.790	61.930	60.990	61.835
	Dividend (\$)	0.520	0.520	0.520	0.520	0.520	0.520
	Mo. Avg. Div.	3.65%	3.54%	3.54%	3.36%	3.41%	3.36%
	6 mos. Avg.	3.48%					
Consolidated Edison	High Price (\$)	92.820	91.100	94.860	98.550	95.210	98.380
	Low Price (\$)	85.930	85.850	87.400	91.870	88.520	88.210
	Avg. Price (\$)	89.375	88.475	91.130	95.210	91.865	93.295
	Dividend (\$)	0.830	0.830	0.830	0.830	0.830	0.830
	Mo. Avg. Div.	3.71%	3.75%	3.64%	3.49%	3.61%	3.56%
	6 mos. Avg.	3.63%					
Eversource Energy	High Price (\$)	59.550	60.780	61.180	63.240	61.030	66.070
	Low Price (\$)	52.710	56.160	56.670	56.060	56.300	56.270
	Avg. Price (\$)	56.130	58.470	58.925	59.650	58.665	61.170
	Dividend (\$)	0.680	0.720	0.720	0.720	0.720	0.720
	Mo. Avg. Div.	4.85%	4.93%	4.89%	4.83%	4.91%	4.71%
	6 mos. Avg.	4.85%					

COMBINATION UTILITY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24
MGE Energy, Inc.	High Price (\$)	66.460	82.380	79.590	82.520	80.390	89.190
	Low Price (\$)	62.090	61.940	73.610	76.450	74.210	72.270
	Avg. Price (\$)	64.275	72.160	76.600	79.485	77.300	80.730
	Dividend (\$)	0.430	0.430	0.430	0.430	0.430	0.430
	Mo. Avg. Div.	2.68%	2.38%	2.25%	2.16%	2.23%	2.13%
	6 mos. Avg.	2.30%					
Northwestern Corp.	High Price (\$)	49.830	51.090	51.020	53.030	52.390	55.470
	Low Price (\$)	46.150	47.230	47.480	49.990	48.910	48.520
	Avg. Price (\$)	47.990	49.160	49.250	51.510	50.650	51.995
	Dividend (\$)	0.640	0.650	0.650	0.650	0.650	0.650
	Mo. Avg. Div.	5.33%	5.29%	5.28%	5.05%	5.13%	5.00%
	6 mos. Avg.	5.18%					
WEC Energy Group	High Price (\$)	82.070	82.760	83.030	85.960	82.590	86.370
	Low Price (\$)	75.130	76.780	77.530	78.650	77.650	77.470
	Avg. Price (\$)	78.600	79.770	80.280	82.305	80.120	81.920
	Dividend (\$)	0.840	0.840	0.840	0.840	0.840	0.840
	Mo. Avg. Div.	4.27%	4.21%	4.19%	4.08%	4.19%	4.10%
	6 mos. Avg.	4.17%					
Monthly Avg. Dividend Yield		4.37%	4.29%	4.24%	4.06%	4.17%	4.03%
6-month Avg. Dividend Yield		4.19%					
3-month Avg. Dividend Yield		4.08%					

**COMBINATION UTILITY GROUP
DCF Growth Rate Analysis**

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) <u>Zacks</u>	(4) Yahoo! <u>Finance</u>
1 Alliant Energy Corp.	6.00%	6.00%	6.84%	7.70%
2 Avista Corp.	4.00%	5.00%	6.20%	6.20%
3 Black Hills Corp.	4.00%	4.00%	0.70%	0.70%
4 CMS Energy Corp.	4.00%	5.00%	7.60%	7.60%
5 Consolidated Edison	3.50%	6.00%	7.40%	6.09%
6 Eversource Energy	6.00%	6.00%	5.70%	4.20%
7 MGE Energy, Inc.	3.50%	7.00%	5.40%	5.40%
8 Northwestern Corp.	2.00%	4.00%	4.50%	4.50%
9 WEC Energy Group	7.00%	6.00%	7.90%	7.21%
 Averages	 4.44%	 5.44%	 5.80%	 5.51%
Median	4.00%	6.00%	6.20%	6.09%

Sources: Value Line Investment Survey, June 7, July 17, and August 9, 2024
 Yahoo! Finance and Zacks growth rates retrieved August 3, 2024
 Yahoo! Finance growth rates used for unavailable Zacks growth rates for Avista, Black Hills Corp., MGE Energy, and Northwestern Corp.

**COMBINATION UTILITY GROUP
DCF RETURN ON EQUITY**

	(1) Value Line <u>Dividend Gr.</u>	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earning Gr.</u>	(4) Yahoo! <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
Method 1:					
Dividend Yield	4.19%	4.19%	4.19%	4.19%	4.19%
Average Growth Rate	4.44%	5.44%	5.80%	5.51%	5.30%
Expected Div. Yield	<u>4.29%</u>	<u>4.31%</u>	<u>4.31%</u>	<u>4.31%</u>	<u>4.30%</u>
DCF Return on Equity	8.73%	9.75%	10.11%	9.82%	9.60%
Method 2:					
Dividend Yield	4.19%	4.19%	4.19%	4.19%	4.19%
Median Growth Rate	4.00%	6.00%	6.20%	6.09%	5.57%
Expected Div. Yield	<u>4.28%</u>	<u>4.32%</u>	<u>4.32%</u>	<u>4.32%</u>	<u>4.31%</u>
DCF Return on Equity	8.28%	10.32%	10.52%	10.41%	9.88%

Columbia Gas of Kentucky, Inc.
OAG Recommended Cost of Long-term Debt

Debt Instrument	Maturity <u>Date</u>	Interest <u>Rate</u>	Principal <u>Value</u>	Annual Interest <u>Expense</u>
5.9200% Notes, due January 5, 2026	1/5/26	5.9200%	12,375,000	732,600
6.0200% Notes, due December 16, 2030	12/16/30	6.0200%	10,000,000	602,000
5.7700% Notes, due January 7, 2043	1/7/43	5.7700%	20,000,000	1,154,000
6.2000% Notes, due December 23, 2043	12/23/43	6.2000%	20,000,000	1,240,000
4.4300% Notes, due December 16, 2044	12/16/44	4.4300%	5,000,000	221,500
3.8425% Notes, due September 30, 2046	9/30/46	3.8425%	31,000,000	1,191,175
4.6436% Notes, due December 31, 2048	12/31/48	4.6436%	13,000,000	603,668
3.7485% Notes, due December 31, 2049	12/31/49	3.7485%	15,000,000	562,275
3.1742% Notes, due June 30, 2050	6/30/50	3.1742%	12,000,000	380,904
3.2720% Notes, due June 30, 2051	6/30/51	3.2720%	22,000,000	719,840
3.2770% Notes, due September 30, 2051	9/30/51	3.2770%	22,000,000	720,940
3.2671% Notes, due December 31, 2051	12/31/51	3.2671%	10,000,000	326,710
4.1243% Notes, due March 31, 2052	3/31/52	4.1243%	8,000,000	329,944
5.0808% Notes, due June 30, 2052	6/30/52	5.0808%	18,000,000	914,544
6.2618% Notes, due September 29, 2053	9/29/53	6.2618%	33,000,000	2,066,394
6.2500% Notes, due June 30, 2054	6/30/54	5.9124%	5,000,000	295,620
6.2500% Notes, due September 30, 2054	9/30/54	5.9124%	24,000,000	1,418,976
6.0000% Notes, due March 31, 2055	3/31/55	5.9124%	1,384,615	81,864
6.0000% Notes, due June 30, 2055	6/30/55	5.9124%	<u>6,923,077</u>	<u>409,320</u>
Thirteen Month Average through December 31, 2025			\$288,682,692	\$ 13,972,274
				4.84%

AFFIDAVIT

STATE OF GEORGIA)

COUNTY OF FULTON)

RICHARD A. BAUDINO, being duly sworn, deposes and states: that the attached is his sworn testimony and that the statements contained are true and correct to the best of his knowledge, information and belief.

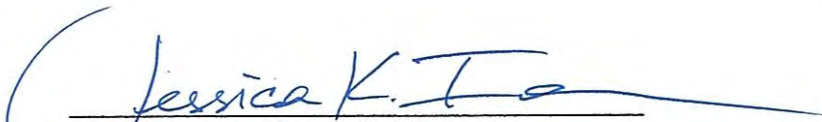


Richard A. Baudino

Sworn to and subscribed before me on this

14th day of August, 2024.

Jessica K Inman
NOTARY PUBLIC
Cherokee County, GEORGIA
My Commission Expires 07/31/2027



Notary Public