COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR: 1) AN ADJUSTMENT OF THE ELECTRIC RATES; 2) APPROVAL OF NEW TARIFFS; 3) APPROVAL OF ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; AND 4) ALL OTHER REQUIRED APPROVALS AND RELIEF	**)**	**CASE NO. 2024-00354**

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

March 5, 2025

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DIRECT TESTIMONY OF RICHARD A. BAUDINO

I. QUALIFICATIONS AND SUMMARY

Q. Please state your name and business address.

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

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

A. I am a consultant with Kennedy and Associates.

Q. Please describe your education and professional experience.

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

I began my professional career with the New Mexico Public Service Commission Staff in October 1982 and was employed there as a Utility Economist. During my employment with the Staff, my responsibilities included the analysis of

a broad range of issues in the ratemaking field. Areas in which I testified included cost of service, rate of return, rate design, revenue requirements, analysis of sale/leasebacks of generating plants, utility finance issues, and generating plant phase-ins.

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

Exhibit RAB-1 summarizes my expert testimony experience.

Q. On whose behalf are you testifying?

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

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony is to address the investor required return on equity ("ROE") for the regulated electric operations of Duke Energy Kentucky, Inc. ("Duke Kentucky" or "Company"). I will also address the Company's cost of long-term debt and its requested capital structure. Finally, I will respond to the Direct Testimony and ROE and cost of capital recommendations of Duke Kentucky witness Mr. Joshua C. Nowak.

Q. Please summarize your conclusions and recommendations.

A. I recommend that the Kentucky Public Service Commission ("Commission" or "KPSC") authorize an allowed ROE for Duke Kentucky's electric operations of 9.65%. My recommended ROE is based on: (1) the results of a discounted cash flow ("DCF") analysis applied to a proxy group of sixteen regulated electric utilities and (2) Capital Asset Pricing Model ("CAPM") analyses using historical and forecasted market risk premiums as well as publicly available estimates of market risk premiums from other sources. My recommendation fully reflects current economic and financial market conditions at the time I prepared my testimony, which I will describe in more detail in Section II. A 9.65% ROE provides a fair return on a low-risk regulated electric utility investment like Duke Kentucky. Section III presents my ROE analyses.

For purposes of this case, I accepted Duke Kentucky's requested cost of long-term debt and capital structure.

In Section IV, I will respond to the testimony and ROE recommendation of Duke Kentucky Witness Nowak. I will demonstrate that his recommended ROE of 10.85%[1] for Duke Kentucky significantly overstates the investor required return for regulated electric utilities. Witness Nowak's recommendation is significantly biased upward and I will explain this in detail in Section IV of my Direct Testimony. Witness Nowak's recommended 10.85% ROE would significantly inflate the Company's revenue requirement, thereby burdening Kentucky ratepayers. The Commission should reject his recommendation.

[1] Direct Testimony of Joshua C. Nowak ("Nowak Testimony") at 4.

II. ROE GUIDELINES AND REVIEW OF ECONOMIC CONDITIONS

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

A. Generally speaking, the estimated cost of equity should be comparable to the returns of other firms with similar risk structures and should be sufficient for the firm to attract capital. These are the basic standards set out by the United States Supreme Court in *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944), and *Bluefield W.W. & Improv. Co. v. Public Service Comm'n*, 262 U.S. 679 (1922).

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

The key determinant in deciding whether to invest, however, is based on comparative levels of risk. Our hypothetical investor would not invest in a regulated electric utility stock like Duke Kentucky if it offered a return lower than other investments of similar risk. The opportunity cost simply would not justify such an investment. Thus, the task for the rate of return analyst is to estimate a

return on equity that is equivalent to that being offered by other risk-comparable firms.

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

A. The following discussion presents my overview of certain key factors in the economy that are important influences on the current investor required ROE. These factors include the current level of interest rates, current levels of inflation, the effects of unemployment and economic growth, and stock market volatility.

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

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

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

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

> Monetary policy in the United States comprises the Federal Reserve's actions and communications to promote maximum employment, stable prices, and moderate long-term interest rates--

the economic goals the Congress has instructed the Federal Reserve to pursue.[2]

One of the Fed's primary tools for conducting monetary policy is setting the federal funds rate. The federal funds rate is the interest rate set by the Fed that banks and credit unions charge each other for overnight loans of reserve balances. Traditionally the federal funds rate directly influences short-term interest rates, such as the Treasury bill rate and interest rates on savings and checking accounts. The federal funds rate has a more indirect effect on long-term interest rates, such as the 30-Year Treasury Bond and private and corporate long-term debt. Long-term interest rates are set more by market forces that influence the supply and demand of loanable funds.

Q. Describe the trend in interest rates over the last 10 years.

A. Until recently, the overall trend in interest rates in the U.S. and the world economy had been lower and this continued into 2020-2021 as governments and central banks, including the Fed, instituted programs in response to the economic shocks brought about by the COVID-19 pandemic. The trend of lower interest rates was precipitated by the 2007 financial crisis and severe recession that followed in December 2007. In response to this economic crisis, the Fed undertook a series of steps to stabilize the economy, ease credit conditions, and lower unemployment and interest rates. These steps are commonly known as Quantitative Easing ("QE") and

[2] Monetary Policy, FED. RESERVE BD., (Feb. 19, 2025), https://www.federalreserve.gov/monetarypolicy.htm.

were implemented in three distinct stages: QE1, QE2, and QE3. The Fed's stated purpose of QE was "to support the liquidity of financial institutions and foster improved conditions in financial markets."[3]

In 2022, however, the Fed began an aggressive policy of raising short-term interest rates in response to concerns about persistently high inflation in the economy, which began to be a significant problem in 2021. After the Fed reduced the federal funds rate to nearly 0% through 2021, it was increased several times in 2022 and 2023, rising to a target range of 5.25% - 5.50%.

As inflation began to ease in 2023 and 2024, the Fed cut the federal funds rate by 50 basis points, or 0.50% on September 18, 2024, to a range of 4.75% to 5.00%, noting progress on reducing inflation toward its goal of 2.0%.[4] The Fed further lowered the federal funds rate on November 7 and again on December 18 of 2024 to its current level of 4.25% - 4.50%. In its most recent press release issued on January 29, 2025, the Fed stated the following:

> Recent indicators suggest that economic activity has continued to expand at a solid pace. The unemployment rate has stabilized at a low level in recent months, and labor market conditions remain solid. Inflation remains somewhat elevated.
>
> The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. The Committee judges that the risks to achieving its employment and inflation goals are roughly in balance. The economic outlook is uncertain, and the Committee is attentive to the risks to both sides of its dual mandate.
>
> In support of its goals, the Committee decided to maintain the target range for the federal funds rate at 4-1/4 to 4-1/2 percent.

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

[4] https://www.federalreserve.gov/monetarypolicy/files/monetary20240918a1.pdf.

> In considering the extent and timing of additional adjustments to the target range for the federal funds rate, the Committee will carefully assess incoming data, the evolving outlook, and the balance of risks.[5]

Figure 1 below presents a graph that tracks the 30-Year Treasury Bond yield and the Mergent average utility bond yield. The graph covers the period from January 2015 through January 2025.

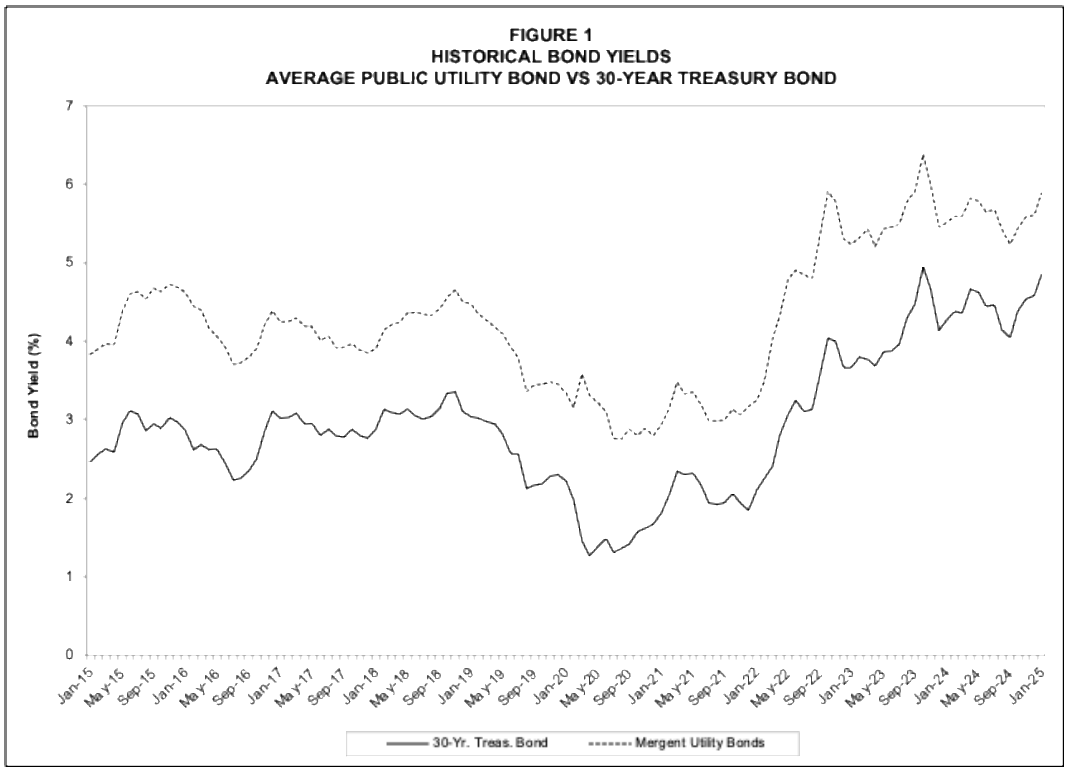

Figure 1 graphically shows the steep increase in long-term bond yields since 2022. The 30-year Treasury Bond yield increased from 2.10% in January 2022 to 4.95% in October 2023, an increase of 2.85%, or 285 basis points. The Mergent

[5] *Federal Reserve issues FOMC statement*, Press Release, FED. RESERVE BD., (January 29, 2025), https://www.federalreserve.gov/newsevents/pressreleases/monetary20250129a.htm.

average public utility bond yield increased during that same period from 3.25% to 6.38%, an increase of 3.25%, or 318 basis points.

Recent long-term bond yields have been mostly lower since October 2023, with the 30-year Treasury Bond yield at 4.58% in December 2024. The Mergent average public utility bond yield was 5.60% in December 2024. Yields ticked up in January 2025, with the 30-Year Treasury yield at 4.85% and the Mergent utility bond yield at 5.89%.

Q. What has been the recent experience with inflation?

A. Figure 2 presents monthly annualized inflation data from January 2021 through January 2025.

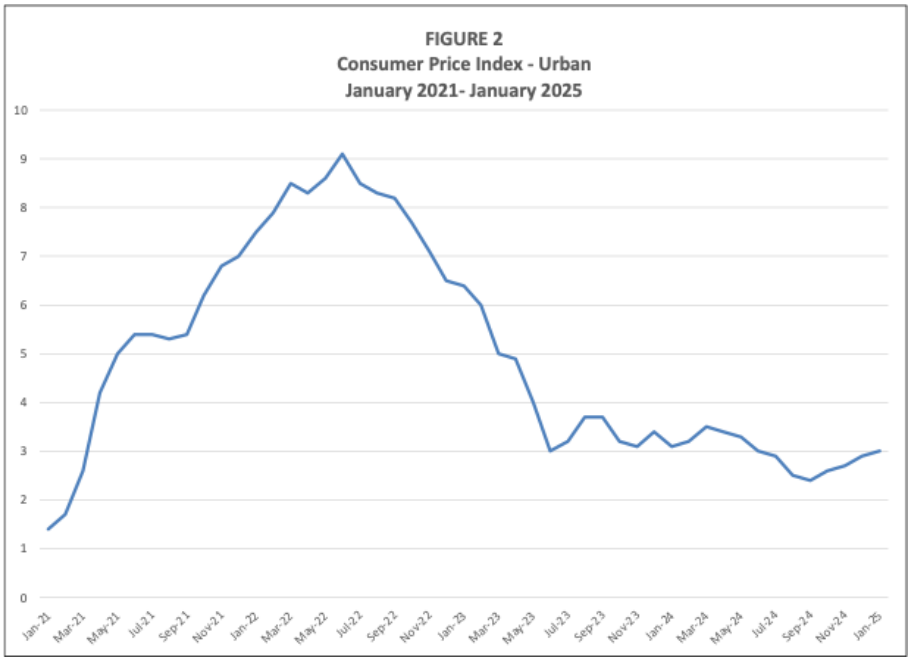

Figure 2 shows that inflation greatly accelerated in 2021, peaked in June 2022 at 9.1%, then declined substantially through June 2023 to 3.0%. Inflation was 3.0% for January 2025.

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

A. The Federal Reserve Bank of Philadelphia publishes the *Livingston Survey* ("Survey"), in which a panel of 24 forecasters provide projections for several economic variables, including growth in Gross Domestic Product ("GDP"), inflation, and unemployment, as well as short-term and long-term interest rates. The most recent edition of the Survey, dated December 20, 2024, provided the following forecasts:

- Consumer Price Index ("CPI") inflation is expected to average 2.3% for 2025, 2026 and 2.28% over the next 10 years.
- 10-Year Treasury Bond yield is forecasted to be 4.0% in 2025 and 2026.
- An unemployment rate of 4.3% is forecasted for 2025.
- Real growth in GDP of 2.1% is forecasted in 2025 and 2026 and 2.05% over the next ten years.[6]

The Fed's economic projections as of December 18, 2024, showed the following median forecasts:

- Personal Consumption Expenditures ("PCE") inflation rate of 2.5% for 2025, 2.1% for 2026, and longer run inflation at 2.0%;
- Unemployment rate of 4.3% for 2025 and 2026, with a longer run unemployment rate of 4.2%; and

[6] *Livingston Survey*, December 20, 2024; https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/livingston-2024-12.

- Growth in real GDP of 2.1% for 2025, 2.0% for 2026 with a longer run growth rate of 1.8%.[7]

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

A. There appears to be a consensus for around 2.0% growth in real GDP in 2025 – 2026 and longer term as well. The U.S. unemployment rate is forecasted to be about 4.2% - 4.3% through 2026. Inflation is forecasted to be 2.5% through 2025 but decline below that level in 2026 and thereafter. Long-term interest rates as measured by the 10-Year Treasury Bond yield are expected to decline slightly over the next couple of years.

Q. Please provide the Commission with some additional background information regarding market volatility since the beginning of 2023.

A. A widely used measure of market volatility is the Chicago Board Options Exchange ("CBOE") Volatility Index ("VIX"), also called the "fear index" or "fear gauge." Basically, the VIX measures the market's expectations for volatility over the next 30-day period. The higher the VIX, the greater the expectation of volatility and market risk. Figure 3 presents the VIX from January 1, 2023 through January 31, 2025.[8]

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[7] Summary of Economic Projections, Federal Reserve Board (December 18, 2024), https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20241218.pdf.

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

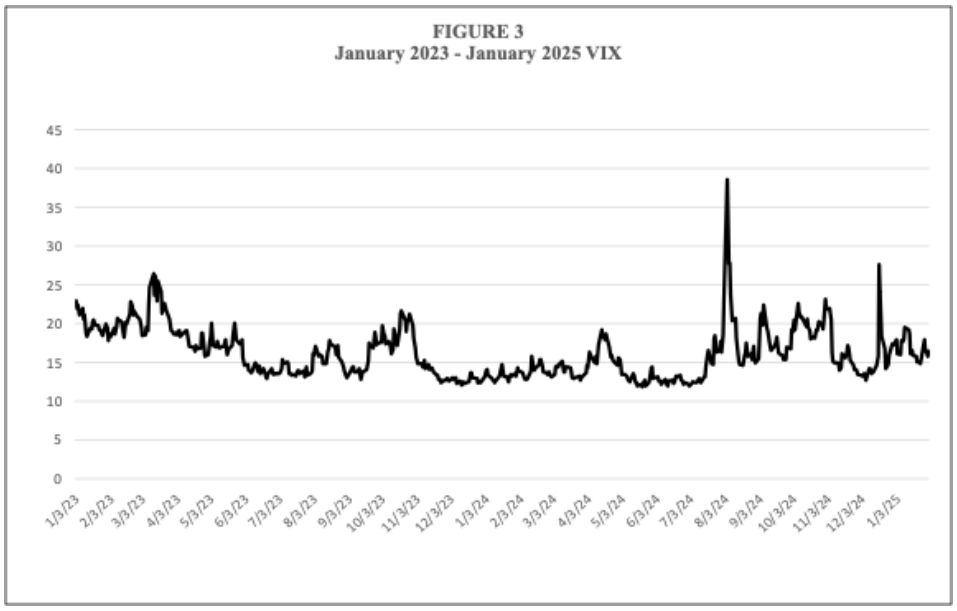
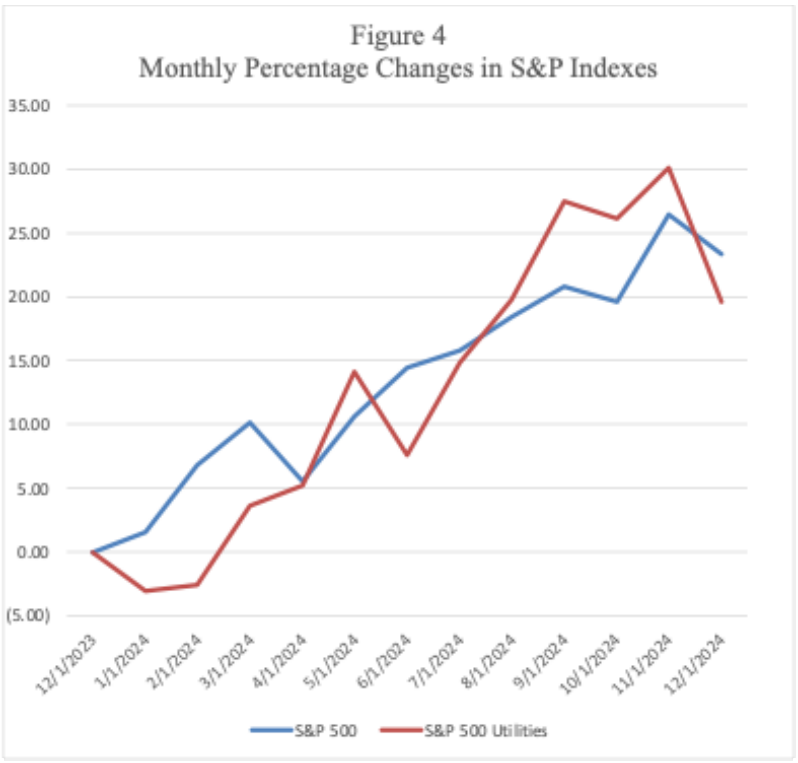


Figure 3 shows the significant increase in market volatility during March 2023, and then again in August, September, and December 2024. The yearly average VIX for 2024 was 15.55. By way of comparison, the average VIX values for 2022 and 2023 were 25.64 and 16.84, respectively. Overall, there was lower stock market volatility on average in 2024 than the last two years.

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

A. Utilities fared well in 2024. For the year 2024, the Standard and Poor's ("S&P") 500 Utilities index rose 19.58%. In comparison, the S&P's 500 index increased 23.3%. Figure 4 below presents the monthly percentage changes in these three indexes in 2024. This data was obtained from S&P Capital IQ.

The robust 2024 returns for the stock market and the S&P 500 Utility Index were all well above the long-run historical average yearly return on the S&P 500, which is about 12%.



Q. Did you review recent commission-allowed ROEs as part of your review of current financial and economic conditions?

A. Yes. Regulatory Research Associates ("RRA") is a group within S&P Global Commodity Insights that compiles and publishes commission-allowed ROEs from across the country. For 2023 and 2024 RRA reported the following[9]:

- For 2023, the average allowed ROE for vertically integrated electric utility cases was 9.80%.
- For 2024, the average allowed ROE for vertically integrated electric utility cases was 9.84%.

[9] *Major energy rate case decisions in the US, January-December 2024*, Feb 4, 2025, Regulatory Research Associates, a group within S&P Global Commodity Insights.

III. DETERMINATION OF FAIR RATE OF RETURN

Q. Please describe the methods you employed in estimating a fair rate of return for the regulated electric utility operations of Duke Kentucky.

A. I employed two methods of estimating the ROE for Duke Kentucky: the Discounted Cash Flow ("DCF") model and the Capital Asset Pricing Model ("CAPM"). I applied these ROE estimation techniques to a group of sixteen electric utility companies that was developed by Company witness Nowak and myself as I will explain later. My DCF analyses are based on the standard constant growth form of the model that employs four different growth rate forecasts from the Value Line Investment Survey, S&P Capital IQ, and Zacks. I also employed Capital Asset Pricing Model ("CAPM") analyses using both historical and forward-looking data as well as sources that provide additional recommendations for the market risk premium portion of the CAPM. The results from the DCF and CAPM support the reasonableness of my ROE recommendation to the Commission.

DCF Model

Q. Please describe the basic DCF approach.

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

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

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

This is no different from determining the value of any asset from an economic point of view; however, the commonly employed DCF model makes certain simplifying assumptions. One is that the stream of income from the equity share is assumed to be perpetual; that is, there is no salvage or residual value at the end of some maturity date (as is the case with a bond). Another important assumption is that financial markets are reasonably efficient; that is, they correctly evaluate the cash flows relative to the appropriate discount rate, thus rendering the stock price efficient relative to other alternatives. Finally, the model I typically employ also assumes a constant growth rate in dividends. The fundamental relationship employed in the DCF method is described by the formula:

$$k = {}^{D_1}/_{P_0} + g$$

Where: *D_1 = the next period dividend*
P_0 = current stock price
g = expected growth rate
k = investor-required return

Using this formula, it is apparent that "k" must reflect the investors' expected return. Use of the DCF method to determine an investor-required return is complicated by the need to express investors' expectations relative to dividends, earnings, and book value over an infinite time horizon. Financial theory suggests that stockholders purchase common stock on the assumption that there will be some change in the rate of dividend payments over time. We assume that the rate of growth in dividends is constant over the assumed time horizon, but the model could

easily handle varying growth rates if we knew what they were. Finally, the relevant time frame is prospective rather than retrospective.

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

A. For purposes of this case, I began with the proxy group of vertically integrated electric utilities that Duke Kentucky Witness Nowak used for his analysis. Witness Nowak described the criteria he used to select companies for his proxy group on pages 24 - 25 of his Direct Testimony. These screening criteria resulted in a 15-member proxy group that is reasonable to use for estimating the ROE for Duke Kentucky.

Mr. Nowak also explained on page 25 of his Direct Testimony that he excluded Duke Energy from his proxy group to avoid "circular logic" in his analysis. I chose to include Duke Energy in the proxy group. Concerns about circular logic would be substantially mitigated by a group with 16 member companies in it. Duke Energy fits the selection criteria specified by Mr. Nowak and it is reasonable to include it in the proxy group.

The 16-member proxy group for purposes of my ROE analyses is:

1. Alliant Energy Corporation
2. Ameren Corporation
3. American Electric Power Company, Inc.
4. Duke Energy Corp.
5. Entergy Corporation
6. Evergy, Inc.
7. IDACORP, Inc.
8. NextEra Energy
9. NorthWestern Energy Group
10. OGE Energy Corporation
11. Pinnacle West Capital Corp.
12. Portland General Electric Company

13. PPL Corporation
14. Southern Company
15. TXNM Energy Inc.
16. Xcel Energy Inc.

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

A. I first determined the current dividend yield, D_0/P_0, from the basic equation. My general practice is to use six months as the most reasonable period over which to estimate the dividend yield. The six-month period I used covered the months from August 1, 2024 through January 31, 2025. I averaged daily stock prices from S&P Capital IQ for 1-month, 2-month, 3-month, and 6-month periods. The current dividend for each company was taken from the January 31, 2025 issue of Value Line's *Summary and Index.*

The resulting average 6-month dividend yield for the proxy group is 3.63%. The dividend yields for the other periods I used are not significantly different from the 6-month yield. These calculations are shown in Exhibit RAB-2.

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

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

For my analysis in this proceeding, I used three major sources of analysts' forecasts for growth: Value Line, S&P Capital IQ, and Zacks.

Q. Please briefly describe Value Line, S&P Capital IQ, and Zacks.

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

Zacks gathers opinions from a variety of analysts on earnings growth forecasts for numerous firms including regulated electric utilities. The estimates of the analysts responding are combined to produce consensus average estimates of earnings growth. I obtained Zacks' earnings growth forecasts from its web site. Like Zacks, S&P Capital IQ also compiles and reports consensus analysts' forecasts of earnings growth.

In the past I used Yahoo! Finance to obtain consensus analysts earnings growth forecasts. However, at the time I prepared my analyses and testimony Yahoo! Finance was not available.

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

A. ROE analysis is a forward-looking process. Five-year or ten-year historical growth rates may not accurately represent investor expectations for future dividend and

earnings growth. Analysts' forecasts for earnings and dividend growth provide better proxies for the expected growth component in the DCF model than historical growth rates. Analysts' forecasts are also widely available to investors and one can reasonably assume that they influence investor expectations.

In this case, I am concerned that the consensus analysts' forecasts may overstate the long-run constant growth rate for the proxy group as a whole. I will discuss this in greater detail in the Conclusions and Recommendations portion of this section.

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

Q. Columns (1) through (4) of Exhibit RAB-3 show the forecasted dividend and earnings growth rates from Value Line and the earnings growth forecasts from S&P Capital IQ and Zacks for the companies in the proxy group. It is important to include dividend growth forecasts in the DCF model since the model calls for forecasted cash flows and Value Line is the only source of which I am aware that forecasts dividend growth.

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

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

Exhibit RAB-3 presents my standard method of calculating dividend yields, growth rates, and ROE for the proxy group. The proxy group DCF ROE section shows the application of each of four growth rates to the current dividend yield of 3.63% to calculate the expected dividend yield. I then added the expected growth rates to the expected dividend yield. My DCF ROE was calculated using two different methods. Method 1 uses the average growth rates for the proxy group and Method 2 utilizes the median growth rates.

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

A. For Method 1 (average growth rates), the results range from 8.62% to 10.61%, with the average of these results being 9.83%. For Method 2 (median growth rates), the results range from 9.23% to 10.45%, with the average of these results being 10.01%.[10]

Capital Asset Pricing Model

Q. Briefly summarize the CAPM approach.

A. The theory underlying the CAPM approach is that investors, through diversified portfolios, may combine assets to minimize the total risk of the portfolio. Diversification allows investors to diversify away all risks specific to a particular company and be left only with market risk that affects all companies. Thus, the CAPM theory identifies two types of risks for a security: company-specific risk and market risk. Company-specific risk includes such events as strikes, management

[10] Refer to Exhibit RAB-3, page 1 for these results.

errors, marketing failures, lawsuits, and other events that are unique to a particular firm. Market risk includes inflation, business cycles, war, variations in interest rates, and changes in consumer confidence. Market risk tends to affect all stocks and cannot be diversified away. The idea behind the CAPM is that diversified investors are rewarded with returns based on market risk.

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

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

$$K = Rf + \beta(MRP)$$

Where: K = *Required Return on equity*
Rf = *Risk-free rate*
MRP = *Market risk premium*
β = *Beta*

This equation tells us about the risk/return relationship posited by the CAPM. Investors are risk averse and will only accept higher risk if they expect to receive higher returns. These returns can be determined in relation to a stock's beta and the market risk premium ("MRP"). The general level of risk aversion in the economy determines the MRP. If the risk-free rate of return is 3.0% and the required return on the total market is 10%, then the market risk premium is 7%. Any stock's risk premium can be determined by multiplying its beta by the MRP. Its total return may then be estimated by adding the risk-free rate to that risk premium. Stocks with betas greater than 1.0 are considered riskier than the overall market and will have higher required returns. Conversely, stocks with betas less than 1.0 will have required returns lower than the market as a whole.

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

A. Yes. There is some controversy surrounding the use of the CAPM and its accuracy regarding expected returns. There is substantial evidence that beta is not the primary factor for determining the risk of a security. For example, Value Line's "Safety Rank" is a measure of total risk, not its calculated beta coefficient. Dr. Burton Malkiel, author of *A Random Walk Down Wall Street* noted the following in his best-selling book on investing:

> Second, as Professor Richard Roll of UCLA has argued, we must keep in mind that it is very difficult (indeed probably impossible) to measure beta with any degree of precision. The S&P 500 Index is not "the market." The total stock market contains many thousands of additional stocks in the United States and thousands more in foreign countries. Moreover, the total market includes bonds, real estate, commodities, and assets of all sorts, including one of the most important assets any of us has - the human capital built up by

> education, work, and life experience. Depending on exactly how you measure "the market" you can obtain very different beta values.[11]

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

> Even though the capital asset pricing model (CAPM) is the most widely used method of estimating the cost of equity capital, the accuracy and predictive power of beta as the sole measure of risk have increasingly come under attack. As a result, alternative measures of risk have been proposed and tested. That is, despite its wide adoption, academics and practitioners alike have questioned the usefulness of CAPM in accurately estimating the cost of equity capital and the use of beta as a reliable measure of risk.[12]

As a practical matter, there is substantial judgment involved in estimating the required market return and MRP. In theory, the CAPM requires an estimate of the return on the total market for investments, including stocks, bonds, real estate, etc. It is nearly impossible for the analyst to estimate such a broad-based return. Often in utility cases, a market return is estimated using the S&P 500. However, as Dr. Malkiel pointed out, this is a limited source of information with respect to estimating the investor's required return for all investments. In practice, the total market return and MRP estimates face limitations to estimation and, ultimately, their usefulness in quantifying the investor required CAPM ROE.

In the final analysis, a considerable amount of judgment must be employed in determining the market return and expected risk premium elements of the CAPM equation. The analyst's application of judgment can significantly influence the

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[11] Burton G. Malkiel, A Random Walk Down Wall Street, 219 (2023 ed.)

[12] Shannon Pratt & Roger Grabowski, Cost of Capital 269 (5th ed 2014).

results obtained from the CAPM. My experience with the CAPM indicates that it is prudent to use a wide variety of data in estimating investor-required returns. Of course, the range of results may also be wide, indicating the challenge in obtaining a reliable estimate from the CAPM.

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

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

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

A. The first source I used was the Value Line *Summary and Index* dated January 31, 2025. The Value Line *Summary and Index* provides data with which one may calculate a DCF estimate on the companies that Value Line follows. Value Line presents a median estimated dividend yield for all dividend paying stocks (2.00%) and the median estimated 3–5-year price appreciation potential of all stocks in the Value Line universe (40%). The estimated 3-5-year appreciation estimate translates into an annualized appreciation number, or growth rate, of 8.78%. I present Value Line's projected annual returns on page 1 of Exhibit RAB-4. The DCF ROE result for the market is 10.78%.

Q. Do you have a concern related to your forward-looking MRP estimate?

A. Yes. The expected growth rate of 8.78% is likely overstated as a long-term constant growth rate for the market. This is because it is substantially higher than the expected nominal growth rate for the Gross Domestic Product of the U.S., which is around 4.0%. I will discuss this concern in greater detail in Section IV where I respond to Mr. Nowak's forward-looking market risk premium.

Q. Please continue with your MRP analysis.

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

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

Q. Please explain how these historical MRPs are calculated.

A. Exhibit RAB-4, page 2, shows the historical arithmetic average MRP over the historical period from 1926 – 2024. The historical MRP is calculated by subtracting

the average annual return for the 20-year Treasury Bond from historical average stock returns, resulting in an historical MRP of 7.31%.

Q. Did you include additional measures of historical risk premiums in this case?

A. Yes. Kroll reported the results of a study by Dr. Roger Ibbotson and Dr. Peng Chen indicating that the historical risk premium of stock returns over long-term government bond returns has been significantly influenced upward by substantial growth in the price/earnings ("P/E") ratio.[13] Kroll noted that this growth in the P/E ratio for stocks was subtracted out of the historical risk premium to arrive at an adjusted "supply side" historical MRP. The most recent "supply side" historical MRP is 6.26%, which I have also included in Exhibit RAB-4, page 2.

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

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

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

[13] *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.

> expansion. This expansion is not predicated to continue on indefinitely and is removed from the expected risk premium.[14]

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

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

Kroll analyzed and calculated the so-called World War II Interest Rate Bias and subtracted it from the supply-side ERP of 6.26%, resulting in an adjusted historical ERP of 5.31%. I also present this historical ERP on page 2 of Exhibit RAB-4.

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

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

[15] Pratt and Grabowski, Cost of Capital, 119 (Wiley, 5th ed.)

> Given how widely the historical risk premium approach is used, it is surprising that the flaws in the approach have not drawn more attention. Consider first the underlying assumption that investors' risk premiums have not changed over time and that the average risk investment (in the market portfolio) has remained stable over the period examined. We would be hard pressed to find anyone who would be willing to sustain this argument with fervor. The obvious fix for this problem, which is to use a more recent time period, runs directly into a second problem, which is the large noise associated with historical risk premium estimates. While these standard errors may be tolerable for very long time periods, they clearly are unacceptably high when shorter periods are used.[16]

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

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

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

First, Kroll provides a recommendation for the MRP for the United States. Its recommended MRP as of February 3, 2025 is 5.00%.[17]

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

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

[17] https://www.kroll.com/en/insights/publications/cost-of-capital/recommended-us-equity-risk-premium-and-corresponding-risk-free-rates.

analyses are the S&P 500, Financial Times Stock Exchange (FTSE), and STOXX 600. As of December 31, 2024, KMPG recommended an MRP of 5.0%.[18]

Third, Dr. Aswath Damodaran provides monthly estimates of the MRP using what he calls an implied risk premium approach. Dr. Damodaran is a professor of finance at the Stern School of Business at New York University and is a researcher on the topic of MRPs, among other things. On February 1, 2025, Dr. Damodaran estimated an MRP in the range of 3.75% - 6.06%, with an average of 4.42%.[19]

Fourth, Pablo Fernandez, Diego Garcia, and Lucia Acin prepared and published a study entitled *Survey: Market Risk Premium and Risk-Free Rate used for 96 countries in 2024.*[20] This is a comprehensive survey of finance and economics professors, analysts, and managers of companies regarding their expectations for the market risk premium and risk-free rate for purposes of calculating the required return on equity in various countries. This survey has been published yearly since 2008. The authors received 1,287 survey responses for the MRP and risk-free rate for the United States. The average and median MRP for 2024 was 5.50%.

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

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

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[18] https://indialogue.io/clients/reports/public/5d9da61986db2894649a7ef2/5d9da63386db2894649a7ef5.

[19] Aswath Damodaran, Damodaran Online (last visited January 4, 2025), https://pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm.

[20] 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.

A. I considered a six-month average of the 30-year Treasury Bond yield from August 2024 through January 2025. These yields are shown in Exhibit RAB-4, page 1. The six-month average 30-Year Treasury Bond yield is 4.42%. This six-month period tracks the six-month period I used for stock prices in my DCF analyses. However, the yield rose significantly from September 2024 (4.04%) to January 2025 (4.85%). Given the sharp rise in yield over the last few months, I have chosen to use the most recent three-month average yield of 4.66% for the risk-free rate in this case.

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

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

- Value Line forward-looking risk premium 6.12%
- Historical risk premium 5.31% - 7.31%
- Kroll 5.00%
- KMPG 5.00%
- IESE Survey 5.50%
- Average Damodaran MRP 4.42%

Q. How did you determine the value for beta?

A. I used two sources in this case. I obtained the betas for the companies in the proxy group from the most recent Value Line reports at the time I prepared my Direct

Testimony and analyses. The average of the Value Line betas for the proxy group is 0.95.[21]

The second source, which is an additional new source for me, is from S&P Capital IQ. S&P publishes 5-year betas for each company in the proxy group. I added this additional source for a more robust estimate of the CAPM. I would note that Mr. Nowak also used two sources for beta in his CAPM analyses. These betas, however, are what is known as "raw betas," which means they are not adjusted for beta's tendency to rise toward the market beta of 1.0 over time. Value Line adjusts its betas for this tendency and an adjusted beta is thought to be superior to the "raw" unadjusted beta for forecasting purposes. In order to adjust the raw S&P Capital IQ betas, I employed a commonly used formula called "the Blume Adjustment" or "the Bloomberg Adjustment." The formula is as follows:

Adjusted beta = (Raw beta * 0.67) + .33

This formula results in upward adjustments to beta values less than 1.0, which is the case for all the electric utility companies in the proxy group. The adjusted betas are shown on page 1 of Exhibit RAB-4. The average adjusted beta for the proxy group is 0.72.

For the CAPM I used the average of the S&P Capital IQ and Value Line betas, which is 0.83.

[21] Refer to Exhibit RAB-4, page 1.

Q. Please summarize the CAPM results.

A. The forward-looking CAPM ROE estimate is 9.75%.[22] Using historical risk premiums, the CAPM results range from 9.08% to 10.75%.[23] For the Kroll, KMPG, IESE Survey, and Damodaran MRPs, the CAPM estimates range from 8.34% to 9.24%.[24]

Conclusions and Recommendations

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

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

[22] *Id*.

[23] *Id*. at page 2.

[24] *Id*. at page 3.

TABLE 1
SUMMARY OF ROE ESTIMATES

DCF Methodology	
Method 1	
- High	10.61%
- Low	8.62%
- Average	9.83%
Method 2	
- High	10.45%
- Low	9.23%
- Average	10.01%
Average of Methods 1 and 2	9.92%
CAPM Methodology	
Forward-lookng Market Return:	9.75%
Historical Risk Premium:	
- Arithmetic Mean	10.75%
- Supply side MRP	9.87%
- Supply side Less WWI Bias	9.08%
IESE MRP Survey	9.24%
KMPG MRP	8.82%
Kroll MRP	8.82%
Damodaran MRP	8.34%
Average CAPM Results	9.33%
Midpoint of DCF and CAPM	9.63%

Q. What is your recommended ROE for Duke Kentucky?

A. I recommend that the Commission adopt an ROE of 9.65% for Duke Kentucky. This recommendation is consistent with the midpoint between the average DCF and CAPM ROE results as shown in Table 1.

Q. Earlier in your testimony you expressed a concern regarding the increase in the consensus analysts' earnings growth forecasts for your DCF model. Please explain your concern in this regard.

A. In this case, the average of consensus analysts' earnings growth rates of 6.83% to 6.86% shown in my Exhibit RAB-3 are significantly higher than the long-term

growth rate of the overall economy as measured by growth in the GDP. For a mature, steady-state industry such as electric utilities, it is highly unlikely that earnings growth significantly above GDP growth can be maintained indefinitely as the constant growth DCF model assumes. In other words, electric utilities cannot outgrow the GDP over the long run. Using these consensus forecasts alone would overstate the DCF ROE in this case.

As support for this, in *Fundamentals of Financial Management,* Brigham and Houston note the following:

> Second, the constant growth model as expressed in Equation 9.2 is not appropriate unless a company's growth rate is expected to remain constant in the future. This condition almost never holds for new start-up firms, but is does exist for many mature companies. Indeed, mature firms such as Keller, Allied, and GE are generally expected to grow at about the same rate as nominal gross domestic product (i.e., real gross domestic product [GDP] plus inflation).[25]

Pratt and Grabowski also cautioned as follows:

> It is theoretically impossible for the sustainable perpetual growth rate for a company to significantly exceed the growth rate in the economy. Any rate over a 6% to 7% perpetual growth rate should be questioned carefully.[26]

Regarding forecasts of GDP, projections that I referenced in Section II of my testimony show significantly lower forecasted GDP growth than the analysts' forecasts. For example, the Fed projections called for longer-run real GDP growth of 1.8% and PCE inflation of 2.0%. This translates into forecasted nominal GDP

[25] Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management, 333-334, Eleventh Edition (2022, 2020 Cengage Learning, Inc.)

[26] Shannon Pratt and Roger Grabowski, Cost of Capital 461 (Wiley, 5th ed.)

growth of 3.80% per year. The Congressional Budget Office also projects growth in real GDP through 2034 of 1.80% and CPI inflation of 2.0%.[27] If we assume forecasted long-run nominal GDP growth of around 4.0%, then forecasted earnings growth rates near 7% for the electric utility industry simply cannot be sustained in perpetuity.

Q. How do the S&P Capital IQ and Zacks growth rates compare to historical earnings and dividend growth for the proxy group?

A. Table 2 below presents Value Line's 5-year and 10-year historical earnings and dividend growth for the proxy group.

TABLE 2
Proxy Group Historical Earnings and Dividend Growth

	Earnings Growth		Dividend Growth	
	5-Year	10-Year	5-Year	10-Year
Alliant Energy Corporation	7.0%	6.0%	6.5%	6.5%
Ameren Corporation	8.0%	4.0%	5.0%	3.5%
American Electric Power Company	4.0%	5.0%	5.0%	5.0%
Duke Energy	3.0%	3.0%	2.0%	2.5%
Entergy Corporation	5.5%	2.5%	3.0%	2.0%
Evergy, Inc.	N/A	N/A	N/A	N/A
IDACORP, Inc.	3.5%	4.0%	6.5%	8.0%
NextEra Energy, Inc.	12.5%	9.5%	11.5%	11.0%
NorthWestern Energy Group	N/A	3.5%	3.5%	5.5%
OGE Energy Corporation	4.5%	3.0%	6.5%	7.5%
Pinnacle West Capital Corporation	2.0%	3.5%	5.0%	4.0%
TXNM Energy, Inc.	8.0%	7.5%	7.0%	9.0%
Portland General Electric Company	3.0%	3.5%	6.0%	5.0%
PPL Corporation	-17.0%	-9.0%	-4.5%	-1.0%
Southern Company	3.0%	3.0%	3.5%	3.5%
Xcel Energy Inc.	6.5%	5.5%	6.5%	6.0%
Average Excluding Negative Values	5.4%	4.5%	5.5%	5.6%
Median	4.3%	3.5%	5.0%	5.0%

Source: Value Line Investment Survey

[27] Congressional Budget Office, *An Update to The Budget and Economic Outlook: 2024 - 2034*, June 2024. https://www.cbo.gov/publication/60419.

Historical earnings growth ranges from 3.5% to 5.4%. Historical dividend growth ranges from 5.0% to 5.6%. Historical growth rates are all significantly lower than the average consensus earnings growth forecasts in this case.

Q. How does your recommended ROE of 9.65% balance the DCF and CAPM analyses you performed?

A. My recommendation still includes the DCF results using consensus analysts' forecasts, but tempers them with the results from the CAPM, which suggest mostly lower required ROEs at this time. The midpoint of the average DCF and CAPM results represents a reasonable balance of all the results from these two models.

Q. Did you review the Company's requested cost of long-term debt?

A. Yes. Duke Kentucky requested a long-term debt cost of 4.929%. Company witness Thomas Heath discussed Duke Kentucky's cost of long-term debt on pages 19 – 20 of his Direct Testimony. Mr. Heath noted that for the forecast period ending June 2026, the Company included forecasted long-term debt issues for September 2025 and May 2026. According to Schedule J-3, the interest rates for these issues are 5.60% and 5.70%, respectively. These forecasted rates compare favorably to the current Mergent long-term bond yields for utilities and I do not oppose their inclusion in the Company's cost of capital at this time.

Q. Did you review Duke Kentucky's requested capital structure?

A. Yes. The Company's proposed capital structure for the 2026 forecast period includes a common equity ratio of 52.728%. This number was adjusted downward from the base period common equity ratio of 54.50%. The Company's requested

common equity ratio is slightly higher than the Commission allowed in Case No. 2022-00372, which was 51.344%. For purposes of this case, I do not oppose Duke Kentucky's requested capital structure.

IV. RESPONSE TO DUKE KENTUCKY ROE TESTIMONY

Q. Please summarize your conclusion with respect to Witness Nowak's ROE recommendation.

A. Witness Nowak's recommended 10.85% ROE for Duke Kentucky is overstated and should be rejected by the Commission. A 10.85% ROE is inconsistent with current financial market evidence that I reviewed and is significantly above recent commission allowed ROEs. Although Witness Nowak's DCF results are fairly similar to mine, his approach to the CAPM contains serious defects, which I will describe later in this section. In addition, his use of the CAPM, Risk Premium Model, and the Expected Earnings model provided additional sources for his inflated 10.85% ROE recommendation. I will address these models in more detail later.

Q. How did Witness Nowak develop his recommended ROE range for Duke Kentucky?

A. Witness Nowak considered four different models to develop his ROE recommendation for Duke Kentucky. These models are: the DCF model, the CAPM, the Risk Premium model, and the Expected Earnings model. As shown in Witness Nowak's Attachment JCN-2, the average results from his DCF, CAPM, and Risk Premium, models range from 10.23% to 12.82%. Mr. Nowak termed his Expected Earnings analyses as a "benchmark," with the results ranging from

10.27% to 10.86%.[28] From these results, Witness Nowak concluded that a reasonable ROE range to be 10.25% to 11.25%. From this range and based on his evaluation of Duke Kentucky's risk profile, Witness Nowak recommended and ROE of 10.85%.

DCF Analyses

Q. Please comment on Witness Nowak' DCF analyses.

A. Witness Nowak presented the results of his DCF analysis in Attachment JCN-4. The mean, or average, results ranged from 10.23% to 10.62%. With respect to stock prices, Witness Nowak used 30-day, 90-day, and 180-day average prices. Witness Nowak utilized earnings growth rates from Value Line, Yahoo! Finance, and Zacks to develop his DCF ROE estimates.

Witness Nowak also should have considered Value Line's dividend growth forecast as I did. I agree with Witness Nowak' statement on pages 31 - 32 of his Direct Testimony that academic studies suggest investors base their investment decisions primarily on analysts' expectations of earnings growth. However, with dividend payments being such a significant portion of the total return to utility shareholders and with Value Line being a trusted source of information to investors, forecasted dividend growth must also be considered. Including forecasted dividend growth from Value Line is especially important at this time given the concerns regarding consensus analysts' forecasts that I described in Section III. Value Line's

[28] Nowak Testimony at 40 – 41.

forecasted dividend growth projections are more in line with the proxy group's historical earnings and dividend growth and with expected growth in GDP. Excluding forecasted dividend growth led to an overstatement of Mr. Nowak's DCF results.

Q. Were the Yahoo! Finance and Zacks growth rates used by Mr. Nowak similar to the S&P Capital IQ and updated Zacks growth rates you used in your DCF analyses?

A. Yes. The average growth rate forecasts used by Mr. Nowak for Yahoo! Finance and Zacks were both 7.04%. Thus, the concerns I described in the Conclusions and Recommendations portion of my testimony regarding the analysts' forecasts also apply to the forecasts used by Mr. Nowak.

CAPM Analysis

Q. Please summarize Witness Nowak's CAPM analysis.

A. Witness Nowak's CAPM discussion begins on page 33 of his Direct Testimony. Witness Nowak testified on page 35 that his CAPM approach rests primarily on the CAPM approach utilized at the Federal Energy Regulatory Commission ("FERC"). This approach calculates the MRP component of the CAPM by using the Constant Growth DCF to estimate the capitalization weighted total market return for the S&P 500 index. Witness Nowak relied on dividend yields as of October 31, 2024, as reported by Bloomberg and projected earnings per share growth rates from Value Line for the companies in the S&P 500. Using all companies in the S&P 500 resulted in an expected market return of 15.07%. Witness Nowak also applied

FERC's convention to consider only a subset of S&P 500 companies with growth rates between 0% and 20%. This resulted in an expected market return of 11.41%.

Witness Nowak chose betas for his proxy group companies from Value Line and Bloomberg. The average beta from Value Line was 0.95 and from Bloomberg was 0.80.

With respect to the risk-free rate, Witness Nowak used three sources: (1) the current 30-day average yield on 30-year U.S. Treasury Bonds (4.30%); (2) the projected 30-year U.S. Treasury Bond yield for Q1 2025 through Q1 2026 (4.20%); and (3) the projected 30-year U.S. Treasury Bond yield for 2026 through 2030 (4.30%).

Witness Nowak summarized the results of his CAPM analyses in Figure 8 on page 36 of his Direct Testimony. The results range from 11.39% to 12.82%.

Q. Before you further analyze Witness Nowak's approach to the CAPM, please comment on the range of ROE results he presented.

A. Witness Nowak' CAPM results are so grossly overstated for a regulated electric utility like Duke Kentucky that they should be rejected out of hand by the Commission.

Q. What is the primary source of Witness Nowak's overstated CAPM results?

A. The main problem with Witness Nowak's CAPM analysis is his sole reliance on a forward-looking market return for the S&P 500. His projected market returns are overstated due to reliance on Value Line 3 – 5-year projected growth rates that are unsustainable in the long run. These unsustainably high market earnings growth forecasts translate directly to overstated expected MRPs that he used in his CAPM

analyses. As I stated earlier, these overstated expected market returns range from 11.41% - 15.07%, with expected long-run growth rates ranging from 9.81% - 13.63%.

These 3 – 5-year projected growth rates from Value Line are unsustainably high in that they vastly exceed both the historical capital appreciation for the S&P 500 as well as historical and projected GDP growth rates. Kroll's historical analysis shows that the arithmetic average capital appreciation for the S&P 500 was 7.9% for the historical period 1926 to 2022.[29] Geometric, or compound growth was 6.1%. This historical experience stands in stark contrast to forecasted growth rates of 9.81% and 13.63% for the S&P 500 using Value Line data that Witness Nowak employed in his CAPM. I note that the forward-looking market growth rate I used in my CAPM analysis, 8.78%, is also high and likely overstates the CAPM ROE.

Witness Nowak's unsustainable earnings growth forecasts are not supportable when one further considers both historical and forecasted GDP growth for the U.S. Based on data from the Bureau of Economic Analysis, U.S. Department of Commerce, I calculated that the compound yearly growth rate for U.S. GDP from 1929 - 2023 was 6.1%. It is noteworthy that this growth matched the historical compound growth rate for capital appreciation for the S&P 500 of 6.1% from Kroll.

Regarding forecasts, projections that I referenced in Sections II and III of my testimony show much lower forecasted GDP growth than the historical average

[29] *Summary Statistics of Annual Total Returns, Income Returns, and Capital Appreciation Returns of Basic U.S. Asset Classes*, 1926 - 2022, Cost of Capital Navigator: U.S. Cost of Capital Module.

I calculated. These forecasts support expected GDP growth around 4.0%, which is lower than the historical growth rate. This underscores how excessive the market growth rates are that Mr. Nowak used in his CAPM analyses.

I cited sources in the Conclusions and Recommendations portion of Section III that caution against using growth rates in the constant growth DCF model that exceed long-run growth in the economy. In addition, Pratt and Grabowski noted the following with respect to growth rates that significantly exceed growth in GDP:

> The growth rate assumed in calculating the terminal value is a compound growth rate *in perpetuity*, which is a very long time. At a growth rate of 20% compounded annually, the company's revenues would soon exceed the gross domestic product (GDP) of the United States and eventually that of the world. Long-term growth rates exceeding the real growth in GDP plus inflation are generally not sustainable. Most analysts use more conservative growth rates in calculating the terminal value. Generally, the long-term growth rate only applies to the existing enterprise or core business net cash flows, consistent with the net cash flow projections in the discounted cash flow method . . . .[30]

Since the constant growth DCF requires a sustainable long-run growth rate, Witness Nowak's inflated projected market return and MRP estimates shown on Attachment JCN-6 are erroneous and should be rejected. Specifically, the inflated MRPs range from 7.11% to 10.87%.

Q. Did Witness Nowak consider the MRPs from sources that you presented in your testimony?

A. No. Mr. Nowak's CAPM analyses are bereft of any additional information or analyses that strongly suggest his approach to estimating the MRP is overstated.

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[30] Shannon Pratt and Roger Grabowski, Cost of Capital 1195 (Wiley, 5th ed.)

His approach incorrectly assumes that investors would only use the approach he used to evaluate the return on the overall market and the resulting MRP. In fact, there is substantial information available that shows much lower and more plausible estimates of the MRP that could be considered by investors.

Finally, I note that in the authoritative corporate finance textbook by Brealey, Myers, Allen and Edmans, the authors stated: "We have no official position on the issue, but we believe that a range of 5 to 8 percent is reasonable for the risk premium in the United States."[31]

Risk Premium Analyses

Q. Before you address the specifics of Witness Nowak's risk premium ("RP") analyses, do you have any general comments regarding the risk premium method of estimating the investor required ROE for regulated utilities?

A. Yes. The bond yield plus risk premium approach is imprecise and can only provide very general guidance on the current authorized ROE for regulated utilities. Historical risk premiums can change substantially over time based on investor preferences and market conditions. As such, this approach is a "blunt instrument," if you will, for estimating the ROE in regulated proceedings. In my view, a properly formulated DCF model using current stock prices and growth forecasts is far more reliable and accurate than the bond yield plus risk premium model that relies on an historical analysis of risk premiums. Using historical RPs assumes that the past

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

will look like the future, an assumption that may not hold in present day financial markets.

Q. Summarize and describe Witness Nowak's approach to estimating the expected risk premium ROE.

A. Witness Nowak developed a historical risk premium using commission-allowed returns for vertically integrated utility companies from 1992 through October 31, 2024. He used regression analysis to estimate the value of the inverse relationship between the yield on the 30-Year Treasury Bond and risk premiums during that period. Witness Nowak used three different 30-Year Treasury Bond yields: the current 30-day average, near-term Blue Chip consensus forecast for Q1 2025 – Q1 2026, and a Blue Chip consensus forecast for 2026–2030. On page 39 of his Direct Testimony, Figure 10 presents his risk premium ROE results, which range from 10.41% to 10.46%.

Q. Please respond to Witness Nowak's allowed risk premium analysis.

A. This approach suggests that the Commission should base its ROE determination for Duke Kentucky on the ROE determinations of commissions in other states over a long period of time. Instead, I recommend that the Commission place little weight on this approach and base its decision on a review of the analyses presented in this case to make its determination of a just and reasonable ROE for Duke Kentucky.

Q. Does Mr. Nowak's Risk Premium accurately track commission-allowed ROEs for vertically integrated electric utilities in 2024?

A. No. Using the data in Mr. Nowak's spreadsheet for Attachment JCN-7, I calculated that the average 30-Year Treasury Bond yield through October 2024 was 4.38%,

slightly higher than the 4.20% to 4.30% yields he used in his analysis. The average commission-allowed ROE through October 2024 was 9.89%. Using a 4.30% 30-Year Treasury yield, Mr. Nowak's risk premium ROE was 10.46%, which is 0.57%, or 57 basis points higher than the actual average commission-allowed ROE for 2024.

Expected Earnings Analysis

Q. Summarize Mr. Nowak's expected earnings analysis approach to estimating the allowed ROE for Duke Kentucky.

A. Witness Nowak testified that his expected earnings analysis relied on Value Line's forecasted returns for the companies in his proxy group for the period 2027 to 2029. Witness Nowak adjusted these forecasted ROEs to, in his view, "account for the fact that the ROEs reported by Value Line are calculated on the basis of common shares outstanding at the end of the period, as opposed to average shares outstanding over the entire period."[32] The resulting ROE range was 10.27% to 10.86%.

Q. Please respond to Witness Nowak's proposed expected earnings analysis.

A. Forecasted book returns from Value Line will not be as reliable or as accurate as a properly specified DCF analysis using current stock prices. Through current stock prices, investors reveal their return requirements through what they are willing to

[32] *See* Nowak Testimony at 40.

pay in the marketplace for the stocks of regulated electric utilities. Using Value Line's projected book returns for a time period several years into the future is highly speculative and I recommend that the Commission give this approach no weight.

In addition, Witness Nowak overstated the forecasted returns from Value Line by making an adjustment to the average shares outstanding over the 2027 to 2029 time period. It should be kept in mind that the three-year forecasted period already represents an average of shares and ROEs over the period, making Witness Nowak's share adjustment both unnecessary and incorrect. Further, it is highly unlikely that an investor using Value Line's data would make the adjustment to each utility's forecasted common shares outstanding that Witness Nowak proposed in order to calculate a projected ROE for the 2027 to 2029 time period. Subtracting out Witness Nowak's adjustment results in an average forecasted ROE over the 2027 to 2029 period of 10.60% and a median ROE of 10.0%.

Consideration of Specific Risk Factors

Q. On page 43, lines 3 through 6 of his Direct Testimony Witness Nowak stated that his ROE recommendation did not include either a downward or upward adjustment for risk factors specific to Duke Kentucky. Do you agree with this position based on your review of Duke Kentucky relative to the proxy group?

A. Yes. My review also suggests that the Commission need not adjust its ROE for risk factors specific to Duke Kentucky. It is reasonable to use the results of my DCF and CAPM analyses to estimate the investor required ROE for Duke Kentucky based on the proxy group with no additional adjustments.

Q. Does this complete your Direct Testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR: 1) AN ADJUSTMENT OF THE ELECTRIC RATES; 2) APPROVAL OF NEW TARIFFS; 3) APPROVAL OF ACCOUNTING PRACTICES TO ESTABLISH REGULATORY ASSETS AND LIABILITIES; AND 4) ALL OTHER REQUIRED APPROVALS AND RELIEF	**)**	**CASE NO. 2024-00354**

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

March 5, 2025

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

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2025

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	Jornada 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 March 2025

Date	Case	Jurisdict.	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 March 2025

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 March 2025

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
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As of March 2025

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	SWEPCO, 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 March 2025

Date	Case	Jurisdict.	Party	Utility	Subject
10/99	R-00994782	PA	Peoples Industrial Intervenors	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenors	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 March 2025

Date	Case	Jurisdict.	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 March 2025

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	WV	West Virginia Energy Users Group	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 March 2025

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 March 2025

Date	Case	Jurisdict.	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
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Richard A. Baudino
As of March 2025

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
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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
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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
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Date	Case	Jurisdict.	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

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Date	Case	Jurisdict.	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

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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

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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
09/2024	R-2024-3047822 R-2024-3047824		Aqua Large Users Group	Aqua Pennsylvania, Inc.	Revenue allocation
01/2025	2024-00276		Kentucky Office of the Attorney General	Atmos Energy Corp.	Return on equity, capital structure
02/2025	2024-00346		Kentucky Office of the Attorney General	Delta Natural Gas Co.	Return on equity, capital structure

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Date	Case	Jurisdict.	Party	Utility	Subject
03/25	2024-00354	KY	Kentucky Office of the Attorney General	Duke Energy Kentucky, Inc.	Cost of equity, capital structure, cost of debt

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

Company Name	Average Price				Current Dividend	Dividend Yield			
	1-month	2-month	3-month	6-month		1-month	2-month	3-month	6-month
Alliant Energy Corporation	58.67	59.42	59.80	59.45	1.92	3.27%	3.23%	3.21%	3.23%
Ameren Corporation	91.64	90.93	90.99	87.74	2.68	2.92%	2.95%	2.95%	3.05%
American Electric Power Company	95.84	94.74	95.46	97.85	3.72	3.88%	3.93%	3.90%	3.80%
Duke Energy	108.91	109.34	110.75	113.00	4.18	3.84%	3.82%	3.77%	3.70%
Entergy Corporation	79.08	77.10	76.33	69.60	2.40	3.03%	3.11%	3.14%	3.45%
Evergy, Inc.	62.32	62.17	62.48	61.27	2.67	4.28%	4.29%	4.27%	4.36%
IDACORP, Inc.	108.75	110.55	112.20	107.28	3.44	3.16%	3.11%	3.07%	3.21%
NextEra Energy, Inc.	70.46	71.94	73.46	77.56	2.06	2.92%	2.86%	2.80%	2.66%
NorthWestern Energy Group	53.30	53.04	53.65	54.20	2.60	4.88%	4.90%	4.85%	4.80%
OGE Energy Corporation	41.76	41.79	42.11	41.05	1.67	4.01%	4.00%	3.97%	4.07%
Pinnacle West Capital Corporation	85.13	86.45	87.97	87.90	3.58	4.21%	4.14%	4.07%	4.07%
TXNM Energy, Inc.	47.71	48.24	47.63	44.87	1.55	3.25%	3.21%	3.25%	3.45%
Portland General Electric Company	41.74	43.34	44.55	46.11	2.00	4.79%	4.61%	4.49%	4.34%
PPL Corporation	32.61	32.72	33.01	32.48	1.03	3.16%	3.15%	3.13%	3.18%
Southern Company	82.98	83.35	84.93	87.08	2.88	3.47%	3.46%	3.39%	3.31%
Xcel Energy Inc.	66.08	67.36	67.97	65.11	2.19	3.31%	3.25%	3.22%	3.36%
Proxy Group Average						3.65%	3.63%	3.59%	3.63%

Sources: Current dividend reported by the Value Line Investment Survey, Summary and Index, January 31, 2025
Closing daily stock prices from S&P Capital IQ, August 1, 2024 through January 31, 2025

PROXY GROUP
DCF Growth Rate Analysis

	Company	(1) Value Line DPS	(2) Value Line EPS	(3) S&P IQ EPS	(4) Zacks EPS
1	Alliant Energy Corporation	6.00%	6.00%	6.91%	6.80%
2	Ameren Corporation	6.50%	6.50%	6.56%	6.60%
3	American Electric Power Company	5.50%	6.50%	6.44%	6.00%
4	Duke Energy	3.50%	6.00%	6.53%	6.40%
5	Entergy Corporation	3.50%	0.50%	8.70%	8.40%
6	Evergy, Inc.	7.00%	7.50%	5.79%	5.90%
7	IDACORP, Inc.	5.50%	6.00%	7.00%	8.40%
8	NextEra Energy, Inc.	9.50%	8.50%	8.29%	7.80%
9	NorthWestern Energy Group	1.50%	4.50%	5.63%	6.10%
10	OGE Energy Corporation	3.00%	6.50%	6.01%	5.90%
11	Pinnacle West Capital Corporation	1.50%	4.00%	6.30%	5.60%
12	TXNM Energy, Inc.	5.50%	4.00%	5.12%	3.00%
13	Portland General Electric Company	5.50%	5.50%	8.52%	12.30%
14	PPL Corporation	-0.50%	7.50%	7.20%	6.80%
15	Southern Company	3.50%	6.50%	6.67%	6.80%
16	Xcel Energy Inc.	6.00%	6.50%	7.54%	6.90%
	Averages excluding negavites	4.90%	5.78%	6.83%	6.86%
	Median	5.50%	6.25%	6.62%	6.70%

Sources: **Value Line Investment Survey, December 6, 2024; January 17 and February 7, 2025**
S&P Capital IQ and Zacks estimates accessed January 30, 2025

PROXY GROUP
DCF RETURN ON EQUITY

	(1) Value Line Dividend Gr.	(2) Value Line Earnings Gr.	(3) S&P IQ EPS	(4) Zacks EPS	(5) Average of All Gr. Rates
Method 1:					
Dividend Yield	3.63%	3.63%	3.63%	3.63%	3.63%
Proxy Group Average Growth Rate	4.90%	5.78%	6.83%	6.86%	6.09%
Expected Dividend Yield	3.72%	3.73%	3.75%	3.75%	3.74%
DCF Return on Equity	***8.62%***	***9.51%***	***10.58%***	***10.61%***	***9.83%***
Method 2:					
Dividend Yield	3.63%	3.63%	3.63%	3.63%	3.63%
Proxy Group Median Growth Rate	5.50%	6.25%	6.62%	6.70%	6.27%
Expected Dividend Yield	3.73%	3.74%	3.75%	3.75%	3.74%
DCF Return on Equity	***9.23%***	***9.99%***	***10.37%***	***10.45%***	***10.01%***

PROXY GROUP
Capital Asset Pricing Model Analysis

Value Line Forward-Looking MRP

Line No.		Value Line
1	Market Required Return Estimate	10.78%
2	Risk-free Rate of Return, 30-Year Treasury Bond	4.66%
3	Risk Premium	
4	(Line 1 minus Line 2)	6.12%
5	Proxy Group Beta	0.83
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	5.10%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	9.75%

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

	Avg. Yield
Aug-24	4.15%
Sep-24	4.04%
Oct-24	4.38%
Nov-24	4.54%
Dec-24	4.58%
Jan-25	4.85%
6 month average	4.42%
3 month average	4.66%

Source: Federal Reserve data

Value Line Projected Return Data:

Median Estimated Div. Yield	2.00%
3 - 5 Year Price Appreciation	40.00%
Estimated Annualized Price Appreciation	8.78%
Est. Annual Total Return	10.78%

Source: Value Line Summary and Index, January 31, 2025

Proxy Group Betas:

	Adjusted S&P IQ	Value Line
Alliant Energy Corporation	0.73	0.90
Ameren Corporation	0.66	0.90
American Electric Power Company	0.70	0.85
Duke Energy	0.65	0.90
Entergy Corporation	0.80	1.00
Evergy, Inc.	0.75	0.95
IDACORP, Inc.	0.77	0.85
NextEra Energy, Inc.	0.71	1.05
NorthWestern Energy Group	0.67	1.00
OGE Energy Corporation	0.84	1.05
Pinnacle West Capital Corporation	0.71	0.95
TXNM Energy, Inc.	0.60	0.90
Portland General Electric Company	0.75	0.95
PPL Corporation	0.90	1.10
Southern Company	0.67	0.95
Xcel Energy Inc.	0.62	0.85
Average	0.72	0.95
Average of S&P IQ and Value Line		0.83

Sources: Value Line Investment Survey, S&P Capital IQ

PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	Arithmetic Mean	Supply Side ERP	Supply Side Less WWII Bias
Historical Market Risk Premium	7.31%	6.26%	5.31%
Proxy Group Beta	0.83	0.83	0.83
Beta * Market Premium	6.09%	5.21%	4.42%
Risk-free Rate of Return	4.66%	4.66%	4.66%
CAPM Cost of Equity, Value Line Beta	**10.75%**	**9.87%**	**9.08%**

Source: Kroll Cost of Capital Navigator, historical period 1926 - 2024

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

	IESE Survey 2024	KMPG	Kroll	Damodaran Average MRP
Market Risk Premium	5.50%	5.00%	5.00%	4.42%
Proxy Group Beta	0.83	0.83	0.83	0.83
Beta times MRP	4.58%	4.16%	4.16%	3.68%
Risk-free Rate of Return	4.66%	4.66%	4.66%	4.66%
CAPM Cost of Equity	**9.24%**	**8.82%**	**8.82%**	**8.34%**

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
5th day of March 2025.

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

Notary Public