COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF WATER SERVICE CORPORATION OF KENTUCKY FOR A GENERAL ADJUSTMENT IN EXISTING RATES AND A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE	**)**	**CASE NO. 2022-00147**

DIRECT TESTIMONY

AND EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF THE

OFFICE OF THE ATTORNEY GENERAL OF THE COMMONWEALTH OF KENTUCKY
&
THE CITY OF CLINTON

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

October 13, 2022

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

ELECTRONIC APPLICATION OF WATER SERVICE CORPORATION OF KENTUCKY FOR A GENERAL ADJUSTMENT IN EXISTING RATES AND A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE	)))))))	**CASE NO. 2022-00147**

TABLE OF CONTENTS

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF WATER SERVICE CORPORATION OF KENTUCKY FOR A GENERAL ADJUSTMENT IN EXISTING RATES AND A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE	**)**	**CASE NO. 2022-00147**

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 ("AG"), and the city of Clinton.

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 water operations of Water Service Corporation of Kentucky ("Water Service Kentucky" or "Company"). I will also respond to the

Direct Testimony and ROE recommendation of Water Service Kentucky witness Mr. Dylan D'Ascendis.

Q. Please summarize your conclusions and recommendations.

A. I recommend that the Kentucky Public Service Commission ("Commission") authorize an allowed ROE for Water Service Kentucky of 9.25%. My recommendation is based on an ROE range of 9.00% to 9.50%. My recommended range is based on the results of a discounted cash flow ("DCF") analysis applied to a proxy group of six regulated water distribution companies. I also performed Capital Asset Pricing Model ("CAPM") analyses using both historical and forecasted risk premiums. The CAPM results are generally lower than my DCF results in this case, which further confirms the reasonableness of my DCF estimates and my recommended ROE. My recommendation fully reflects current economic and financial market conditions, which I will describe in more detail in Section II of my Direct Testimony. A 9.25% ROE provides a fair return to investors on a low-risk regulated water utility investment such as Water Service Kentucky.

In Section IV, I will respond to the testimony and ROE recommendation of Water Service Kentucky witness Mr. D'Ascendis. I will demonstrate that his recommended ROE of 10.60% for Water Service Kentucky significantly overstates the investor required return for lower risk regulated water utilities. Mr. D'Ascendis' recommendation is significantly biased upward by CAPM and risk premium ROE analyses that are unreasonably high. Mr. D'Ascendis' recommended 10.60% ROE would harm Kentucky ratepayers by contributing to an inflated revenue requirement for the Company. The Commission should reject his recommendation.

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. 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 water 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 other number of 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 particular regulated water utility stock 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 that is equal to the return 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 Water Service 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 on 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 the utility industry, which relies heavily on both debt and equity to finance its regulated investments.

However, as I will explain later in my Direct Testimony, the stock prices of regulated utilities have not followed a direct relationship with changes in interest rates so far in 2022. Despite large increases in short-term and long-term interest rates in 2022, my estimate of the required ROE for regulated water utilities has changed little since 2021. I will provide more analysis of this in Section III of my Direct Testimony.

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.[1]

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 or so years.

A. Until 2022, the overall trend in interest rates in the U.S. and the world economy had been lower and had continued into 2020 - 2021 as governments and central

---

[1] Monetary Policy (September 28, 2022), **https://www.federalreserve.gov/monetarypolicy.htm.**

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 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."[2]

This year, 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 problem in 2021. After the Fed reduced the federal funds rate to nearly 0% through 2021, it has been increased five times so far in 2022, including three significant 0.75% increases in June, July, and September. In its press release issued September 21, 2022, the Fed stated the following:

> Recent indicators point to modest growth in spending and production. Job gains have been robust in recent months, and the unemployment rate has remained low. Inflation remains elevated, reflecting supply and demand imbalances related to the pandemic, higher food and energy prices, and broader price pressures.
>
> Russia's war against Ukraine is causing tremendous human and economic hardship. The war and related events are creating additional upward pressure on inflation and are weighing on global

---

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

> economic activity. The Committee is highly attentive to inflation risks.
>
> The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. In support of these goals, the Committee decided to raise the target range for the federal funds rate to 3 to 3-1/4 percent and anticipates that ongoing increases in the target range will be appropriate. In addition, the Committee will continue reducing its holdings of Treasury securities and agency debt and agency mortgage-backed securities, as described in the Plans for Reducing the Size of the Federal Reserve's Balance Sheet that were issued in May. The Committee is strongly committed to returning inflation to its 2 percent objective.[3]

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 2008 through September 2022.

[3] Federal Reserve Issues FOMC Statement, Press Release (September 21, 2022), **https://www.federalreserve.gov/newsevents/pressreleases/monetary20220921a.htm.**

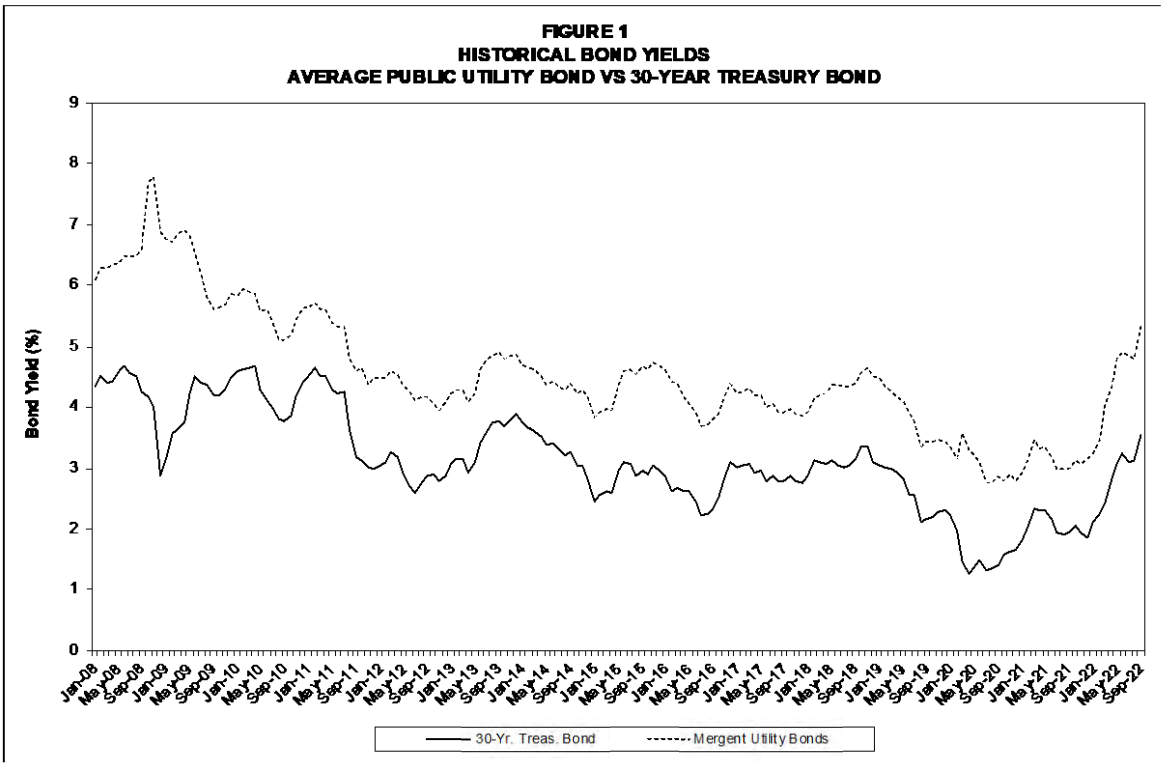

Figure 1 shows the increase in bond yields since the summer of 2021. The 30-year Treasury Bond increased from 2.10% in January 2022 to 3.56% in September 2022. The Mergent Utility Bond yield increased during that same period from 3.25% to 5.33%, an increase of 2.08%, or 208 basis points.

Q. What is the most recent measure of inflation that was available to you as you were preparing your direct testimony?

A. Inflation, as measured by the Consumer Price Index ("CPI"), has remained high in 2022. The Bureau of Labor Statistics reported that the year-over-year rate of inflation as measured by the CPI-Urban statistic was 8.3% for August 2022.

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

A. The Federal Reserve Bank of Philadelphia publishes the *Survey of Professional Forecasters* ("Survey"), in which a panel of 35 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 August 12, 2022, for the third quarter of 2022, provided the following forecasts:

- Consumer Price Index ("CPI") inflation is expected to average 7.5% for 2022, 3.2% for 2023, and 2.5% for 2024. Over the next 10 years, the forecasters expected CPI inflation to average 2.80% per year.
- 10-Year Treasury bond yield is forecasted to be 2.8% in 2022, 3.4% in 2023, and 3.5% in 2024.
- An unemployment rate of 3.7% for 2022 and 3.9% for 2023.
- Real growth in GDP of 1.6% in 2022 and 1.3% in 2023.[4]

The Fed's economic projections as of September 21, 2022, showed the following median forecasts:

- Personal Consumption Expenditures ("PCE") inflation rate of 5.4% for 2022, 2.8% for 2023, and longer run inflation at 2.0%;
- Unemployment rate of 3.8% for 2022 and 4.4% for 2023, with a longer run unemployment rate of 4.0%; and
- Growth in real GDP of 0.2% for 2022, 1.2% for 2023 with a longer run growth rate of 1.8%.[5]

---

[4] Third Quarter 2022 Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia (August 12, 2022**).**

[5] Summary of Economic Projections, Federal Reserve Board (September 21, 2022).

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

A. There is a consensus for slowing growth in GDP this year, with the U.S. unemployment rate forecasted to rise to about 4.0% through 2023. Inflation is forecasted to be high through 2022, but moderate in 2023 and thereafter. Notably, the forecasted yield on the 10-Year Treasury Bond for the rest of this year and 2023 is lower than the current yield on September 30, 2022, which was 3.83%.

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

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 2 presents the VIX from January 1 through September 30, 2022.[6]

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

Figure 2
2022 VIX

Figure 2 shows the significant increase in market volatility during 2022. The VIX was 16.6 on January 3, increased to a year-to-date high of 36.45 on March 7, and ended September 30 at 31.84. This compares to the 2021 yearly average VIX of 19.66. Figure 2 also shows significant variation in the VIX during the year to date.

Q. How does the investment community regard the water utility industry as a whole?

A. The October 7, 2022 Value Line report on the water utility industry made the following statements:

> Water utility stocks have much to offer investors looking for well-defined earnings and dividend growth. They all score very high in important metrics such as Earnings Predictability, Price Stability, and Price Growth Persistence. The Industry also provides an opportunity for utility investors to diversify their holdings, as the electric and gas companies make up the vast majority of the market capital in this space. Because of all of these positives attributes, these equities trade at a very rich premium. The price-earning ratios are well above that of the average stock in the Value Line universe. Currently, many of these equities are trading in their projected Target Price Range for the 2025-2027 period. Moreover, good

relations with regulators seem to already be factored into the prices of these stocks even though regulators may come under pressure to keep water bills down.

Q. How have utilities fared so far in 2022 compared to the overall stock market?

A. 2022 has seen a significant decline in both the stock market generally and for utilities as well. The Standard and Poor's 500 began the year at 4,778.14 and closed on September 30 at 3,585.62 representing a decline of 24.96%. The S&P 500 Utilities began the year at 363.55 and closed on September 30 at 332.52, a decline of 8.54%.

III. DETERMINATION OF FAIR RATE OF RETURN

Q. Please describe the methods you employed in estimating a fair rate of return for the regulated water operations of Water Service Kentucky.

A. I employed a DCF analysis using a proxy group of six regulated water distribution utilities. My DCF analysis is my standard constant growth form of the model that employs growth rate forecasts from the following three sources: dividend and earnings growth from Value Line, and earnings growth from Yahoo! Finance, and Zacks. I also employed CAPM analyses using both historical and forward-looking data. Although I did not rely on the CAPM for my recommended ROE of 9.25% for Water Service Kentucky, the CAPM provides an alternative approach to estimating the ROE for the Company, albeit a less reliable one. In this case, the CAPM results were generally below the DCF results.

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 then 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 water utilities that Water Service Kentucky witness D'Ascendis used for his analysis. Mr. D'Ascendis described the criteria he used to select companies for his proxy group on pages 12 through 13 of his Direct Testimony. From this group, I excluded The York Water Company ("York"). Value Line no longer provides a detailed report on this company that is similar to the other companies in the proxy group. As a result, there are no longer five-year dividend and earnings growth projections for York. In addition, Zacks does not have a 3 – 5 year earnings growth projection for York. It is, therefore, reasonable to exclude York from the water proxy group. The six-member proxy group for purposes of my ROE analyses is:

1. American States Water Co.
2. American Water Works Co.
3. California Water Service Group

4. Essential Utilities
5. Middlesex Water Company
6. SJW Group

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

A. I first determined the current dividend yield, D_1/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 April through September 2022. I obtained historical prices and dividends from Yahoo! Finance. The annualized dividend divided by the average monthly price represents the average dividend yield for each month in the period.

The resulting average dividend yield for the water proxy group is 1.88%. These calculations are shown on page 2 of Exhibit RAB-2.

Q. Earlier in your Direct Testimony, you discussed the volatility currently in the stock market. Discuss the monthly dividend yields for the proxy group and how you concluded that the six-month average yield is reasonable given this volatility.

A. The monthly dividend yields in 2022 as shown in Exhibit RAB-2 range from 1.76% in April to 1.98% in June. The September yield is slightly lower at 1.94%. Given the range of monthly dividend yields and in comparison to the recent yield in September, the 1.88% six-month dividend yield is reasonable for purposes of my DCF analyses.

Q. Having established the average dividend yield, how did you determine the investors' expected growth rate for the water 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, Zacks, and Yahoo! Finance. This is the method I typically use for estimating growth for my DCF calculations.

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

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 probably represents the most comprehensive of all investment information services. 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 water 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, Yahoo! Finance also compiles and reports consensus analysts' forecasts of earnings growth. I also obtained these estimates from Yahoo! Finance's web site.

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 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.

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, page 1, shows the forecasted dividend and earnings growth rates from Value Line and the earnings growth forecasts from Zacks and Yahoo! Finance for the companies in the water 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.

In this case, Zacks does not provide its 3-5 year earnings growth forecasts for American States Water Co., California Water Service Group, Middlesex Water Co., and SJW Group. For purposes of my analysis in the case, I used the Yahoo! Finance growth rates as proxies for Zacks. Since Zacks and Yahoo! Finance both provide consensus analysts forecasts, this compromise approach maintains my practice of weighting the growth forecasts I consider with 75% earnings growth and 25% dividend growth. Although the ideal would be to have the 4 missing Zacks forecasts for the aforementioned companies, my compromise approach in this case

is reasonable.

Q. How did you proceed to determine the DCF ROE for the water 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, page 1, presents my standard method of calculating dividend yields, growth rates, and return on equity for the water proxy group. The water proxy group DCF ROE section shows the application of each of four growth rates to the current proxy group dividend yield of 1.88% 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 group shown on page 1 of Exhibit RAB-3 and Method 2 utilizes the median growth rates shown on that page.

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

A. For Method 1 (average growth rates), the results range from 9.02% through 9.23%, with the average of these results being 9.14%. For Method 2 (median growth rates), the results range from 7.93% to 9.50%, with the average of these results being 8.92%.[7]

---

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

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 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 15%, then the risk premium is 12%. 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.[8]

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.[9]

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.

---

[8] Burton G. Malkiel, A Random Walk Down Wall Street, 218 (2019 ed. 2019).

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

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 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 difficulty 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 two historical MRPs based on actual stock and bond returns from 1926 through 2021. Third, I will present other published sources that estimate the investor required MRP.

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

A. The first source I used was the Value Line Investment Analyzer Plus Edition for September 29, 2022. The Value Line Investment Analyzer provides a summary statistical report detailing, among other things, forecasted total annual return over

the next three to five years. I present Value Line's projected annual returns on page 1 of Exhibit RAB-4. I included median and average projected annual return, resulting in a range of 17.0% to 18.1%. The average of these market returns is 17.55%.

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 arithmetic average of yearly historical stock market returns over the historical period from 1926 – 2021. The average annual income return for the 20-year Treasury bond is subtracted from these historical

stock returns to obtain the historical MRP of stock returns over long-term Treasury bond income returns. The resulting historical MRP is 7.40%.

Q. Did you add an additional measure of the historical risk premium 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.[10] 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 arithmetic MRP. The most recent "supply side" historical MRP is 6.22%, 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:

> 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 expansion. This expansion is not predicated to continue on indefinitely and is removed from the expected risk premium.[11]

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

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

---

[10] Duff & Phelps, Cost of Capital: Annual U.S. Guidance and Examples, Chapter 3, 45-47 (2019).

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

First, Kroll provides a recommendation for the MRP for the United States. Its recommended MRP as of June 2022 is 5.50%.

Second, 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. For October 2022, Dr. Damodaran estimated a MRP in the range of 4.28% - 6.21%, with an average of 5.47%.[12]

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

A. I considered two different measures for the risk-free rate. In past cases I have used a six-month average of the 30-year Treasury bond yield. However, with the steep increase in Treasury Bond yields in 2022, a six-month average is no longer relevant. Yields earlier in the year were much lower than in September 2022 and are now unrepresentative of current bond yields. Therefore, in this case I considered the September 30-Year Treasury Yield. The average yield in September was 3.56% and on September 30, the yield was 3.79%.

The second measure I considered comes from Kroll's most recent "normalized" risk-free rate of June 16, 2022. Kroll developed this normalized risk-free rate using its measure of the "real risk-free rate" and expected inflation. Currently, Kroll recommends using 3.5% or the most recent spot yield on the 20-

[12] Aswath Damodaran, Damodaran Online (last visited Oct. 3, 2022), https://pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm.

Year Treasury Bond, whichever is higher.[13] The average yield on the 20-Year Treasury bond in September was 3.82%. As of September 30, 2022, the yield was 4.08%.

In terms of estimating the CAPM cost of equity in this case, I chose to utilize a risk-free rate of 3.80%.

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

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

- Value Line forward-looking risk premium 13.75%
- Historical risk premium 6.22% - 7.40%
- Kroll 5.50%
- Average Damodaran MRP 5.47%

Q. How did you determine the value for beta?

A. I obtained the betas for the companies in the water proxy group from the most recent Value Line reports, which are dated October 7, 2022. The average of the Value Line betas for the water proxy group is 0.79.

Q. Please summarize the CAPM results.

---

[13] Kroll, **https://www.kroll.com/-/media/cost-of-capital/kroll-us-erp-rf-table-2022.pdf.**

A. The forward-looking CAPM ROE estimate is 14.69%.[14] Using historical risk premiums, the CAPM results range from 8.72% to 9.66%.[15] Regarding the Kroll and Damodaran MRPs, I used the average of the Damodaran range, 5.47%, and the Kroll MRP of 5.50% to estimate the CAPM ROE. The calculations are shown on page 3 of Exhibit RAB-4. These CAPM estimates range from 8.13% to 8.15%.

Recommended ROE and Common Equity Ratio

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 water proxy group.

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

[15] Refer to Exhibit RAB-4, page 2.

TABLE 1
SUMMARY OF ROE ESTIMATES

DCF Methodology	
Average Growth Rates	
- High	9.23%
- Low	9.02%
- Average	9.14%
Median Growth Rates:	
- High	9.50%
- Low	7.93%
- Average	8.92%
CAPM Methodology	
Forward-lookng Market Return:	14.69%
Historical Risk Premium:	
- Arithmetic Mean	9.66%
- Supply side MRP	8.72%
Kroll MRP	8.15%
Damodaran MRP	8.13%

Q. What is your recommended ROE range for Water Service Kentucky?

A. I recommend that the Commission adopt an ROE range of 9.00% - 9.50% for the regulated water operations of Water Service Kentucky. My recommended ROE for the Company is 9.25%, which is the midpoint of the range. My recommended range includes 7 of the 8 different DCF estimates from Exhibit RAB-3. This range considers current stock market prices and current interest rates. It is reasonable even considering the increased volatility, higher bond yields, and uncertainty inherent in the market at this time. My recommended 9.25% ROE is a reasonable return for a low-risk water utility like Water Service Kentucky.

With respect to the CAPM results, they are generally lower than my DCF range. The CAPM result using Value Line's forward-looking market return,

14.69%, is an extreme outlier and I do not recommend that the Commission rely on it in this proceeding.

Q. Should the Commission grant Water Service Kentucky a premium to its allowed ROE due to its small size relative to the companies in the water proxy group?

A. No. A small company ROE size premium, such as the premium Mr. D'Ascendis recommends, is inappropriate and should be rejected by the Commission. As Water Service Kentucky witness Whitney testified on page 4 of his Direct Testimony Water Service Kentucky is a wholly owned subsidiary of CORIX Regulated Utilities, which provides necessary financial support and services from Water Service Corporation. Water Service Kentucky is indeed a small company, but its relationship as part of CORIX mitigates its risk as compared to being a stand-alone company. In the next section of my Direct Testimony, I will provide additional explanations as to why Mr. D'Ascendis' proposed ROE size premium for Water Service Kentucky should be rejected by the Commission.

Q. Who will address the weighted cost of capital for the AG?

A. Mr. Randy Futral will address the weighted cost of capital and capital structure on behalf of the AG.

IV. RESPONSE TO WATER SERVICE KENTUCKY'S ROE TESTIMONY

Q. Please summarize your conclusion with respect to Mr. D'Ascendis' ROE recommendation.

A. Mr. D'Ascendis' recommended 10.60% ROE is excessive and should be rejected by the Commission. A 10.60% ROE is inconsistent with current financial market

evidence, including consideration of the steep increase in interest rates this year. Such an inflated ROE would also result in harm to Water Service Kentucky's ratepayers by causing an unreasonable increase in their rates.

Q. How did Mr. D'Ascendis develop his recommended ROE range for Water Service Kentucky?

A. On page 4 of his Direct Testimony, Mr. D'Ascendis presented his indicated range of ROE results for his Utility Proxy Group, 9.63% - 11.72%. He then increased this range upward by 1.00% to, in his view, reflect the additional risk for Water Service Kentucky due to its smaller size relative to the Utility Proxy Group. This resulted in an adjusted ROE range of 10.63% - 12.72%.

According to Mr. D'Ascendis' Direct Testimony on page 5, after reviewing both the adjusted and unadjusted ranges of ROE results, he recommended that the Commission consider an equity cost rate of 10.60% for Water Service Kentucky. On page 47, lines 15 through 17 of his Direct Testimony, Mr. D'Ascendis stated:

> Given the discussion above and the results from the analyses, including and excluding the PRPM and including and excluding the firm size adjustment, I recommend that an ROE of 10.60% is appropriate for the Company at this time.

Q. Before you present specific responses to Mr. D'Ascendis' ROE methods and calculations, please discuss the ROE results presented in Table 2 of Mr. D'Ascendis' Direct Testimony and how they line up with his recommended ROE of 10.60%.

A. My understanding of Mr. D'Ascendis' testimony is that he considered both unadjusted and size adjusted ROE ranges in formulating his 10.60% ROE recommendation. However, how he used these ranges to guide his recommendation

is unclear and lacks proper guidance for the Commission in how to use the ranges he developed.

Beginning on page 42, line 8 of his Direct Testimony, Mr. D'Ascendis laid out his case to the Commission as to why it should consider a size adjustment to Water Service Kentucky's allowed ROE in the proceeding. On page 44, lines 3 through 7 Mr. D'Ascendis testified:

> Consistent with the financial principle of risk and return discussed above, increased relative risk due to small size must be considered in the allowed rate of return on common equity. Therefore, the Commission's authorization of a cost rate of common equity in this proceeding must appropriately reflect the unique risks of WSCK, including its small size, which is justified and supported above by evidence in the financial literature. (underline added)

I will present my response to Mr. D'Ascendis' recommendation of a 1.00% size adjustment to Water Service Kentucky's ROE later in this section. However, considering his 1.00% size adjustment, I conclude from the ROE ranges he presented that his 10.60% ROE recommendation is consistent with the bottom end of his adjusted ROE range (10.63%). Considering the unadjusted range, his 10.60% ROE would be roughly consistent with the middle of the range (9.63% - 11.72%).

If one removes the size adjustment from his recommendation, which I recommend, then his recommendation would be reduced by 1.00% to 9.60%, consistent with the low end of his unadjusted range. It also raises the question as to whether Mr. D'Ascendis would recommend 9.60% for his Utility Proxy Group. If this is not the case, then it is an open question as to what his ROE recommendation would be for the Utility Proxy Group and how his 10.60% ROE

recommendation for Water Service Kentucky would compare to that recommendation, and what size premium would result from that.

In any event, Mr. D'Ascendis provided no explanation in his testimony as to how he developed his 10.60% recommendation from the results he presented in Table 2.

Size Adjustment

Q. Beginning on page 42 of his Direct Testimony, Mr. D'Ascendis presented his position on including a size risk premium adjustment designed to compensate for the alleged additional risk associated with Water Service Kentucky's small size relative to the proxy group. Should the Commission consider increasing Water Service Kentucky's ROE based on its smaller size relative to the proxy group?

A. No. The data that Mr. D'Ascendis relied on to make this adjustment came from the 2022 Kroll *Cost of Capital Navigator* service. Mr. D'Ascendis calculated a risk premium of 3.62%, or 362 basis points associated with Water Service Kentucky's small size that was based on the size premium difference between the Decile 6 group of companies in the Kroll 2022 study and the Decile 10 group of companies. The Decile 10 group is comprised of smaller companies with market capitalization similar to Water Service Kentucky. The Decile 6 group is a subset of larger companies with market capitalization similar to the Utility Proxy Group used by Mr. D'Ascendis. In his final recommendation, Mr. D'Ascendis substantially reduced the size adjustment from 3.62% to 1.00%.

One of the major problems with Mr. D'Ascendis' approach is that the Decile 10 group of companies contains many smaller and more risky unregulated companies. Moreover, this Decile 10 group had an average beta of 1.39 – 1.67

depending on the beta calculation method used by Kroll. These betas are far greater than the average utility proxy group betas, which average 0.79 in my CAPM analyses. The beta comparison indicates that the unregulated companies that Mr. D'Ascendis relied on to calculate his size premium are far riskier than regulated water distribution utilities like Water Service Kentucky. There is no evidence to suggest that the size premium recommended by Mr. D'Ascendis applies to regulated utility companies, which on average are very different from and less risky than the smaller companies included in the Kroll research on size premiums.

The other major problem with Mr. D'Ascendis' 1.00% size adjustment is that it is arbitrary. The actual size premium resulting from the Kroll data used by Mr. D'Ascendis is 3.62%. If one added this premium to Mr. D'Ascendis' unadjusted ROE range (9.63% - 11.72%) the resulting adjusted ROE range would be 13.25% - 15.34%. However, Mr. D'Ascendis reduced this premium to 1.00%, although he provided no basis for the reduction. Obviously, using the full size premium would result in a totally unacceptable ROE range for ratemaking purposes, yet the Commission cannot and should not rely on Mr. D'Ascendis' unsupported 1.00% size premium either.

DCF Analyses

Q. Please comment on Mr. D'Ascendis' DCF analyses.

A. Mr. D'Ascendis presented the results of his DCF analysis in page 1 of Schedule DWD-3. He presented both the mean (9.44%) and median (9.81%) results for the proxy group. The average of these two results is 9.63%. Mr. D'Ascendis utilized earnings growth rates from Value Line, Yahoo! Finance, and Zacks to develop his

DCF ROE estimates. These are all trusted sources of earnings growth forecasts and the same sources that I used to develop my DCF results.

Mr. D'Ascendis also should have considered Value Line's dividend growth forecast as I did. I agree with Mr. D'Ascendis' statement on page 17 of his Direct Testimony that security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. 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 should also be considered. I note that Value Line's forecast of dividend growth is consistent with the earnings growth projections I included on Exhibit RAB-3.

Q. Are the updated Value Line earnings growth rates you presented in Exhibit RAB-3 different from the Value Line growth numbers Mr. D'Ascendis presented?

A. Yes, and on average they are lower. The average earnings growth rate I calculated using the October 7, 2022 Value Line reports is 7.25%. The average Value Line growth rate, excluding York, presented in Mr. D'Ascendis' Schedule DWD-3 is 8.92%. This higher average growth rate would tend to overstate the DCF ROE results. However, I expect that Mr. D'Ascendis will update his analyses in his Rebuttal Testimony, which will likely show a higher dividend yield for his group as well.

Risk Premium Analyses

Q. Before you address the specifics of Mr. D'Ascendis' 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 will look like the future, an assumption that may not hold in present day financial markets.

Q. Summarize and describe Mr. D'Ascendis' approach to estimating the expected risk premium ROE.

A. According to Mr. D'Ascendis' Direct Testimony, pages 18 and 19, he relied on two methods to estimate a risk premium ROE. This first method employed the Predictive Risk Premium Model ("PRPM"), and the second method used a total market approach. The PRPM approach yielded a ROE value of 12.39%. The total market approach yielded an average equity cost rate of 11.05 – 11.10%. The results for these RP models are summarized in Mr. D'Ascendis' Schedule DWD-4, page 1.

Q. What bond yields did Mr. D'Ascendis use for his PRPM and total MRP model?

A. For the PRPM, Mr. D'Ascendis utilized a forecasted 30-Year Treasury Bond yield of 3.18%. For the total market approach, Mr. D'Ascendis developed a projected utility bond yield, the components of which may be found on page 25 of his Direct Testimony. These components include a forecasted bond yield on Moody's Aaa-rated corporate bonds (4.34%), an adjustment to reflect the yield spread between Aaa-rated corporate bonds and Moody's A2-rated utility bonds (0.46%), and an adjustment to reflect the utility proxy group's average Moody's bond rating of A2/A3 (0.05%). Summing these components resulted in a prospective bond yield for the water proxy group of 4.85%.

Q. Briefly summarize Mr. D'Ascendis' PRPM analysis.

A. Mr. D'Ascendis described his PRPM approach beginning on page 19 of his Direct Testimony. According to Mr. D'Ascendis, the PRPM estimates the risk-return relationship by predicting volatility or risk. On page 19, lines 9 - 12 of his Direct Testimony Mr. D'Ascendis testified that the PRPM is not based on an estimate of investor behavior, "but rather on an evaluation of the results of that behavior (i.e., the variance of historical equity risk premiums)." The historical annual equity risk premium is generated using GARCH, generalized autoregressive conditional heteroscedasticity, and Eviews© statistical software. Mr. D'Ascendis relied on historical returns on the common shares of each member of his proxy group minus the historical monthly yield on long-term U.S. Treasury securities through May 2022.

Q. Should the Commission rely on the PRPM developed and presented by Mr. D'Ascendis?

A. No. Mr. D'Ascendis did not show that the model he developed is relied upon by investors to determine their required ROE for regulated utility companies. Neither did he demonstrate that his PRPM is a widely accepted approach by regulatory commissions.

Q. Does the PRPM approach produce reasonable estimates of a risk premium ROE?

A. No, in fact quite the contrary. The ROE estimates produced by the PRPM is shown on page 2 of Schedule DWD-4. These estimates are excessive and range from 11.02% to 15.89%. Mr. D'Ascendis even excluded one result from this range, which was 20.60% for American Water Works Company. If this result had been included, the average PRPM ROE would have been 13.93%. Considering the full range of PRPM results shows that this method of estimating the investor required return is deeply flawed, produces highly inflated ROE results, and should be rejected by the Commission.

A. Did the Commission reject Mr. D'Ascendis' PRPM method in a prior case?

A. Yes. The Commission rejected the PRPM in Case No. 2021-00214 concerning Atmos Energy Corporation. Mr. D'Ascendis has not provided any new information that would cause the Commission to reconsider its decision in that case and should reject it in this case as well.

Q. Turning to Mr. D'Ascendis' total market approach to calculating the risk premium, please summarize the projected methods he used to estimate the risk premium.

A. Mr. D'Ascendis explained the projected methods he employed on pages 28 through 29 of his Direct Testimony. The first method developed a projected market return from Value Line using Value Line's projected 3-5 year appreciation potential plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in Value Line's Standard Edition. The resulting market return was 11.98%.

The second method used a projected market return on the S&P 500 companies using expected dividend yields and long-term growth estimates as proxies for capital appreciation. The resulting market return using this method was 15.90%.

The third method used a projected market return based on Bloomberg data. The resulting total market return was 14.60%.

Q. Are the projected market returns used by Mr. D'Ascendis reasonable?

A. No. They are overstated and should be rejected by the Commission. The problem with Mr. D'Ascendis' projected expected market returns is excessive and unsustainable long-term growth rates. The overstated expected market returns range from 11.98% - 15.90%, with expected long-run growth rates ranging from 10.11% - 14.34%. I calculated these expected growth rates by summing the weighted average growth rates in Mr. D'Ascendis' projected MRP analyses in his work papers MRP WP1, MRP WP2, and MRP WP3. The 3-5 year growth rates from Value Line and Bloomberg 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 8.2% for the historical period 1926 to 2021.[16] Geometric, or compound growth was 6.40%. This historical experience stands in stark contrast to Mr. D'Ascendis' growth rates of 10.11% to 14.34% using Value Line and Bloomberg data.

Mr. D'Ascendis' inflated growth rates 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 - 2021 was 6.0%. It is noteworthy that this growth nearly matched the historical compound growth rate for capital appreciation for the S&P 500.

Regarding forecasts, the projections that I referenced in Section II of my testimony show much lower forecasted GDP growth than the historical average I calculated. 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 of roughly 3.80%. If we assume forecasted long run nominal GDP growth of around 4.0%, then the market growth rates of 10.11% to 14.34% used by Mr. D'Ascendis cannot be sustained over the long run.

In *Cost of Capital*, 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

---

[16] *Summary Statistics of Annual Total Returns, Income Returns, and Capital Appreciation Returns of Basic U.S. Asset Classes*, 1926 - 2021, Cost of Capital Navigator: U.S. Cost of Capital Module.

> 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 . . . .[17]

Since the constant growth DCF requires a sustainable long-run growth rate, Mr. D'Ascendis' inflated projected market return and RP estimates shown on Schedule DWD-4, page 8 are erroneous and should be rejected. Specifically, the inflated RPs are 7.64%, 11.56%, and 10.26%.

Q. Did Mr. D'Ascendis use regression analyses to forecast risk premiums?

A. Yes. Mr. D'Ascendis explained the derivation of his regression-based market risk premium on page 27 of his Direct Testimony. He calculated an MRP of 8.16% by attempting to model the relationship between interest rates and the MRP using the yield on Moody's Aaa/AA-rated corporate bonds as the independent variable and the monthly market risk premium as the dependent variable. I examined Mr. D'Ascendis' analysis and regression results included in his work paper MRP ERP WP.

Q. Was Mr. D'Ascendis' regression analysis statistically valid and does it form a sound basis for forecasting the expected risk premium?

A. No. There are statistical tests that are part of regression analyses that are designed to test the validity of the model and how well the model explains and predicts what is going on with the data set. One bedrock test is called the R-squared statistic, also

---

[17] Shannon Pratt and Roger Grabowski, Cost of Capital, 1195 (5th ed. 2014).

referred to as the coefficient of determination. R-squared measures the proportion of variance in the dependent variable (the monthly risk premium) that is explained by the independent variable (corporate bond yields). R-squared falls between 0 and 1. A higher value indicates that the model explains more of the total variation in the dependent variable. For example, an R-squared of .80 means that the model explains 80% of the variation and may be a good predictive model.

However, Mr. D'Ascendis' regression analysis has an R-squared of only .029, meaning that his model only explains about 3% of the total variation in historical market risk premiums. This is a very poor result and means that his model cannot and should not be relied upon to predict market risk premiums based on changes in bond yields.

Another measure of statistical accuracy, the t-statistic, shows that the independent variable, bond yields, is statistically significant in his regression model. This means it is a factor in predicting market risk premiums, but the overall explanatory power of the model is so poor that it cannot be used accurately.

The Commission should reject Mr. D'Ascendis' regression-based risk premium of 8.13%.

Q. On page 31, lines 9 through 10, of his Direct Testimony, Mr. D'Ascendis explained that he calculated expected total returns on the S&P Utility Index of 10.66% and 9.94% using data from Value Line and Bloomberg, respectively. Do you agree with these ROE results?

A. No. The results reported by Mr. D'Ascendis are weighted by market capitalization in the index. In other words, utilities with higher capitalization are weighted more heavily than utilities with smaller capitalization. As a reasonable alternative, I

averaged the ROEs calculated by Mr. D'Ascendis in his work papers without the market cap weighting. The average ROE for the S&P Utilities was 9.36% using Bloomberg and 9.66% using Value Line. This shows that larger cap utilities had calculated ROEs higher than the average and pushed up the market capitalization ROE numbers for both Bloomberg and Value Line. Simply having a higher market capitalization is not necessarily predictive of a higher required ROE from investors and I recommend that the simple average be used. Moreover, the DCF returns calculated by Mr. D'Ascendis are significantly lower than his recommended RP ROE of 11.05%, showing once again that his RP ROE is inflated and should not be relied upon by the Commission.

CAPM and ECAPM

Q. Please summarize the results of Mr. D'Ascendis' CAPM/ECAPM analyses.

A. Mr. D'Ascendis' Schedule DWD-5, page 1 presents a summary of his CAPM/ECAPM analyses. The mean results range from 11.31% - 11.87%. The median results range from 11.58% - 11.87%.

Q. Before you further analyze Mr. D'Ascendis' approach to the CAPM/ECAPM, please comment on the range of ROE results he presented.

A. Mr. D'Ascendis' CAPM/ECAPM results are so grossly overstated for a low-risk regulated water utility like Water Service Kentucky that they should be rejected out of hand by the Commission. I will discuss the factors that contributed to this overstatement as follows.

Q. Summarize and describe Mr. D'Ascendis' approach to estimating the expected RP for his CAPM/ECAPM analyses.

A. Mr. D'Ascendis presented six different RP analyses that he used to estimate the expected MRP for the CAPM/ECAPM. Mr. D'Ascendis explained on pages 36 through 38 of his Direct Testimony that his MRP was derived from an average of three historical data-based MRPs, two Value Line data-based MRPs, and one Bloomberg data-based MRP. The average of the six MRPs he estimated was 9.80%.

The average MRP using projected data from Value Line and Bloomberg is even higher at 10.98%.

Q. Why are Mr. D'Ascendis' projected MRPs for Value Line and Bloomberg so high?

A. The problem with Mr. D'Ascendis' projected MRPs stems from his overstated expected market returns and long-term growth rates. These overstated expected market returns range from 11.98% - 15.90%, with expected long-run growth rates ranging from 10.11% - 14.34%. These are the same inflated ROEs he used in his RP analyses that I described earlier in my testimony. They should also be rejected in the CAPM/ECAPM as well.

Q. Did Mr. D'Ascendis consider the MRPs from sources that you presented in your testimony?

A. No. As I cited earlier in my Direct Testimony, Kroll currently recommends a MRP of 5.5%, the average of the Damodaran MRPs is 5.47%, and the historical supply side MRP of 6.22%. Although Mr. D'Ascendis and I both used Kroll's *Cost of Capital Navigator*, he failed to incorporate the Kroll recommended MRP of 5.5% and the historical supply side MRP of 6.22%. In fact, the lowest MRP considered

by Mr. D'Ascendis was the historical MRP of 7.35%. However, even this MRP is overstated due to the inclusion of an increasing P/E ratio over time. The lower supply-side MRP adjusts this out of the MRP.

Finally, I note that in the authoritative corporate finance textbook by Brealey, Myers, and Allen the authors stated "Brealey, Myers, and Allen 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."[18]

Q. Please address Mr. D'Ascendis' use of the ECAPM.

A. The ECAPM is designed to account for the possibility that the CAPM understates the ROE for companies with betas less than 1.0. Mr. D'Ascendis provided a discussion of the ECAPM beginning on page 33 of his Direct Testimony. My review of Mr. D'Ascendis' Schedule DWD-5 indicates that he applied an ECAPM formula included in *New Regulatory Finance* by Dr. Roger Morin, which is set forth on page 35 of his Direct Testimony.

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

---

[18] Richard A. Brealey, Stewart C. Myers, and Paul Allen, *Principles of Corporate Finance*, page 154; McGraw-Hill/Irwin, 8th Edition, 2006.

conclusion, I recommend that the Commission not rely on Mr. D'Ascendis' ECAPM formula and recommendations.

Q. What did Mr. D'Ascendis use for the risk-free rate in his analyses?

A. On page 36 of his Direct Testimony, Mr. D'Ascendis testified that he used a forecasted 30-year Treasury Bond yield of 3.18% from the *Blue Chip Financial Forecasts.* Mr. D'Ascendis also used this forecasted yield for his PRPM risk premium analysis that I cited to in the previous section of my testimony.

Interest rates and bond yields have changed substantially since Mr. D'Ascendis filed his analysis and I expect his recommended risk-free rate will change in his Rebuttal Testimony.

Non-Utility Group ROE

Q. Beginning at page 38 of his Direct Testimony, Mr. D'Ascendis presented a proposal for including a group of 24 domestic, non-price regulated companies in his ROE analyses. Is it appropriate to use a group of unregulated companies to estimate a fair ROE for Water Service Kentucky?

A. No. Mr. D'Ascendis' inclusion of unregulated non-utility companies as an additional method of evaluating the fair rate of return for Water Service Kentucky is inappropriate and should be rejected by the Commission.

Utilities have protected markets, e.g. service territories, and may increase the prices they charge in the face of falling demand or loss of customers. This is contrary to competitive, unregulated companies who often lower their prices when demand for their products decline. Obviously, the non-utility companies face risks that lower risk regulated water utilities like Water Service Kentucky do not face. Consequently, non-utility companies will have higher required returns from their

shareholders. According to Mr. D'Ascendis' Schedule DWD-7, the average and median ROE results for the non-price regulated group range from 11.31% - 11.62%. These results are far higher than the utility proxy group DCF results for both myself and Mr. D'Ascendis. Mr. D'Ascendis' analysis makes it very clear that investors require higher returns for the members of this group of unregulated companies and that these returns should in no way be applied to Water Service Kentucky or any other regulated water utility company.

Q. Does this complete your Direct Testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF WATER	**)**	
SERVICE CORPORATION OF KENTUCKY	**)**	
FOR A GENERAL ADJUSTMENT IN	**)**	
EXISTING RATES AND A CERTIFICATE	**)**	**CASE NO. 2022-00147**
OF PUBLIC CONVENIENCE AND	**)**	
NECESSITY TO DEPLOY ADVANCED	**)**	
METERING INFRASTRUCTURE	**)**	

EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF

OFFICE OF THE ATTORNEY GENERAL OF THE
COMMONWEALTH OF KENTUCKY
&
THE CITY OF CLINTON

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

OCTOBER 13, 2022

RESUME OF RICHARD A. BAUDINO

EDUCATION

New Mexico State University, M.A.
Major in Economics
Minor in Statistics

New Mexico State University, B.A.
Economics
English

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

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

Cost of Capital for Electric, Gas and Water Companies
Electric, Gas, and Water Utility Cost Allocation and Rate Design
Revenue Requirements
Gas and Electric industry restructuring and competition
Fuel cost auditing
Ratemaking Treatment of Generating Plant Sale/Leasebacks

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

1989 to Present: **Kennedy and Associates: Director of Consulting, Consultant** - Responsible for consulting assignments in revenue requirements, rate design, cost of capital, economic analysis of generation alternatives, electric and gas industry restructuring/competition and water utility issues.

1982 to 1989: **New Mexico Public Service Commission Staff: Utility Economist** - Responsible for preparation of analysis and expert testimony in the areas of rate of return, cost allocation, rate design, finance, phase-in of electric generating plants, and sale/leaseback transactions.

CLIENTS SERVED

Regulatory Commissions

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

Other Clients and Client Groups

Ad Hoc Committee for a Competitive Electric Supply System
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
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
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 October 2022

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 October 2022

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 October 2022

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 October 2022

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

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

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 October 2022

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.
04/01	R-00006042	PA	Philadelphia Industrial and Commercial Gas Users Group	Philadelphia Gas Works	Revenue requirements, cost allocation and tariff issues.

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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 October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
03/06	05-1278-E-PC-PW-42T	WV	West Virginia Energy Users Group	Appalachian Power Company	Return on equity.
04/06	U-25116 Commission	LA	Louisiana Public Service	Entergy Louisiana, LLC	Transmission Issues
07/06	U-23327 Commission	LA	Louisiana Public Service	Southwestern Electric Power Company	Return on equity, Service quality
08/06	ER-2006-0314	MO	Missouri Office of the Public Counsel	Kansas City Power & Light Co.	Return on equity, Weighted cost of capital
08/06	06S-234EG	CO	CF&I Steel, L.P. & Climax Molybdenum	Public Service Company of Colorado	Return on equity, Weighted cost of capital
01/07	06-0960-E-42T Users Group	WV	West Virginia Energy	Monongahela Power & Potomac Edison	Return on Equity
01/07	43112	AK	AK Steel, Inc.	Vectren South, Inc.	Cost allocation, rate design
05/07	2006-661	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric	Return on equity, weighted cost of capital.
09/07	07-07-01	CT	Connecticut Industrial Energy Consumers	Connecticut Light & Power	Return on equity, weighted cost of capital
10/07	05-UR-103	WI	Wisconsin Industrial Energy Group, Inc.	Wisconsin Electric Power Co.	Return on equity
11/07	29797	LA	Louisiana Public Service Commission	Cleco Power :LLC & Southwestern Electric Power	Lignite Pricing, support of settlement
01/08	07-551-EL-AIR	OH	Ohio Energy Group	Ohio Edison, Cleveland Electric, Toledo Edison	Return on equity
03/08	07-0585, 07-0585, 07-0587, 07-0588, 07-0589, 07-0590, (consol.)	IL	The Commercial Group	Ameren	Cost allocation, rate design
04/08	07-0566	IL	The Commercial Group	Commonwealth Edison	Cost allocation, rate design
06/08	R-2008-2011621	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Cost and revenue allocation, Tariff issues
07/08	R-2008-2028394	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy	Cost and revenue allocation, Tariff issues

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
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

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
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

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
08/13	9326	MD	Maryland Energy Group	Baltimore Gas and Electric	Cost and revenue allocation, rate design, special rider

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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.
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
03/17	R-3867-2013	Quebec, Canada	Canadian Federation of Independent Businesses	Gaz Metro	Marginal Cost of Service Study

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
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

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
3/2021	2020-00350	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Louisville Gas and Electric Co.	Return on equity

Expert Testimony Appearances
of
Richard A. Baudino
As of October 2022

Date	Case	Jurisdict.	Party	Utility	Subject
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
10/22	2022-00147	KY	Kentucky Office of the Attorney General	Water Service Corporation of Kentucky	Cost of equity

WATER PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
American States Water Co.	High Price ($)	92.800	80.680	81.740	88.090	91.020	89.640
	Low Price ($)	78.350	74.770	71.220	79.850	82.640	77.910
	Avg. Price ($)	85.575	77.725	76.480	83.970	86.830	83.775
	Dividend ($)	0.365	0.365	0.365	0.365	0.398	0.398
	Mo. Avg. Div.	1.71%	1.88%	1.91%	1.74%	1.83%	1.90%
	6 mos. Avg.	1.83%					
American Water Works Co.	High Price ($)	173.870	154.930	157.270	157.370	159.950	157.100
	Low Price ($)	153.730	142.360	129.450	143.320	148.310	129.910
	Avg. Price ($)	163.800	148.645	143.360	150.345	154.130	143.505
	Dividend ($)	0.603	0.655	0.655	0.655	0.655	0.655
	Mo. Avg. Div.	1.47%	1.76%	1.83%	1.74%	1.70%	1.83%
	6 mos. Avg.	1.72%					
California Water Service Group	High Price ($)	61.750	55.100	55.740	60.470	63.810	61.540
	Low Price ($)	51.620	49.840	48.460	54.200	58.120	52.690
	Avg. Price ($)	56.685	52.470	52.100	57.335	60.965	57.115
	Dividend ($)	0.250	0.250	0.250	0.250	0.250	0.250
	Mo. Avg. Div.	1.76%	1.91%	1.92%	1.74%	1.64%	1.75%
	6 mos. Avg.	1.79%					
Essential Utilities	High Price ($)	52.620	46.770	47.720	51.990	52.430	50.350
	Low Price ($)	44.660	42.030	40.970	45.120	49.080	41.320
	Avg. Price ($)	48.640	44.400	44.345	48.555	50.755	45.835
	Dividend ($)	0.268	0.268	0.268	0.268	0.287	0.287
	Mo. Avg. Div.	2.20%	2.41%	2.42%	2.21%	2.26%	2.50%
	6 mos. Avg.	2.34%					
Middlesex Water Company	High Price ($)	109.510	91.680	89.660	95.740	96.190	93.740
	Low Price ($)	87.700	83.610	75.770	86.120	88.160	77.080
	Avg. Price ($)	98.605	87.645	82.715	90.930	92.175	85.410
	Dividend ($)	0.290	0.290	0.290	0.290	0.290	0.290
	Mo. Avg. Div.	1.18%	1.32%	1.40%	1.28%	1.26%	1.36%
	6 mos. Avg.	1.30%					

WATER PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
SJW Group	High Price ($)	71.700	62.490	63.900	66.140	68.240	67.290
	Low Price ($)	58.500	57.170	55.740	61.360	64.070	57.510
	Avg. Price ($)	65.100	59.830	59.820	63.750	66.155	62.400
	Dividend ($)	0.360	0.360	0.360	0.360	0.360	0.360
	Mo. Avg. Div.	2.21%	2.41%	2.41%	2.26%	2.18%	2.31%
	6 mos. Avg.	2.29%					
Monthly Avg. Dividend Yield		1.76%	1.95%	1.98%	1.83%	1.81%	1.94%
6-month Avg. Dividend Yield		1.88%					

Source: Yahoo! Finance

WATER PROXY GROUP
DCF Growth Rate Analysis

	Company	(1) Value Line DPS	(2) Value Line EPS	(3) Zacks	(4) Yahoo! Finance
1	American States Water Co.	9.00%	5.50%	4.40%	4.40%
2	American Water Works Co.	8.50%	3.00%	8.08%	8.30%
3	California Water Service Group	6.50%	6.50%	11.70%	11.70%
4	Essential Utilities	8.00%	10.00%	6.14%	6.80%
5	Middlesex Water Company	5.00%	4.50%	2.70%	2.70%
6	SJW Group	5.50%	14.00%	9.80%	9.80%
	Averages	7.08%	7.25%	7.14%	7.28%
	Median	7.25%	6.00%	7.11%	7.55%

Sources: **Value Line Investment Survey, October 7, 2022**
Yahoo! Finance and Zacks growth rates retrieved October 3, 2022
Note: Yahoo! growth rates used for American States Water, California Water Service, Middlesex Water, and SJW Group

WATER PROXY GROUP
DCF RETURN ON EQUITY

	(1) Value Line Dividend Gr.	(2) Value Line Earnings Gr.	(3) Zack's Earning Gr.	(4) Yahoo! Earning Gr.	(5) Average of All Gr. Rates
Method 1:					
Dividend Yield	1.88%	1.88%	1.88%	1.88%	1.88%
Average Growth Rate	7.08%	7.25%	7.14%	7.28%	7.19%
Expected Div. Yield	1.94%	1.95%	1.94%	1.95%	1.95%
DCF Return on Equity	***9.02%***	***9.20%***	***9.08%***	***9.23%***	***9.14%***
Method 2:					
Dividend Yield	1.88%	1.88%	1.88%	1.88%	1.88%
Median Growth Rate	7.25%	6.00%	7.11%	7.55%	6.98%
Expected Div. Yield	1.95%	1.93%	1.94%	1.95%	1.94%
DCF Return on Equity	***9.20%***	***7.93%***	***9.05%***	***9.50%***	***8.92%***

WATER PROXY GROUP
Capital Asset Pricing Model Analysis

Value Line Forward-Looking MRP

	Value Line
Market Required Return Estimate	17.55%
Risk-free Rate of Return, 30-Year Treasury Bond	3.80%
Risk Premium (Line 1 minus Line 3)	13.75%
Proxy Group Beta	0.79
Proxy Group Beta * Risk Premium (Line 5 * Line 6)	10.89%
CAPM Return on Equity (Line 3 plus Line 8)	14.69%

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

	Avg. Yield
April-22	2.81%
May-22	3.07%
Jun-22	3.25%
Jul-22	3.10%
Aug-22	3.13%
Sep-22	3.56%
6 month average	3.15%

Source: Federal Reserve, U.S. Treasury

Proxy Group Betas:

	Value Line
American States Water Co.	0.65
American Water Works Co.	0.90
California Water Service Group	0.70
Essential Utilities	0.95
Middlesex Water Company	0.75
SJW Group	0.80
Average	0.79

Source: Value Line Investment Survey, Ocober 7, 2022

Value Line Market Return Data:

Value Line Projected 3-5 Yr.	
Median Annual Total Return	17.00%
Average Annual Total Return	18.10%
Average	17.55%

Source: Value Line Investment Analyzer, September 29, 2022

WATER PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	Arithmetic Mean	Supply Side ERP
Long-Term Annual Return on Stocks	12.30%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	4.90%	
Historical Market Risk Premium	7.40%	6.22%
Proxy Group Beta, Value Line	0.79	0.79
Beta * Market Premium	5.86%	4.92%
Risk-free Rate of Return	3.80%	3.80%
CAPM Cost of Equity, Value Line Beta	**9.66%**	**8.72%**

Source: Kroll Cost of Capital Navigator: U.S. Cost of Capital Module:
Summary Statistics of Annual Total Returns, Income Returns, and Capital Appreciation Returns of Basic U.S. Asset Classes;

Basic Building Blocks of the Cost of Equity Capital - Risk Free Rate and Equity Risk Premium (Abridged)

WATER PROXY GROUP
Capital Asset Pricing Model Analysis
Kroll and Damodoran MRPs

	Kroll	Damodaran
Market Risk Premium	5.50%	5.47%
Gas Proxy Group Beta	0.79	0.79
Beta times MRP	4.35%	4.33%
Risk-free Rate of Return	3.80%	3.80%
CAPM Cost of Equity	8.15%	8.13%

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

Richard A. Baudino

Sworn to and subscribed before me on this
13th day of October 2022.

Notary Public

JESSICA K INMAN
NOTARY PUBLIC
CHEROKEE COUNTY, GEORGIA
MY COMMISSION EXPIRES
JULY 31, 2023