COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF DELTA	**)**	**CASE NO.**
NATURAL GAS COMPANY FOR AN	**)**	**2024-00346**
ADJUSTMENT OF GAS RATES	**)**	

DIRECT TESTIMONY

AND EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF THE

OFFICE OF THE ATTORNEY GENERAL OF THE
COMMONWEALTH OF KENTUCKY

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

February 18, 2025

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In the Matter of:

ELECTRONIC APPLICATION OF DELTA ENERGY CORPORATION FOR AN ADJUSTMENT OF RATES; APPROVAL OF TARIFF REVISIONS; AND OTHER GENERAL RELIEF	**)** **)** **)** **)** **)**	**CASE NO. 2024-00276**

DIRECT TESTIMONY OF RICHARD A. BAUDINO

I. QUALIFICATIONS AND SUMMARY

Q. Please state your name and business address.

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

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

A. I am a consultant with Kennedy and Associates.

Q. Please describe your education and professional experience.

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

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

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

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

Exhibit RAB-1 summarizes my expert testimony experience.

Q. On whose behalf are you testifying?

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

Q. What is the purpose of your Direct Testimony?

A. The purpose of my Direct Testimony is to address the investor required return on equity ("ROE") for the regulated gas operations of Delta Natural Gas Company ("Delta" or "Company"). I will also address the Company's cost of long-term debt and its requested capital structure. Finally, I will respond to the Direct Testimony and ROE and cost of capital recommendations of Delta witness Mr. Paul Moul.

Q. Please summarize your conclusions and recommendations.

A. I recommend that the Kentucky Public Service Commission ("Commission" or "KPSC") authorize an allowed ROE for Delta of 9.55%. My recommended ROE is based on: (1) the results of a discounted cash flow ("DCF") analysis applied to a

proxy group of seven natural gas distribution companies and (2) Capital Asset Pricing Model ("CAPM") analyses using historical and forecasted market risk premiums as well as publicly available estimates of market risk premiums from other sources. My recommendation fully reflects current economic and financial market conditions at the time I prepared my testimony, which I will describe in more detail in Section II. A 9.55% ROE provides a fair return on a low-risk regulated gas distribution utility investment like Delta. Section III presents my ROE analyses and discusses my recommended common equity ratio as well.

I also recommend that the Commission authorize a ratemaking capital structure for Delta consisting of 50% common equity and 50% long-term debt. My recommendation is based on Essential Utilities' target capital structure for Delta over the longer term as well as the average capital structure of the proxy group of seven gas distribution companies.

For purposes of this case, I accepted Delta's requested cost of long-term debt.

Based on the Commission's recent precedent that applies a lower cost of equity for environmental cost riders, I recommend that the Commission apply a lower cost of equity to the investments collected through Delta's Pipeline Replacement Program ("PRP"). The Commission adopted a reduced ROE for the PRP in Delta's last rate case, Case No. 2021-00185. I recommend that the Commission reduce the cost of equity applicable to PRP investments by 10 basis points, or 0.10%, to 9.45%.

In Section IV, I will respond to the testimony and ROE recommendation of Mr. Moul. I will demonstrate that his recommended ROE of 10.95% for Delta significantly overstates the investor required return for regulated gas distribution utilities and is inconsistent with current capital market conditions and recent commission-allowed ROEs. Mr. Moul's 10.95% ROE recommendation would result in an inflated revenue requirement that would harm Delta's Kentucky ratepayers and, therefore, should be rejected by the Commission.

II. ROE GUIDELINES AND REVIEW OF ECONOMIC CONDITIONS

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

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

From an economist's perspective, the notion of "opportunity cost" plays a vital role in estimating the ROE for Delta. 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 gas utility. That investor will make the decision based on the expectation of dividend payments and perhaps some appreciation in the stock's value over time; however, that investor's opportunity cost is measured by what she

or he could have invested in as the next best alternative. That alternative could have been another utility stock, a utility bond, a mutual fund, a money market fund, or any number of alternative investment vehicles.

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

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

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

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

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

distribution companies, that rely heavily on both debt and equity to finance their regulated investments.

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

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

> Monetary policy in the United States comprises the Federal Reserve's actions and communications to promote maximum employment, stable prices, and moderate long-term interest rates--the economic goals the Congress has instructed the Federal Reserve to pursue.[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 years.

[1] Monetary Policy (Aug. 2, 2024), https://www.federalreserve.gov/monetarypolicy.htm.

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

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

As inflation began to ease in 2023 and 2024, the Fed cut the federal funds rate by 50 basis points, or 0.50% on September 18, 2024 to a range of 4.75% to 5.00%, noting progress on reducing inflation toward its goal of 2.0%.[3] The Fed

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

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

further lowered the federal funds rate on November 7 and again on December 18 of 2024 to its current level of 4.25% - 4.50%. In its most recent press release issued on January 29, 2025, the Fed stated the following:

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

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

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

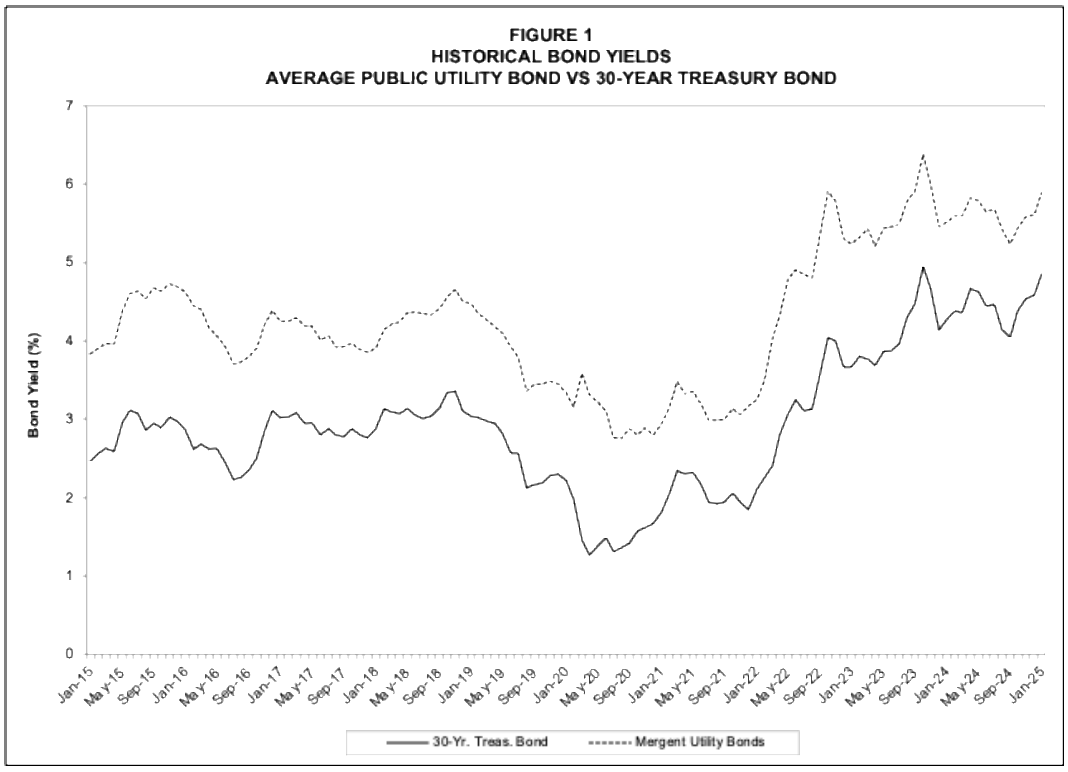


Figure 1 graphically shows the steep increase in long-term bond yields since 2022. The 30-year Treasury Bond yield increased from 2.10% in January 2022 to 4.95% in October 2023, an increase of 2.85%, or 285 basis points. The Mergent average public utility bond yield increased during that same period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

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

Q. What has been the recent experience with inflation?

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

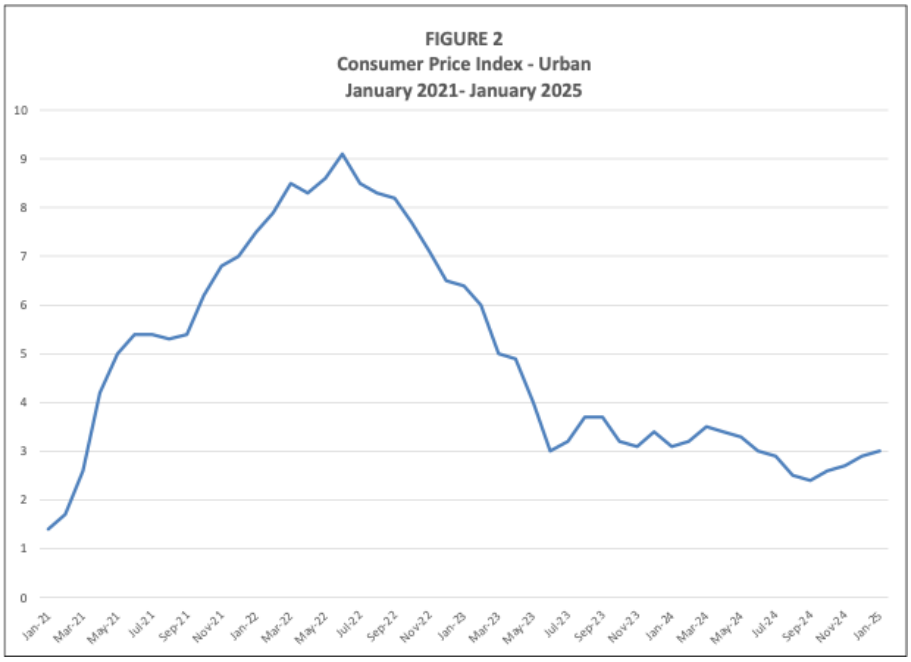


Figure 2 shows that inflation greatly accelerated in 2021, peaked in June 2022 at 9.1%, then declined substantially through June 2023 to 3.0%. Inflation was 3.0% for January 2025.

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

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

- Consumer Price Index ("CPI") inflation is expected to average 2.3% for 2025, 2026 and 2.28% over the next 10 years.
- 10-Year Treasury bond yield is forecasted to be 4.0% in 2025 and 2026.
- An unemployment rate of 4.3% is forecasted for 2025.
- Real growth in GDP of 2.1% is forecasted in 2025 and 2026 and 2.05% over the next ten years.[5]

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

- Personal Consumption Expenditures ("PCE") inflation rate of 2.5% for 2025, 2.1% for 2026, and longer run inflation at 2.0%;
- Unemployment rate of 4.3% for 2025 and 2026, with a longer run unemployment rate of 4.2%; and
- Growth in real GDP of 2.1% for 2025, 2.0% for 2026 with a longer run growth rate of 1.8%.[6]

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

A. There appears to be a consensus for around 2.0% growth in real GDP in 2025 – 2026 and longer term as well. The U.S. unemployment rate is forecasted to be about 4.2% - 4.3% through 2026. Inflation is forecasted to be 2.5% through 2025 but decline below that level in 2026 and thereafter. Long-term interest rates as

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

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

measured by the 10-Year Treasury Bond yield are expected to decline slightly over the next couple of years.

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

A. A widely used measure of market volatility is the Chicago Board Options Exchange ("CBOE") Volatility Index ("VIX"), also called the "fear index" or "fear gauge." Basically, the VIX measures the market's expectations for volatility over the next 30-day period. The higher the VIX, the greater the expectation of volatility and market risk. Figure 3 presents the VIX from January 1, 2023 through January 31, 2025.[7]

FIGURE 3
January 2023 - January 2025 VIX

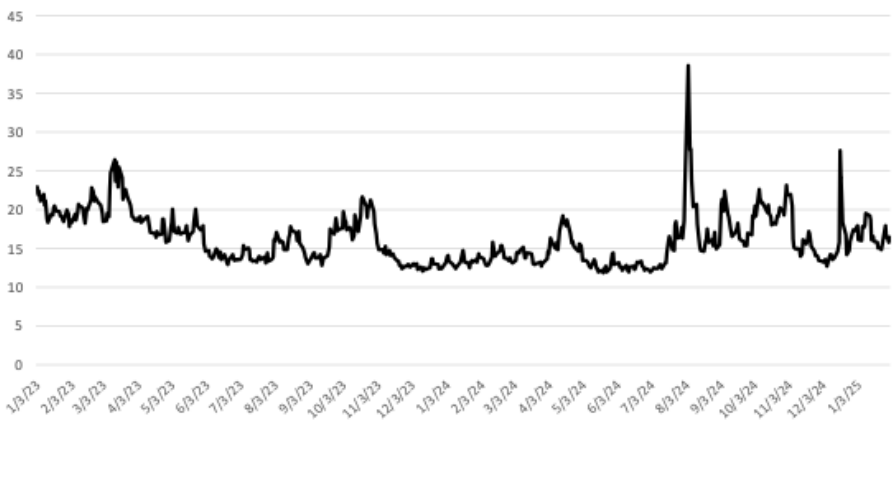


Figure 3 shows the significant increase in market volatility during March 2023 and again in December 2024. The yearly average VIX for 2024 was 15.55.

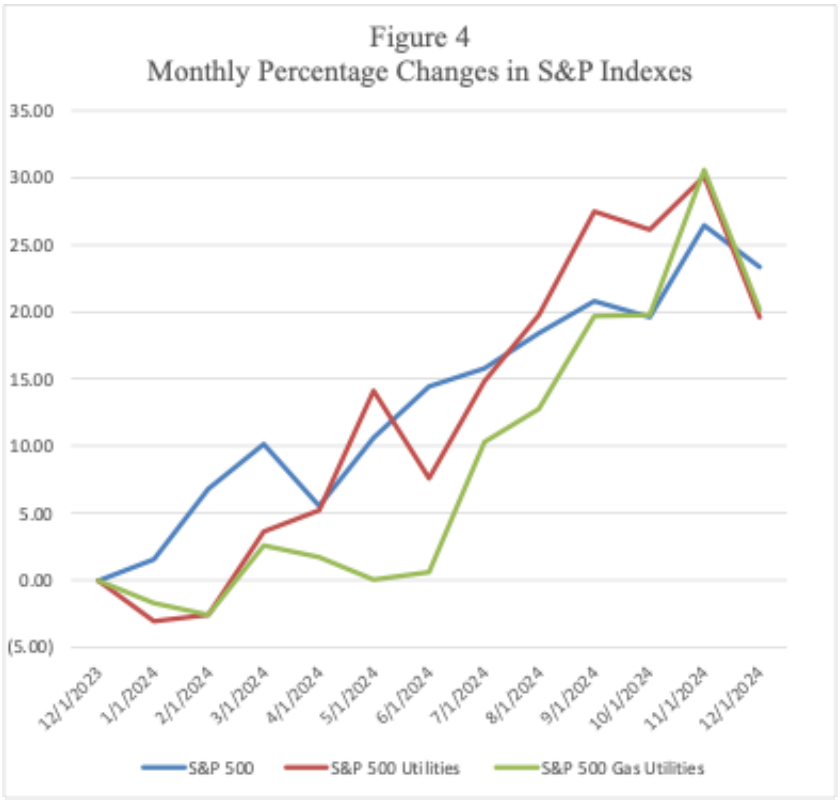
[7] Historical Data for Cboe VIX Index and Other Volatility Indices, CBOE, https://www.cboe.com/tradable_products/vix/vix_historical_data/.

By way of comparison, the average VIX values for 2022 and 2023 were 25.64 and 16.84, respectively. Overall, there was lower stock market volatility on average in 2024 than the last two years.

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

A. Utilities fared well in 2024. For the year 2024, the Standard and Poor's ("S&P") 500 Utilities index rose 20.16% and the S&P Gas Utilities Index rose 19.58%. In comparison, the S&P's 500 index increased 23.3%. Figure 4 below presents the monthly percentage changes in these three indexes in 2024. This data was obtained from S&P Capital IQ.

Figure 4
Monthly Percentage Changes in S&P Indexes



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

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

A. Yes. Regulatory Research Associates ("RRA") is a group within S&P Global Commodity Insights that compiles and publishes commission-allowed ROEs from across the country. For 2023 and 2024 RRA reported the following[8]:

- For 2023, the average allowed ROE for all gas cases was 9.64%.
- For 2023, the average allowed ROE for fully litigated gas cases was 9.77%.
- For 2024, the average allowed ROE for all gas cases was 9.72%.
- For 2024, the average allowed ROE for fully litigated gas cases was 9.78%.

III. DETERMINATION OF FAIR RATE OF RETURN

Q. Please describe the methods you employed in estimating a fair rate of return for the regulated gas distribution operations of Delta.

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

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

premium portion of the CAPM. The results from the DCF and CAPM support the reasonableness of my ROE recommendation to the Commission.

DCF Model

Q. Please describe the basic DCF approach.

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

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

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

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

employ also assumes a constant growth rate in dividends. The fundamental relationship employed in the DCF method is described by the formula:

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

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

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

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

A. My first step was to choose a proxy group of companies with a risk profile that is reasonably reflective of the risks facing a low risk, regulated gas distribution utility such as Delta. I reviewed the gas proxy group selected by Mr. Moul and the selection criteria he used. This proxy group consisted of regulated natural gas distribution companies from *The Value Line Investment Survey*. Mr. Moul described how he selected the companies for his "Gas Group" on page 4 of his Direct Testimony. Mr. Moul began with the gas utilities listed in *The Value Line*

Investment Survey ("Value Line") and eliminated one company, UGI Corporation, because of its diversified corporate profile. I agree with Mr. Moul's exclusion of this company.

After reviewing the eight companies in Mr. Moul's Gas Group, I concluded that Southwest Gas Holdings, Inc. ("SWG") should be excluded as well. This company recently underwent a significant corporate restructuring in which its subsidiary, Centuri Group, was spun off on April 22, 2024. SWG still owns 80% of Centuri Group. Value Line noted in its November 22, 2024 report on SWG that "the separation of Centuri remains uncertain, contingent on market conditions that will influence the timing and structure of a sale." In response to SWG's corporate restructuring, Value Line suspended the company's Timeliness and Technical rankings on November 23, 2023. The Timeliness rank represents Value Line's ranking of a stock's probable relative market performance in the year ahead. The Technical rank is Value Line's proprietary ranking of estimated stock price performance relative to the overall market in the next three to six months. The suspension of these two rankings by Value Line is an indication of the uncertainty surrounding the outcome of SWG's spinoff of Centuri. Given the significant impact of this restructuring and the uncertainty of SWG's earnings and price performance, it is prudent to exclude SWG from my proxy group at this time.

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

A. I first determined the current dividend yield, D_0/P_0, from the basic equation. My general practice is to use six months as the most reasonable period over which to estimate the dividend yield. The six-month period I used covered the months from

August 1, 2024 through January 31, 2025. I averaged daily stock prices from S&P Capital IQ for 1-month, 2-month, 3-month, and 6-month periods. The current dividend for each company was taken from the January 31, 2025 issue of Value Line's *Summary and Index.*

The resulting average 6-month dividend yield for the proxy group is 3.54%. The other periods I used have slightly lower dividend yields, but are not significantly different from the 6-month yield.

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

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

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

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

A. Value Line is a widely used and respected source of investor information that covers approximately 1,700 companies in its Standard Edition and several thousand in its Plus Edition. It is updated quarterly and represents a comprehensive source of information for investors. It provides both historical and forecasted information

on a number of important data elements. Value Line neither participates in financial markets as a broker nor works for the utility industry in any capacity of which I am aware.

Zacks gathers opinions from a variety of analysts on earnings growth forecasts for numerous firms including regulated 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, S&P Capital IQ also compiles and reports consensus analysts' forecasts of earnings growth.

In the past I used Yahoo! Finance to obtain consensus analysts earnings growth forecasts. However, at the time I prepared my analyses and testimony Yahoo! Finance no longer presented these forecasts.

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

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

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

Q. Columns (1) through (4) of Exhibit RAB-3 show the forecasted dividend and earnings growth rates from Value Line and the earnings growth forecasts from S&P

Capital IQ and Zacks for the companies in the proxy group. It is important to include dividend growth forecasts in the DCF model since the model calls for forecasted cash flows and Value Line is the only source of which I am aware that forecasts dividend growth.

Zacks forecasts were unavailable for three companies in the proxy group: Chesapeake Utilities, New Jersey Resources, and Northwest Natural Holding Co. With three out of the seven Zacks forecasts missing, I chose to use the S&P Capital IQ growth rates for these companies to fill out the missing Zacks numbers. In my view, this is a reasonable approach since the S&P Capital IQ growth rates are consensus forecasts similar to Zacks.

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

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

Exhibit RAB-3 presents my standard method of calculating dividend yields, growth rates, and ROE for the proxy group. The proxy group DCF ROE section shows the application of each of four growth rates to the current dividend yield of 3.54% to calculate the expected dividend yield. I then added the expected growth rates to the expected dividend yield. My DCF ROE was calculated using two different methods. Method 1 uses the average growth rates for the proxy group and Method 2 utilizes the median growth rates.

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

A. For Method 1 (average growth rates), the results range from 8.26% to 10.14%, with the average of these results being 9.54%. For Method 2 (median growth rates), the results range from 8.12% to 10.48%, with the average of these results being 9.57%.[9]

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

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

risk of a security and measures the volatility of a particular security relative to the overall market for securities. For example, a stock with a beta of 1.0 indicates that if the market rises by 15%, that stock will also rise by 15%. This stock moves in tandem with movements in the overall market. Stocks with a beta of 0.5 will only rise or fall 50% as much as the overall market. With an increase in the market of 15%, this stock will only rise 7.5%. Stocks with betas greater than 1.0 will rise and fall more than the overall market. Thus, beta is the measure of the relative risk of individual securities vis-à-vis the market.

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

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

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

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

market and will have higher required returns. Conversely, stocks with betas less than 1.0 will have required returns lower than the market as a whole.

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

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

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

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

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

capital and the use of beta as a reliable measure of risk.[11]

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

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

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

A. I used three approaches to estimate the MRP portion of the CAPM equation. First, I will present an approach that uses the expected return on the market and is forward-looking. Second, I will present an approach that employs three historical

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

MRPs based on actual stock and bond returns. Third, I will present four published sources that estimate the current investor required MRP.

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

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

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

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

Q. Please continue with your MRP analysis.

A. The second source I considered came from Kroll, which compiled a study of historical returns on the stock market in its *Cost of Capital Navigator: U.S. Cost of Capital Module* and is part of its Cost of Capital Navigator subscription service.

Kroll provides services to clients in 140 countries covering valuation, compliance and regulation, corporate finance and restructuring, and other areas. Kroll now provides the Cost of Capital Navigator service that was formerly provided by Duff and Phelps.

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

Q. Please explain how these historical MRPs are calculated.

A. Exhibit RAB-4, page 2, shows the historical arithmetic average MRP over the historical period from 1926 – 2024. The historical MRP is calculated by subtracting the average annual return for the 20-year Treasury bond from historical average stock returns, resulting in an historical MRP of 7.31%.

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

A. Yes. Kroll reported the results of a study by Dr. Roger Ibbotson and Dr. Peng Chen indicating that the historical risk premium of stock returns over long-term government bond returns has been significantly influenced upward by substantial growth in the price/earnings ("P/E") ratio.[12] Kroll noted that this growth in the P/E ratio for stocks was subtracted out of the historical risk premium to arrive at an

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

adjusted "supply side" historical MRP. The most recent "supply side" historical MRP is 6.26%, which I have also included in Exhibit RAB-4, page 2.

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

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

> There are several ways in which one might estimate an expected risk premium used for forecasting. One way is to extrapolate historical risk premiums, as did Ibbotson and Sinquefield. Another is to use investor demand models based upon investor risk aversion, as did Mehra and Precott. A third way is to look at the type of returns that the corporate sector supplies. Diermeir, Ibbotson, and Siegel (1984) and later Ibbotson and Chen (2003) used this supply approach. They extrapolated the cash flows and earnings growth generated by companies themselves. These forecasts tend to give somewhat lower historical risk premiums, primarily because part of the total return of the stock market has come from price-to-earnings ratio expansion. This expansion is not predicated to continue on indefinitely and is removed from the expected risk premium.[13]

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

A. Yes. A historical MRP calculated over a long period of time may not reflect current investor expectations and requirements. For example, Pratt and Grabowski presented a detailed discussion of the sources of potential upward bias and overstatement of the long-term historical risk premium.[14] One potential source of bias they analyzed was the historical period of 1942 – 1951, which included

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

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

government-imposed stability in interest rates for government bonds during the Second World War. Pratt and Grabowski named this period "WWII Interest Rate Bias" and estimated that it resulted in an overstatement of the long-run historical risk premium of 117 basis points, or 1.17%. Pratt and Grabowski also considered the supply-side MRP, which I considered and presented earlier.

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

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

> Given how widely the historical risk premium approach is used, it is surprising that the flaws in the approach have not drawn more attention. Consider first the underlying assumption that investors' risk premiums have not changed over time and that the average risk investment (in the market portfolio) has remained stable over the period examined. We would be hard pressed to find anyone who would be willing to sustain this argument with fervor. The obvious fix for this problem, which is to use a more recent time period, runs directly into a second problem, which is the large noise associated with historical risk premium estimates. While these standard errors may be tolerable for very long time periods, they clearly are unacceptably high when shorter periods are used.[15]

Although the simple, unadjusted long-run historical risk premium is widely used and available to investors, it is flawed and likely to overstate the investor

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

expected risk premium for forecasting purposes. It should be viewed with caution and supplemented with other sources as I have done here.

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

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

First, Kroll provides a recommendation for the MRP for the United States. Its recommended MRP as of February 3, 2025 is 5.00%.[16]

Second, KMPG Corporate Finance and Evaluations produces an estimate of the MRP based on its market valuation analyses. The markets included in KMPG's analyses are the S&P 500, Financial Times Stock Exchange (FTSE), and STOXX 600. As of December 31, 2024 KMPG recommended a MRP of 5.0%.[17]

Third, Dr. Aswath Damodaran provides monthly estimates of the MRP using what he calls an implied risk premium approach. Dr. Damodaran is a professor of finance at the Stern School of Business at New York University and is a researcher on the topic of MRPs, among other things. February 1, 2025, Dr. Damodaran estimated an MRP in the range of 3.75% - 6.06%, with an average of 4.42%.[18]

Fourth, Pablo Fernandez, Diego Garcia, and Lucia Acin prepared and published a study entitled *Survey: Market Risk Premium and Risk-Free Rate used*

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

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

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

for 96 countries in 2024.[19] This is a comprehensive survey of finance and economics professors, analysts, and managers of companies regarding their expectations for the market risk premium and risk-free rate for purposes of calculating the required return on equity in various countries. This survey has been published yearly since 2008. The authors received 1,287 survey responses for the MRP and risk-free rate for the United States. The average and median MRP for 2024 was 5.50%.

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

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

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

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

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

- Value Line forward-looking risk premium 6.12%

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

- Historical risk premium 5.31% - 7.31%
- Kroll 5.00%
- KMPG 5.00%
- IESE Survey 5.50%
- Average Damodaran MRP 4.42%

Q. How did you determine the value for beta?

A. I used two sources in this case. I obtained the betas for the companies in the proxy group from the most recent Value Line report (November 22, 2024) at the time I prepared my Direct Testimony and analyses. The average of the Value Line betas for the proxy group is 0.90.[20]

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

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

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

This formula results in upward adjustments to beta values less than 1.0, which is the case for all the gas distribution companies in the proxy group. The adjusted betas are shown on page 1 of Exhibit RAB-4. The average adjusted beta for the proxy group is 0.76.

For the CAPM I used the average of these two sources for beta, which was 0.83.

Q. Please summarize the CAPM results.

A. The forward-looking CAPM ROE estimate is 9.73%.[21] Using historical risk premiums, the CAPM results range from 9.06% to 10.71%.[22] For the Kroll, KMPG, IESE Survey, and Damodaran MRPs, the CAPM estimates range from 8.32% to 9.21%.[23]

Recommended ROE and Capitalization

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

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

[21] *Id*.

[22] *Id*. at page 2.

[23] *Id*. at page 3.

TABLE 1
SUMMARY OF ROE ESTIMATES

DCF Methodology	
Average Growth Rates	
- High	10.03%
- Low	8.26%
- Average	9.54%
Median Growth Rates:	
- High	10.48%
- Low	8.12%
- Average	9.57%
CAPM Methodology	
Forward-lookng Market Return:	9.73%
Historical Risk Premium:	
- Arithmetic Mean	10.71%
- Supply side MRP	9.84%
- Supply side Less WWI Bias	9.06%
Kroll MRP	8.80%
KMPG MRP	8.80%
IESE MRP Survey	9.21%
Damodaran MRP	8.32%

Q. What is your recommended ROE for Delta?

A. I recommend that the Commission adopt an ROE of 9.55% for Delta. This recommendation is consistent with the midpoint between the average and median growth rate DCF ROE estimates and falls well within the range of CAPM estimates. The midpoint of the CAPM ROE range is 9.51% and the average of all results is 9.31%.

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

A. Yes. I reviewed the capital structure as proposed by Mr. Moul and Delta witness Packer. For the forecasted test year, Delta requested a common equity ratio of 52.76%.

Q. Did you analyze the common equity ratios for the companies in your proxy group?

A. Yes. Table 2 provides the 2023, 2024 and forecasted 2027 - 2029 common equity ratios for the proxy group from Value Line.

Table 2
Atmos Energy
OAG Equity Ratio Analysis

Company	2023	2024	2027 - 2029
Atmos Energy	62.10%	60.00%	60.00%
Chesapeake Utilities	51.20%	53.50%	52.00%
New Jersey Resources	41.80%	42.50%	45.00%
NiSource	45.50%	46.00%	45.00%
Northwest Natural Holding Company	47.40%	47.50%	45.00%
One Gas, Inc.	56.20%	54.00%	49.00%
Spire	41.30%	45.00%	45.00%
Average	49.36%	49.79%	48.71%

Sources: Value Line Investment Survey

Table 2 shows that the 2024 average common equity ratio is expected to be 49.79% for my proxy group. For the forecasted 2027 – 2029 period the common equity ratios are expected to decline slightly to an average of 48.71%. Delta's requested common equity ratio is higher than the proxy group for all periods, although it falls within the range of common equity ratios.

Q. Did Mr. Packer address how Essential Utilities implemented its dividend policy with respect to Delta?

A. Yes. On pages 6 and 7 of his Direct Testimony Mr. Packer testified as follows:

"As it pertains to Delta, the goal is to maintain the approximate range of 50% equity capital and 50% permanent long-term debt capital. In the course of running the business operations, it is necessary to infuse additional capital and/or dividend excess capitalization to the parent in order to maintain this approximate range. The number of times this is necessary is dependent on each utility subsidiary's financial operating needs considering its costs and investment activities."

Q. What is your recommended capital structure for Delta in this case?

A. I recommend that the Commission adopt a capital structure comprised of 50% common equity and 50% long-term debt. This recommendation is consistent with Essential Utilities' dividend policy with respect to Delta and is also consistent with the average common equity ratio for the proxy group as presented in Table 2. Finally, a 50% long-term debt ratio is consistent with the commitment made by Delta in Case No. 2018-00369 that it maintain a maximum debt-to-capitalization ratio, excluding working capital borrowing, of 55%. A 50% long-term debt ratio is well below the 55% maximum threshold.

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

A. Yes. Delta requested a cost of long-term debt of 4.51%. I reviewed the Company's support for its cost of debt and have concluded it is reasonable.

Q. Please present the OAG's recommended weighted cost of capital.

A. Table 3 presents the OAG recommended weighted cost of capital in this proceeding, which is 7.03%.

TABLE 3
OAG Recommended
Weighted Cost of Capital

	Pct.	Cost	Weighted Cost
Long-term Debt	50.00%	4.51%	2.26%
Common Equity	50.00%	9.55%	4.78%
Total	100.00%		7.03%

Q. Did Mr. Moul present a comparative risk analysis between Delta and his Gas Group?

A. Yes. Mr. Moul provided a fundamental risk analysis on pages 9 through 14 of his Direct Testimony. Based on this analysis, he concluded that Delta was riskier than the Gas Group. He concluded that:

- Delta "is very much smaller than the Gas Group and it has much more variable earned returns, which indicates high risk."
- Delta's quality of earnings, credit risk, and operating risk have been "fairly similar" to the Gas Group.
- Delta's financial risk and cash flow risk have been lower than the Gas Group.

Mr. Moul concluded that the Gas Group would provide a very conservative basis for measuring the cost of equity for Delta in this case.

Q. Do you agree with Mr. Moul's conclusion?

A. No. First, Delta's smaller size relative to the companies in my proxy group has little, if any relevance because Delta is an operating company within a much larger holding company, namely Essential Utilities ("Essential"). As Delta witness John Brown noted in his Direct Testimony, Essential is the largest publicly traded water, wastewater, and natural gas provider in the United States. According to Essential's 2023 Annual Report, it generated 2023 operating revenues of $2.05 billion and had total assets of $16.84 billion. Delta receives significant financial and operating support from Essential. In other words, Delta does not operate on its own and being part of Essential substantially mitigates any considerations regarding its size relative to the Gas Group.

Second, regarding historical earned returns Mr. Moul calculated that over the period 2019 – 2023 Delta's average return on book equity was 9.8% and ranged from 8.0% to 13.4%. An average book ROE of 9.8% is certainly reasonable and is higher than my recommended ROE in this case.

Third, I noted earlier that three risk factors evaluated by Mr. Moul showed relatively the same risk between Delta and the Gas Group. Two areas showed lower risk for Delta compared to the Gas Group.

I recommend that Mr. Moul's conclusions regarding Delta's higher risk from its small size and variable earned returns be dismissed.

Q. Please summarize the Commission's finding regarding Delta's Pipeline Replacement Program ("PRP") rider from Case No. 2021-00185.

A. In Case No. 2021-00185 I recommended that consistent with Commission precedent, the investment costs collected through Delta's PRP should receive a lower ROE than the ROE for its rate base investment. My recommended ROE reduction was in the range of 10 – 20 basis points, or 0.10% - 0.20%. I stated the following in my Direct Testimony in that proceeding:

"Delta's PRP was approved by an Order of the Commission in Case No. 2010-00116 dated October 21, 2010. The PRP was proposed in the Direct Testimony of Delta witness John Brown. The original purpose of the PRP was to enable the Company to more effectively implement the replacement of base steel mains in its distribution system. The PRP was also designed to include replacement of service lines, curb valves, meter loops, and any mandated 1 relocates. Mr. Brown gave the following explanation as to why Delta needed the PRP:

> We believe the PRP mechanism will provide benefits to Delta as well as to the customer by avoiding the costly and resource intensive process necessary to review adjustments through the traditional rate case process replacing it instead with a simple, straightforward and financially transparent process. The PRP will allow the Company to earn a more timely return on the incremental investment, including incurred overhead

> expenditures, and be reimbursed for related expenses including incremental depreciation expense and ad valorem taxes while avoiding the resource commitment and expense required by traditional rate cases. The annual PRP filings made by the Company are streamlined so as to avoid the majority of legal and other expenses inherent in traditional rate cases while maintaining an appropriate level of rigor and review.
>
> The PRP Rider enables Delta to include qualifying investments for collection though the rider, with yearly filings that are approved by the Commission. This treatment enables the Company to collect the costs of these investments without filing yearly full rate cases. Investments included in the PRP Rider are allowed to earn a return based on Delta's approved weighted cost of capital."[24]

In its Order dated January 3, 2022 the Commission ordered that the ROE for investments included in the PRP be set at 9.175%, which was 0.075% (7.5 basis points) less than the overall ROE of 9.25%. For purposes of this case, I recommend that the Commission approve a PRP ROE of 9.45%, a reduction of 10 basis points to the Company's rate base ROE of 9.55%. This recommended ROE is a significant increase to the currently allowed ROE of 9.175%. OAG witness Dittemore will provide a detailed explanation in his Direct Testimony as to how this lower ROE should be applied to the PRP going forward.

IV. RESPONSE TO DELTA GAS ROE TESTIMONY

Q. Please summarize your conclusions with respect to Mr. Moul's ROE recommendation.

A. Mr. Moul's recommended ROE of 10.95% substantially overstates the investor required ROE for a lower risk gas distribution utility like Delta. I will demonstrate

[24] Direct Testimony of Richard Baudino, Case No. 2021-00185, pages 34 – 35.

subsequently how Mr. Moul's analyses systematically inflated his DCF, CAPM, and risk premium results.

Q. How did Mr. Moul develop his recommended ROE for Delta?

A. Mr. Moul employed the following models to his Gas Group: the DCF model, the CAPM, the risk premium model, and the comparable earnings model. The ROE results from each of these models is summarized on page 5 of Mr. Moul's Direct Testimony. Mr. Moul explained on pages 5 and 6 that his 10.95% recommendation was based on the average of the DCF model - with and without the leverage adjustment - and the risk premium model results. Mr. Moul's CAPM result (13.55%) and comparable earnings result (13.35%) apparently did not factor into his recommended ROE.

Q. Before you provide more detailed analyses of Mr. Moul's ROE methodologies, how does his recommended ROE compare to recent commission-allowed ROEs?

A. I mentioned in Section II that the average commission-allowed ROE in 2024 for fully litigated rate cases was 9.78%. Mr. Moul's recommended ROE for Delta of 10.95% is 117 basis points, or 1.17% greater than this average allowed ROE. The range of 2024 ROE awards was 9.15% - 11.88%. The 11.88% ROE award was for a small gas utility in Alaska, ENSTAR Natural Gas Company. This ROE was a clear and obvious outlier and eliminating it brings the top end of the 2024 ROE range to 10.08%.[25]

[25] Commission-allowed ROE RRA spreadsheet report for 2024, natural gas companies, downloaded January 16, 2025.

I do not recommend that the KPSC base its ROE award for Delta on the ROE awards from other commissions around the country. Rather, I recommend that the Commission base its decision on the evidence provided in this case. Nevertheless, the RRA ROE data shows that Mr. Moul's recommended ROE of 10.95% is 87 basis points, or 0.87%, higher than the top end of the allowed ROE range excluding ENSTAR. Indeed, Mr. Moul's ROE recommendation is also a clear and obvious outlier.

DCF Analyses

Q. Please summarize Mr. Moul's DCF analysis.

A. Mr. Moul applied a constant growth DCF analysis to his Gas Group beginning on his Attachment PRM-7. Mr. Moul explained that he considered both historical and projected growth rates that were presented in his Attachments PRM-8 and PRM-9.[26] Historical growth rates ranged from 4.86% to 6.56%. The forecasted growth rates ranged from 3.75% (Value Line retention growth) to 6.56% (Value Line earnings per share growth). Mr. Moul recommended a 6.25% growth rate for his DCF model.

Mr. Moul also included a "leverage adjustment" in his DCF calculation. Mr. Moul began his discussion of the leverage adjustment on page 26 of his Direct Testimony. The calculation is shown as Attachment PRM-10. Mr. Moul testified that this adjustment accounts for the financial risk difference between market value

[26] Moul Direct Testimony, page 22, line 22 through page 23, line 14.

and book value capital structures.[27] Mr. Moul presented his DCF analysis including the leverage adjustment on page 30 of his Direct Testimony. The constant growth DCF result, 10.1%, plus the leverage adjustment of 0.97% results in Mr. Moul's recommended DCF return on equity of 11.07%.

Finally, Mr. Moul explained that he added a flotation cost adjustment of 1.5%. The flotation cost adjustment added 0.17% to this DCF result, bringing his final DCF ROE result for the Gas Group to 11.24%.

Q. Is Mr. Moul's leverage adjustment to his DCF result appropriate?

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

First, setting the allowed cost of capital for ratemaking purposes properly utilizes book values of common equity, preferred stock, and long-term debt. The actual book values of capitalization support the utility's investment in plant in service. With respect to the allowed return on common equity, commissions utilize market returns on book value in order to fairly compensate the equity investor for the use of his or her capital. Market-based returns are used for common equity because, unlike debt, there is no contractual cost for common equity. Thus, the return on equity must be determined using current market data and then applied to the percentage of equity in the capital structure based on book value.

It is inappropriate to inflate market-based ROE calculations from the DCF with the leverage adjustment Mr. Moul proposed. Market prices can deviate from

[27] Moul Direct Testimony at page 27, line 1 - 2.

book value for any number of reasons. For example, investors may expect utilities to earn more than their required rate of return on equity, which would cause an increase in market stock prices above book value per share. In uncertain times, investors may view regulated utilities as safe investments, causing a flight to quality and thereby bidding up stock prices. Market based cost of equity estimates applied to the book value of equity is the appropriate means in setting a fair rate of return on invested capital for a regulated utility. Results from the DCF should not be adjusted upward to account for or to prop up high market-to-book ratios, as Mr. Moul has done in this case.

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

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

Q. Are there other concerns with Mr. Moul's DCF analysis?

A. Yes. Mr. Moul selected a growth rate, 6.25%, which is near the upper end of the analysts' forecasts he considered. If one considers the average of the projected

earnings growth rates he used – 5.83%, 6.00%, and 6.56% - the resulting growth rate is 6.12%. Using the average of Mr. Moul's expected earnings growth rate range and my updated six-month dividend yield, the DCF result would be:

*DCF ROE = 3.54% * (1+(.5*6.12%)) + 6.12% = 9.69%*

I also note that this ROE result is still overstated due to the omission of forecasted dividends per share, which I have included in my DCF analyses. The average forecasted dividend growth rate for the proxy group is 4.64% and would lower Mr. Moul's DCF result even further.

Finally, adding the leverage adjustment to the DCF model results in a ROE estimate of 11.07% that is grossly in excess of recent commission-allowed ROEs that I discussed previously.

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

A. No. A flotation cost adjustment attempts to recognize and collect the costs of issuing common stock. Such costs typically include legal, accounting, and printing costs as well as broker fees and discounts. However, it is likely that flotation costs are already accounted for in current stock prices and that adding an adjustment for flotation costs is double counting. A DCF model using current stock prices should already account for investor expectations regarding the collection of flotation costs. Multiplying the dividend yield by a 4% flotation cost adjustment, for example, essentially assumes that the current stock price is wrong and that it must be adjusted downward to increase

the dividend yield and the resulting cost of equity. This is not an appropriate assumption regarding investor expectations or current stock prices. Stock prices most likely already account for flotation costs, to the extent that such costs are even considered by investors.

Moreover, the KPSC has consistently rejected flotation costs in its past ROE orders.

Risk Premium ROE Analyses

Q. Before you address the specifics of Mr. Moul's Risk Premium ("RP") ROE 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 a regulated gas utility. 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.

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

A. The RP approach applies the fundamental premise that investing in a bond is less risky than investing in common stock and that common shareholders will require a premium over bond yields to compensate for the additional risk. Common shareholders will be paid dividends only after contractual debt service obligations

and preferred dividends are met. This is also true in the event a company is liquidated, a scenario in which bond holders will be paid first and if any funds are left after that, common shareholders will be paid. Due to the inherent additional risks common shareholders face compared to bond holders, there will be an additional risk premium demanded by common shareholders for investing in the common stock of any company. The RP method, then, attempts to quantify that additional risk premium for stock returns over bond returns.

Q. Briefly summarize Mr. Moul's risk premium analyses.

A. Mr. Moul's risk premium analysis employed a prospective yield on a long-term A-rated utility bond and an expected risk premium based on his analysis of historical risk premiums from the *2022 SBBI Yearbook, Stocks, Bonds, Bills, and Inflation* ("SBBI Yearbook").

Mr. Moul concluded that a 4.75% prospective yield was reasonable for the long-term A-rated utility bond. His approach is described on pages 32 - 34 of his Direct Testimony. Mr. Moul considered current as well as forecasted bond yields from *Blue Chip Financial Forecasts* in the development of his recommendation.

Mr. Moul's historical risk premium was developed from historical common equity risk premiums during periods of what he described as low, average, and high interest rates. His discussion presented on page 35 of his Direct Testimony and his analysis is contained in his Exhibit PRM-13, pages 1 and 2. From this data, Mr. Moul settled on a risk premium of 6.50%.

Q. Is Mr. Moul's historical risk premium analysis reasonable?

A. No. First, I described the problem with using historical risk premiums earlier in my testimony. This approach naively assumes that earned returns and the resulting risk premiums in an historical period reflect current investor expectations. Such assumptions should be viewed with a good deal of caution and skepticism. Indeed, I presented analyses in Section III of my Direct Testimony that showed the long-term historical risk premium of common stocks over long-term Treasury Bonds is likely overstated due to (1) an increase in the historical P/E ratio that is unlikely to persist in the future and (2) World War II bias.

Secondly, Mr. Moul's analysis of historical risk premiums is not applicable to public utilities. The historical stock returns used by Mr. Moul are for the S&P 500 Companies. Mr. Moul assumed without foundation that investors expect the risk premiums of regulated public utility stocks to be the same as those of the S&P 500. This is incorrect. Investors expect higher returns for the unregulated stocks in the S&P 500 than they would for the stocks of regulated public utilities. This is borne out by the CAPM, used by both Mr. Moul and myself, which adjusts the market risk premium by the lower betas of utility stocks to estimate the ROE. Generally speaking, investors are willing to accept lower returns for utility stocks in return for their greater safety. Using the earned returns on the S&P 500 as Mr. Moul did would overstate the expected risk premium and ROEs for regulated public utilities.

Q. Is the common equity risk premium analysis in Mr. Moul's Attachment PRM-13 useful in terms of estimating the ROE for Delta?

A. No. There are several flaws in Mr. Moul's risk premium analysis that render it useless for estimating the ROE in this case.

First, Mr. Moul arbitrarily separated the historical stock and corporate bond returns using historical yearly long-term Treasury Bond yields. The break point between the so-called low interest rate and high interest rate periods is a Treasury Bond yield of 4.15% according to the data on page 2 of Exhibit PRM-13. Mr. Moul provided no analytical basis for this yield being a proper division between low and high interest rate historical periods.

Second, Mr. Moul's analysis assumes that the actual historical earned returns on stocks are consistent with what investors expected in the low and high interest rate periods that he arbitrarily selected. For example, Mr. Moul's low interest rate period had the highest average return for common stocks (12.40%). The high interest rate period had the lowest earned return for common stocks (11.63%). It is highly questionable that investors would have required a higher ROE in a low interest environment than in a high interest rate environment. Logically, one would expect a lower *required* ROE for stocks in a lower interest rate environment than in a high interest rate environment.

Third, historical risk premiums are generally estimated over a long historical period and not broken up into two distinct periods as Mr. Moul did. Indeed, I refer back to Dr. Damodaran's statement earlier in my testimony in which he noted the problem with standard errors associated with shorter time periods of historical data.

Fourth, Mr. Moul's risk premium analysis fails to take account of factors that likely overstate historical risk premiums, i.e., the supply-side risk premium adjustment and World War II bias I described earlier in the Section III of my testimony.

Capital Asset Pricing Model

Q. Briefly summarize Mr. Moul's CAPM analyses.

A. In formulating his CAPM ROE, Mr. Moul employed an unleveraged/re-leveraged beta, the formula for which may be found on page 37 of his Direct Testimony. Mr. Moul claimed that Value Line betas could not be used to directly estimate the CAPM when the market value of common stock is greater than its book value. Mr. Moul's leverage adjustment increased his Gas Group beta from 0.88 to 1.07. For the risk-free rate of return, Mr. Moul used 3.75%, which considered the Blue Chip forecasts.[28] For the market premium, Mr. Moul used the arithmetic mean of historical market performance and a forecasted return from Value Line, resulting in a market premium of 8.21%.[29] Mr. Moul also added a size adjustment of 1.02% to compensate for the smaller size of his Gas Group. Mr. Moul's recommended CAPM ROE, including flotation costs, was 13.72%.[30]

Q. Please respond to Mr. Moul's CAPM analyses.

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[28] Moul Direct Testimony at page 39, lines 5 - 6.

[29] Moul Direct Testimony at page 39, lines 8 - 20.

[30] Moul Direct Testimony at page 41, line 1.

A. Mr. Moul's CAPM result is substantially overstated and should be rejected by the Commission.

First, the Commission should reject Mr. Moul's reformulated beta estimate. The appropriate beta to use in the CAPM is one that investors expect based on a stock's relative price movements with the overall market. Mr. Moul introduced a highly questionable adjustment to published Value Line betas based on differences between market and book value capital structures. His claim that a leveraged beta should be used in the CAPM for ratemaking purposes is erroneous. He provided absolutely no evidence that investors in utility company stocks use the calculation of beta he presented in his testimony. It is more reasonable to assume that, to the extent investors rely on the CAPM model, they also are more likely to rely on widely published beta estimates from Value Line and S&P Capital IQ as I have done in this case.

Historically, betas for the stocks of regulated gas distribution companies are less than 1.0, indicating lower risk than the overall market. Both of my sources of beta, Value Line and S&P Capital IQ, confirm this relationship with an average proxy group beta of 0.83. Mr. Moul's beta of 1.07 suggests that the lower risk companies in his Gas Group have slightly higher risk than the overall market for stocks contrary to current published betas and to historical experience. A 1.07 beta contributed to Mr. Moul's excessive CAPM ROE estimate of 13.72%.

Q. Is 13.72% inconsistent with current financial market conditions and with recent commission-allowed ROEs?

A. Yes, it most certainly is. I provided the average commission-allowed ROEs for 2023 and 2024 earlier in my testimony. Compared to the 2024 average allowed

ROE in fully litigated cases of 9.78%, Mr. Moul's CAPM ROE of 13.72% is 3.94%, or 394 basis points higher. Apparently the CAPM ROE result was too high for Mr. Moul to include in his recommended ROE range, which focused on his DCF and risk premium studies.

Q. Is it appropriate to include a size adjustment adder to the CAPM ROE as Mr. Moul proposed?

A. No. The data that Mr. Moul relied on to make this adjustment came from the SBBI Yearbook. Research on size premiums is also included in Kroll's *Cost of Capital Navigator*, a source I mentioned earlier in my testimony. Mr. Moul calculated a size premium of 1.02%, or 102 basis points, based on the mid-cap group of companies in the SBBI Yearbook size study shown in his Attachment PRM-14, page 3. This subset of companies has a market capitalization similar to the Gas LDC Group.

The problem with Mr. Moul's approach is that the mid-cap group of companies contains many smaller and more risky unregulated companies. The mid-cap group had an average beta of 1.12, which is significantly greater than the average gas utility proxy group beta of 0.83 in my CAPM analyses. The beta comparison indicates that unregulated companies included in the mid-cap 4 category are riskier than regulated gas distribution utilities like Delta. There is no evidence to suggest that the size premium recommended by Mr. Moul applies to lower risk regulated gas utility companies. The Commission should reject Mr. Moul's small size adjustment of 1.02% in the CAPM.

Q. Based on your understanding of KPSC precedent, has the Commission rejected the inclusion of a size premium in past cases?

A. Yes. In its Order in Delta's last rate case, the Commission stated the following on page 15:

"The Commission reiterates that it continues to reject the use of flotation cost adjustments, financial risk adjustments, size adjustments, and leverage adjustments in the ROE analyses. The Commission will accord most weight to DCF and CAPM analyses based upon regulated company proxy groups. Both the DCF and CAPM are both long-standing and well-accepted models that model risk and returns both implicitly and explicitly."

Not only did the Commission explicitly reject size adjustments, it also rejected flotation cost and leverage adjustments, all of which Mr. Moul recommends the Commission adopt in this case. Mr. Moul presented no new evidence that would persuade the Commission to change its position.

Q. Discuss in more detail how Mr. Moul estimated the expected RP for his CAPM analysis using prospective market returns.

A. The prospective measures included DCF analyses applied to the Value Line market return and are presented in Attachment PRM-14, page 2. Mr. Moul estimated the DCF return on the market using the constant growth approach, with an average growth rate of 9.73%, resulting in an estimated market return of 11.83%. The resulting MRP using this approach is 8.08%.

Q. Why is Mr. Moul's projected Value Line MRP so high?

A. The problem with Mr. Moul's projected Value Line MRP stems from his overstated expected growth rate for the market of 9.73%. This earnings growth rate is unsustainably high in that it vastly exceeds both the historical capital appreciation

for the S&P 500 as well as historical and projected GDP growth rates. Kroll's historical analysis shows that the arithmetic average capital appreciation for the S&P 500 was 7.9% for the historical period 1926 to 2022.[31] Geometric, or compound growth was 6.1%. This historical experience stands in stark contrast to Mr. Moul's forecasted growth rate of 9.73%.

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

Regarding forecasts of GDP, projections that I referenced in Section II of my testimony show even 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 growth of 3.80% per year. The Congressional Budget Office also projects growth in real GDP through 2033 of 1.80% and CPI inflation of 2.0%.[32] If we assume forecasted long-run nominal GDP growth of around 4.0%, then Mr. Moul's constant growth rates for the market of 9.73% simply cannot be sustained over the long-run. Using an inflated growth rate will inevitably lead to an overstatement in

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

[32] Congressional Budget Office, *An Update to The Budget and Economic Outlook: 2024 - 2033*, June 2024. https://www.cbo.gov/publication/60419

the long-run expected market return, the associated MRP, and the CAPM ROE result.

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 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 . . . . [33]

Since the constant growth DCF requires a sustainable long-run growth rate, which Mr. Moul does not use, his projected market returns and MRP estimates are overstated and should be rejected.

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

A. No. As I cited earlier in my Direct Testimony, Kroll and KMPG currently recommend an MRP of 5.0%, the average of the Damodaran MRPs is 4.42%, and the historical MRPs range from 5.31% to 7.31%. The U.S. MRP was 5.5% from the IESE Business School Survey in 2024. Mr. Moul's average recommended MRP of 8.63% is obviously far in excess of these MRPs.

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

Finally, I note that in the authoritative corporate finance textbook by Brealey, Myers, Allen and Edmans, the authors stated: "We have no official position on the issue, but we believe that a range of 5 to 8 percent is reasonable for the risk premium in the United States."[34] Mr. Moul's recommended average MRP of 8.21% exceeds the top end of this range.

Q. Please address the historical risk premium of 8.34% presented by Mr. Moul on page 39 of his Direct Testimony.

A. The 8.34% historical risk premium suffers from the same defects that I described in my response to Mr. Moul's risk premium ROE approach. I recommend that the Commission reject Mr. Moul's flawed historical RP analysis in his CAPM ROE as well.

Comparable Earnings

Q. Briefly comment on Mr. Moul's comparable earnings analysis.

A. Mr. Moul performed a comparable earnings analysis on a group of unregulated companies from Value Line that was selected based on several criteria included in his Attachment PRM-15 and which he described on page 42 of his Direct Testimony. Forecasted and historical rates of return were obtained from Value Line and then averaged. The resulting ROE was 13.35%.

I recommend that the Commission reject Mr. Moul's comparable earnings analysis. Forecasted earned returns on book equity are not reasonable proxies for

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

investor expectations in the marketplace. Near-term book accounting returns do not necessarily reflect investor requirements and/or expected market returns. Accounting returns are not necessarily tied to current market forces such as interest rates and stock prices. Thus, they are poor indicators of investors' current required returns.

Further, expected returns on book equity for unregulated companies have nothing to do with investor expected returns for lower-risk regulated gas utilities such as Delta. And Mr. Moul's 13.35% comparable earnings ROE result is far greater than any commission-allowed return in recent memory and fails the test of reasonableness on its face. I recommend that the Commission reject Mr. Moul's comparable earnings analyses.

Q. Has the Commission rejected the comparable earnings approach?

A. Yes. The Commission's Order in Case No. 98-474 discusses the comparable earnings approach on pages 97 and 98. The Commission stated the following in its Order:

> The Commission finds KU's use of unregulated non-electric companies to be inappropriate for use as comparison companies in its DCF and other analyses for ratemaking purposes. Unregulated non-electric companies do not properly represent the environment in which KU operates. KU correctly states that it must compete with all companies, regulated or otherwise, to attract equity capital, not just with other electric utilities. However, investors do not look at Safety Rankings alone when deciding how to invest their money and are fully aware of risk differentials between regulated and unregulated companies. KU operates in an environment where it has an inalienable right to charge a rate that covers all its reasonable and prudent costs and provides its investors an opportunity to earn a reasonable return. Unregulated companies have no such right. A more appropriate set of comparison companies in analyzing investments with similar risk would be other electric utilities.

Q. Does this complete your Direct Testimony?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF DELTA	**)**	**CASE NO.**
NATURAL GAS COMPANY FOR AN	**)**	**2024-00346**
ADJUSTMENT OF GAS RATES	**)**	

EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF

OFFICE OF THE ATTORNEY GENERAL OF THE COMMONWEALTH OF KENTUCKY

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

February 18, 2025

AFFIDAVIT

STATE OF GEORGIA)

COUNTY OF FULTON)

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

Richard A. Baudino

Sworn to and subscribed before me on this

18th day of FEBRUARY, 2025.

Notary Public

RANDY A FUTRAL
NOTARY PUBLIC
COBB COUNTY, GEORGIA
MY COMMISSION EXPIRES AUGUST 26, 2028

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
Peoples Industrial Intervenors
PSI Industrial Group
Large Power Intervenors (Minnesota)
Tyson Foods
West Virginia Energy Users Group
The Commercial Group
Wisconsin Industrial Energy Group
South Florida Hospital and Health Care Assn.
PP&L Industrial Customer Alliance
Philadelphia Area Industrial Energy Users Gp.
Philadelphia Large Users Group
West Penn Power Intervenors
Duquesne Industrial Intervenors
Met-Ed Industrial Users Gp.
Penelec Industrial Customer Alliance
Penn Power Users Group
Columbia Industrial Intervenors
U.S. Steel & Univ. of Pittsburg Medical Ctr.
Multiple Intervenors
Maine Office of Public Advocate
Missouri Office of Public Counsel
University of Massachusetts - Amherst
WCF Hospital Utility Alliance
West Travis County Public Utility Agency
Steering Committee of Cities Served by Oncor
Steering Committee of Cities Served by CoServ Gas, Ltd.
Utah Office of Consumer Services
Healthcare Council of the National Capital Area
Vermont Department of Public Service
South Carolina Office of Regulatory Staff
Texas Industrial Energy Consumers

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

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

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

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

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

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

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

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

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

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

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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.

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

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

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

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

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

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

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

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

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

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

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10/22	2022-00147	KY	Kentucky Office of the Attorney General and the City of Clinton	Water Service Corporation of Kentucky	Cost of equity
12/22	2022-254-E	SC	South Carolina Office of Regulatory Staff	Duke Energy Progress	Cost of equity
12/22	22-08-08	CT	Connecticut Industrial Energy Consumers	United Illuminating Co.	Cost and revenue allocation, rate design, economic development rates
03/23	2022-00372	KY	Kentucky Office of the Attorney General	Duke Energy Kentucky, Inc.	Cost of equity, capital structure, weighted cost of capital
08/23	23-0280-G-42-T	WV	West Va. Energy Users Group	Mountaineer Gas Co.	Cost and revenue allocation, Rate design
09/23	6680-UR-124	WI	Wisconsin Industrial Energy Group	Wisconsin Power and Light Co.	Cost and revenue allocation, rate design
09/23	6690-UR-127	WI	Wisconsin Industrial Energy Group	Wisconsin Public Service Corp.	Revenue allocation, rate design
09/23	5-UR-110	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
09/23	2023-00191	KY	Kentucky Office of the Attorney General	Kentucky-American Water Co.	Return on equity, capital structure, and weighted cost of capital
10/23	2023-00159	KY	Ky. Office of the Attorney General, Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity
11/23	23-0460-E-42T	WV	West Virginia Energy Users Group	Monongahela Power Co. and The Potomac Edison Company	Return on equity, cost of capital
02/24	R-2023-3043189 C-2023-3044289 C-2023-3044375	PA	Cleveland-Cliffs Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design, revenue decoupling rider
03/24	R-2023-3044549	PA	Peoples Industrial Intervenors	Peoples Natural Gas Company	Cost and revenue allocation, rate design
08/24	2024-00092		Kentucky Office of the Attorney General	Columbia Gas of Kentucky	Return on equity, Cost of capital
09/2024	R-2024-3047822 R-2024-3047824		Aqua Large Users Group	Aqua Pennsylvania, Inc.	Revenue allocation
01/2025	2024-00276		Kentucky Office of the Attorney General	Atmos Energy Corp.	Return on equity, capital structure
02/2025	2024-00346		Kentucky Office of the Attorney General	Delta Natural Gas Co.	Return on equity, capital structure

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

Company Name	Average Price				Current	Dividend Yield			
	1-month	2-month	3-month	6-month	Dividend	1-month	2-month	3-month	6-month
Atmos Energy	140.70	140.81	142.38	138.64	3.48	2.47%	2.47%	2.44%	2.51%
Chesapeake Utilities	120.98	123.03	124.28	121.63	2.56	2.12%	2.08%	2.06%	2.10%
New Jersey Resources	46.76	47.29	47.63	46.87	1.80	3.85%	3.81%	3.78%	3.84%
NiSource	36.94	36.79	36.71	35.06	1.06	2.87%	2.88%	2.89%	3.02%
Northwest Natural Holding Company	39.70	40.35	40.75	40.17	1.96	4.94%	4.86%	4.81%	4.88%
One Gas, Inc.	69.81	70.45	71.96	71.42	2.64	3.78%	3.75%	3.67%	3.70%
Spire	68.85	68.66	68.31	66.82	3.14	4.56%	4.57%	4.60%	4.70%
Proxy Group Average						3.51%	3.49%	3.46%	3.54%

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

PROXY GROUP
DCF Growth Rate Analysis

	Company	(1) Value Line DPS	(2) Value Line EPS	(3) S&P IQ EPS	(4) Zacks EPS
1	Atmos Energy	7.50%	7.00%	7.71%	7.10%
2	Chesapeake Utilities	8.00%	6.50%	8.33%	8.33%
3	New Jersey Resources	5.00%	5.00%	5.90%	5.90%
4	NiSource	4.50%	9.50%	7.80%	8.10%
5	Northwest Natural Holding Company	0.50%	6.50%	5.50%	5.50%
6	One Gas, Inc.	2.50%	3.50%	2.63%	4.70%
7	Spire	4.50%	4.50%	6.82%	5.80%
	Averages	4.64%	6.07%	6.38%	6.49%
	Median	4.50%	6.50%	6.82%	5.90%

Sources: **Value Line Investment Survey, Nov. 22, 2024**
S&P IQ Pro and Zacks accessed January 30, 2025
S&P IQ Pro EPS growth used as proxies for Zacks EPS for Chesapeake Utilities, New Jersey Resources, and Northwest Natural Holding Co.

PROXY GROUP
DCF RETURN ON EQUITY

	(1) Value Line Dividend Gr.	(2) Value Line Earnings Gr.	(3) S&P IQ Earning Gr.	(4) Zacks Earnings Gr.	(5) Average of All Gr. Rates
Method 1:					
Dividend Yield	3.54%	3.54%	3.54%	3.54%	3.54%
Proxy Group Average Growth Rate	4.64%	6.07%	6.38%	6.49%	5.90%
Expected Dividend Yield	3.62%	3.64%	3.65%	3.65%	3.64%
DCF Return on Equity	***8.26%***	***9.71%***	***10.03%***	***10.14%***	***9.54%***
Method 2:					
Dividend Yield	3.54%	3.54%	3.54%	3.54%	3.54%
Proxy Group Median Growth Rate	4.50%	6.50%	6.82%	5.90%	5.93%
Expected Dividend Yield	3.62%	3.65%	3.66%	3.64%	3.64%
DCF Return on Equity	***8.12%***	***10.15%***	***10.48%***	***9.54%***	***9.57%***

PROXY GROUP
Capital Asset Pricing Model Analysis

Value Line Forward-Looking MRP

Line No.		Value Line
1	Market Required Return Estimate	10.78%
2	Risk-free Rate of Return, 30-Year Treasury Bond	4.66%
3	Risk Premium	
4	(Line 1 minus Line 2)	6.12%
5	Proxy Group Beta	0.83
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	5.07%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	**9.73%**

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

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

Source: Federal Reserve data

Value Line Projected Return Data:

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

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

Proxy Group Betas:	S&P IQ	Value Line
Atmos Energy	0.81	0.90
Chesapeake Utilities	0.77	0.85
New Jersey Resources	0.77	1.00
NiSource	0.69	0.95
Northwest Natural Holding Company	0.74	0.85
One Gas, Inc.	0.80	0.85
Spire	0.73	0.90
Average	0.76	0.90

Average of Value Line and S&P 0.83

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

PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	Arithmetic Mean	Supply Side ERP	Supply Side Less WWII Bias
Historical Market Risk Premium	7.31%	6.26%	5.31%
Proxy Group Beta, Value Line	0.83	0.83	0.83
Beta * Market Premium	6.06%	5.19%	4.40%
Risk-free Rate of Return	4.66%	4.66%	4.66%
CAPM Cost of Equity, Value Line Beta	**10.71%**	**9.84%**	**9.06%**

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

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

	IESE Survey 2024	KMPG	Kroll	Damodarin Average MRP
Market Risk Premium	5.50%	5.00%	5.00%	4.42%
Gas Proxy Group Beta	0.83	0.83	0.83	0.83
Beta times MRP	4.56%	4.14%	4.14%	3.66%
Risk-free Rate of Return	4.66%	4.66%	4.66%	4.66%
CAPM Cost of Equity	**9.21%**	**8.80%**	**8.80%**	**8.32%**