

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

**In the Matter of:**

**ELECTRONIC APPLICATION OF )  
DUKE ENERGY KENTUCKY, INC. FOR )  
1) AN ADJUSTMENT OF THE NATURAL ) CASE NO. 2021-00190  
GAS RATES; 2) APPROVAL OF NEW )  
TARIFFS, AND 3) ALL OTHER REQUIRED )  
APPROVALS, WAIVERS, AND RELIEF )**

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

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

**J. KENNEDY AND ASSOCIATES, INC.  
ROSWELL, GEORGIA**

**SEPTEMBER 1, 2021**

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**DIRECT TESTIMONY OF RICHARD A. BAUDINO**

**I. QUALIFICATIONS AND SUMMARY**

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

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

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

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

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

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

12

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

1 service, rate of return, rate design, revenue requirements, analysis of  
2 sale/leasebacks of generating plants, utility finance issues, and generating plant  
3 phase-ins.

4

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

11

12 Exhibit RAB-1 summarizes my expert testimony experience.

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

14 A. I am submitting Direct Testimony on behalf of the Kentucky Office of the Attorney  
15 General ("KYOAG").

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

17 A. The purpose of my Direct Testimony is to address the investor required return on  
18 equity ("ROE") for the regulated gas operations of Duke Energy Kentucky, Inc.  
19 ("DEKY" or "Company"). I will also address the Company's cost of long-term  
20 debt. Finally, I will respond to the Direct Testimony and ROE recommendation of  
21 DEKY witness Mr. Dylan D'Ascendis.

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

1 A. I recommend that the Commission authorize an allowed ROE for DEKY of 9.10%.  
2 My recommendation is based on a ROE range of 8.60% to 9.30%. My  
3 recommended range is based on the results of a discounted cash flow ("DCF")  
4 analysis applied to a proxy group of seven regulated gas distribution companies,  
5 the same proxy group employed by Mr. D'Ascendis. I also performed Capital Asset  
6 Pricing Model ("CAPM") analyses using both historical and forecasted risk  
7 premiums. The CAPM results are lower than my DCF results in this case, which  
8 further confirms the reasonableness of my DCF estimates. A 9.10% allowed ROE  
9 is reasonable given the low-risk nature of DEKY's regulated gas business and is  
10 consistent with investor expectations and requirements in the current economic  
11 environment of low interest rates.

12  
13 I also recommend a cost of long-term debt of 3.80%, which is lower than DEKY's  
14 request of 3.843%. DEKY included two forecasted issuances of long-term debt  
15 that had overstated coupon rates. Updated information provided by the Company  
16 in discovery showed lower and more reasonable expected coupon rates for these  
17 two debt issues.

18  
19 The KYOAG's recommended weighted cost of capital is 6.17%. This  
20 recommendation includes KYOAG witness Kollen's adjustments to the Company's  
21 requested capital structure.

22

1 I also recommend an adjustment to the Commission's approved ROE in this case as  
2 it applies to the Company's proposed Governmental Mandated Adjustment rider  
3 ("Rider GMA"). Based on Commission precedent, if Rider GMA is approved I  
4 recommend a downward adjustment of 10 - 20 basis points, or 0.10% - 0.20%, to  
5 the Commission's allowed ROE as it is applied to capital costs recovery.

6  
7 In Section IV, I will respond to the testimony and ROE recommendation of Mr.  
8 D'Ascendis. I will demonstrate that his recommended ROE of 10.30% for DEKY  
9 significantly overstates the investor required return for lower risk regulated gas  
10 utilities and is inconsistent with today's low interest rate environment. The ROE  
11 recommended by Mr. D'Ascendis would harm DEKY's Kentucky ratepayers by  
12 contributing to an inflated revenue requirement.

13 **II. REVIEW OF ECONOMIC AND FINANCIAL CONDITIONS**

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

16 A. Generally speaking, the estimated cost of equity should be comparable to the  
17 returns of other firms with similar risk structures and should be sufficient for the  
18 firm to attract capital. These are the basic standards set out by the United States  
19 Supreme Court in *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591  
20 (1944) and *Bluefield W.W. & Improv. Co. v. Public Service Comm'n*, 262 U.S. 679  
21 (1922).

22

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

11

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

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

19 A. Yes. The common stock of regulated utilities is considered to be interest rate  
20 sensitive. This means that the cost of equity for regulated utilities tends to rise and  
21 fall with changes in interest rates. For example, as interest rates rise, the cost of  
22 equity will also rise, and vice versa when interest rates fall. This relationship is due

1 in large part to the capital-intensive nature of the utility industry, which relies  
2 heavily on both debt and equity to finance its regulated investments.

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

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

8 Monetary policy in the United States comprises the Federal  
9 Reserve’s actions and communications to promote maximum  
10 employment, stable prices, and moderate long-term interest rates--  
11 the three economic goals the Congress has instructed the Federal  
12 Reserve to pursue.<sup>1</sup>

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

22 **Q. Describe the trend in interest rates over the last 10 or so years.**

---

<sup>1</sup> <https://www.federalreserve.gov/monetarypolicy.htm>

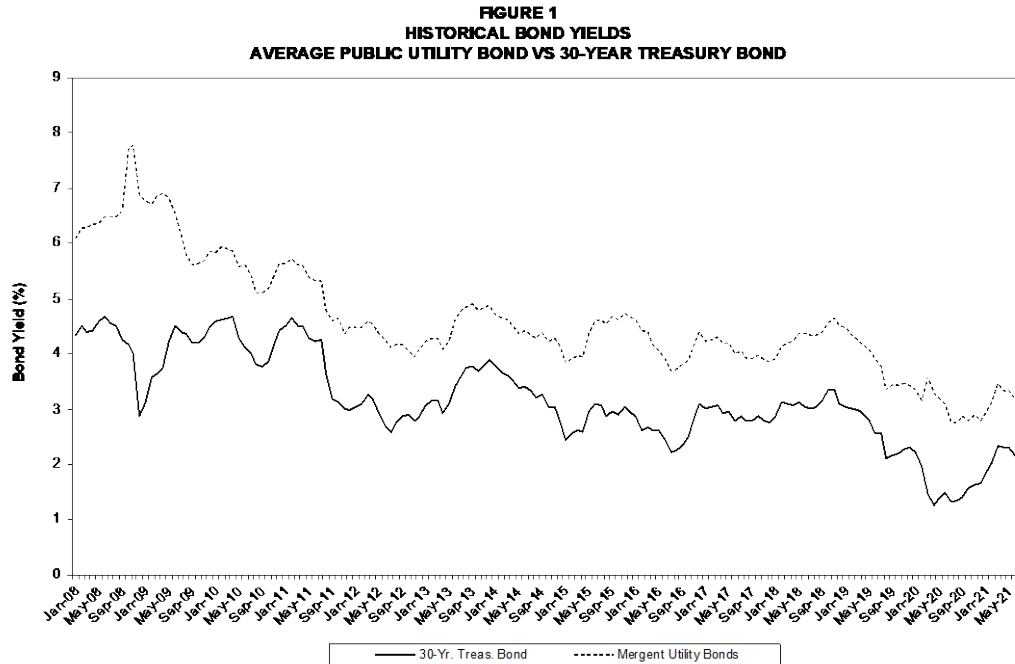


1 A. Since 2007 and 2008, the overall trend in interest rates in the U.S. and the world  
2 economy has been lower and this trend continued into 2020 - 2021 as governments  
3 and central banks instituted programs in response to the economic shocks brought  
4 about by the Covid-19 pandemic. The trend of lower interest rates was precipitated  
5 by the 2007 financial crisis and severe recession that followed in December 2007.  
6 In response to this economic crisis, the Fed undertook a series of steps to stabilize  
7 the economy, ease credit conditions, and lower unemployment and interest rates.  
8 These steps are commonly known as Quantitative Easing (“QE”) and were  
9 implemented in three distinct stages: QE1, QE2, and QE3. The Fed’s stated  
10 purpose of QE was “to support the liquidity of financial institutions and foster  
11 improved conditions in financial markets.”<sup>2</sup>

12  
13 Figure 1 below presents a graph that tracks the 30-Year Treasury bond yield and  
14 the Mergent average utility bond yield. The time period covered is January 2008  
15 through July 2021.

---

<sup>2</sup> [https://www.federalreserve.gov/monetarypolicy/bst\\_crisisresponse.htm](https://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm)



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7

We can see from the graph in Figure 1 that since 2008, the trend in long-term bond yields has been lower. In January 2008, the yield on the 30-Year Treasury bond was 4.33% and the yield on the average public utility bond was 6.08%. As of July 2021, the 30-Year Treasury yield was 1.94% and the average utility bond yield was 2.99%.

8

**Q. Please summarize recent Fed actions with respect to monetary policy that led to lower interest rates in 2019 and 2020.**

9

10

**A.** In 2019, the Fed lowered the federal funds rate three times. On March 3, 2020, and

11

March 15, 2020, the Fed again lowered the federal funds rate in response to

12

mounting concerns associated with the spread of the coronavirus worldwide and

13

the associated lockdowns of the economy. The Fed lowered the federal funds rate

14

to 0% in March 2020. Beginning in March 2020, the Fed also announced a broad

15

array of expansive new actions to support credit and financial markets and

1 assistance to businesses and households. The Board of Governors of the Fed  
2 system established a new resource on its web site that contains the Fed's ongoing  
3 response to the COVID-19 pandemic.<sup>3</sup>

4  
5 On July 28, 2021, the Fed issued its most recent statement regarding its continued  
6 support of the U.S. economy and on maintaining the federal funds rate near 0%.

7 The following quotes were drawn from that statement:

8 With progress on vaccinations and strong policy support, indicators of  
9 economic activity and employment have continued to strengthen. The  
10 sectors most adversely affected by the pandemic have shown improvement  
11 but have not fully recovered. Inflation has risen, largely reflecting transitory  
12 factors. Overall financial conditions remain accommodative, in part  
13 reflecting policy measures to support the economy and the flow of credit to  
14 U.S. households and businesses.

15  
16 The path of the economy continues to depend on the course of the virus.  
17 Progress on vaccinations will likely continue to reduce the effects of the  
18 public health crisis on the economy, but risks to the economic outlook  
19 remain.

20  
21 The Committee seeks to achieve maximum employment and inflation at the  
22 rate of 2 percent over the longer run. With inflation having run persistently  
23 below this longer-run goal, the Committee will aim to achieve inflation  
24 moderately above 2 percent for some time so that inflation averages 2  
25 percent over time and longer-term inflation expectations remain well  
26 anchored at 2 percent. The Committee expects to maintain an  
27 accommodative stance of monetary policy until these outcomes are  
28 achieved. The Committee decided to keep the target range for the federal  
29 funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain  
30 this target range until labor market conditions have reached levels consistent  
31 with the Committee's assessments of maximum employment and inflation  
32 has risen to 2 percent and is on track to moderately exceed 2 percent for  
33 some time. Last December, the Committee indicated that it would continue  
34 to increase its holdings of Treasury securities by at least \$80 billion per  
35 month and of agency mortgage-backed securities by at least \$40 billion per

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<sup>3</sup> For more information on the Fed's response to COVID-19, please see:  
<https://www.federalreserve.gov/covid-19.htm>.

1 month until substantial further progress has been made toward its maximum  
 2 employment and price stability goals. Since then, the economy has made  
 3 progress toward these goals, and the Committee will continue to assess  
 4 progress in coming meetings. These asset purchases help foster smooth  
 5 market functioning and accommodative financial conditions, thereby  
 6 supporting the flow of credit to households and businesses.  
 7

8 The Fed's statement indicates that its stance will be accommodative in the near  
 9 term, which means that short-term interest rates will be kept low to assist economic  
 10 recovery, even though inflation may rise above the Fed's target long-term goal of  
 11 2.0% in the near term.

12 **Q. Could you show in more detail the course of Treasury and utility bond yields**  
 13 **since the beginning of 2020?**

14 A. Table 1 presents the yields on 30-Year Treasury and the Mergent average utility  
 15 bond from January 2020 through July 2021. The data in Table 1 were taken from  
 16 Figure 1 in order to more clearly show the course of long-term interest rates since  
 17 the beginning of the pandemic in 2020.

**TABLE 1**  
**30-Year Treasury and**  
**Avg. Utility Bond Yields**  
**January 2020 - June 2021**

	<u>30-Year</u> <u>Treasury</u>	<u>Avg. Public</u> <u>Utility</u>
Jan-20	2.22	3.34
Feb-20	1.97	3.16
Mar-20	1.46	3.59
Apr-20	1.27	3.31
May-20	1.38	3.22
Jun-20	1.49	3.10
Jul-20	1.31	2.77
Aug-20	1.36	2.76
Sep-20	1.42	2.88
Oct-20	1.57	2.80
Nov-20	1.62	2.89
Dec-20	1.67	2.80
Jan-21	1.82	2.94
Feb-21	2.04	3.13
Mar-21	2.34	3.48
Apr-21	2.30	3.33
May-21	2.32	3.36
Jun-21	2.16	3.19
Jul-21	1.94	2.99

18

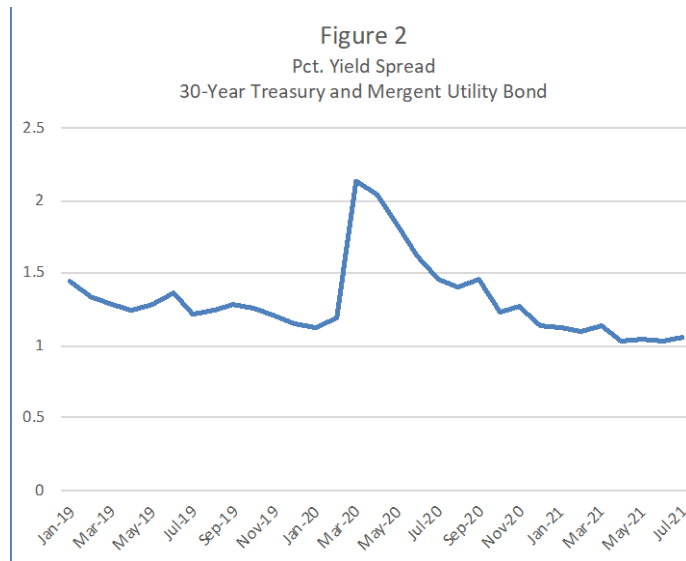
1 Table 1 shows that in March 2020 there was a sharp divergence in the yields of  
2 Treasury and utility bond yields. The 30-Year Treasury declined substantially from  
3 1.97% in February to 1.27% in April. Alternatively, utility bond yields went in the  
4 opposite direction, increasing from 3.16% in February to 3.59% in March, then  
5 declined through August. Both Treasury and utility bond yields increased from  
6 August 2020 through May 2021, then pulled back slightly in June and July of 2021.

7  
8 It is interesting to note that long-term bond yields in June and July 2021 are at  
9 roughly the same levels in January 2020, before the pandemic and associated  
10 economic shutdowns hit the U.S. economy.

11 **Q. You just mentioned that the yields in Treasury bonds and utility bonds went**  
12 **in different directions early in 2020. Please illustrate and further explain this**  
13 **occurrence.**

14 A. Figure 2 on the following page presents the percentage yield spread between 30-  
15 Year Treasury bonds and the Mergent average utility bond from January 2020  
16 through July 2021. Figure 2 shows that the yield spread in January 2020 was  
17 1.12%, meaning that the average utility bond yield was 121 basis points higher than  
18 the 30-Year Treasury bond yield. The yield spread then spiked up to 2.13% in  
19 March and 2.03% in April. The yield spread then declined from May 2020 and  
20 finished July 2021 at 1.05%. The behavior of the monthly yield spreads depicted  
21 in Figure 2 suggests that the market's perception of the relative risk of regulated  
22 utility bonds increased sharply in March and April of 2020, but has subsided  
23 significantly since then.

24



1

2 **Q. What are the expectations for inflation and interest rates going forward?**

3 A. The Federal Reserve Bank of Philadelphia publishes the *Survey of Professional*  
 4 *Forecasters* (“Survey”), in which a panel of 36 forecasters provides projections for  
 5 a number of economic variables, including growth in Gross Domestic Product,  
 6 inflation, unemployment, and short-term and long-term interest rates. The edition  
 7 for the second quarter was released on May 14, 2021. This most recent edition of  
 8 the Survey stated the following:

9 The U.S. economy looks stronger now than it did three months ago,  
 10 according to 36 forecasters surveyed by the Federal Reserve Bank  
 11 of Philadelphia. The panel predicts real GDP will grow at an annual  
 12 rate of 7.9 percent this quarter, up 2.9 percentage points from the  
 13 prediction in the last survey. Over the next three quarters, the  
 14 panelists also see a stronger rebound in output growth than they  
 15 predicted previously. Using the annual-average over annual-average  
 16 computation, the forecasters expect real GDP to grow at an annual  
 17 rate of 6.3 percent in 2021 and 4.3 percent in 2022. The projections  
 18 for 2021 and 2022 are up from 4.5 percent and 3.7 percent,  
 19 respectively, in the last survey.<sup>4</sup>  
 20

---

<sup>4</sup> <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/spf-q2-2021>

1 Other economic variables were forecasted as follows:

- 2 • Consumer Price Index (“CPI”) inflation: expected to average 3.0% for 2021  
3 and 2.3% for 2022 and 2023.
- 4 • 10-Year Treasury bond yield increasing from 1.7% in 2021 to 2.1% in 2022,  
5 2.3% in 2023, and 2.5% in 2024.
- 6 • Over the next 10 years, the forecasters expected CPI inflation to average  
7 2.30%.
- 8 • A declining unemployment rate of 5.5% for 2021, 4.4% for 2022, and 3.9%  
9 for 2023.<sup>5</sup>

10

11 The Federal Reserve also issued recent economic projections on June 16, 2021.

12 Key data forecasts from the Fed are as follows:

- 13 • PCE (Personal consumption expenditures) inflation rate of 2.4% for 2021,  
14 2.1% for 2022, and 2.2% for 2023, with longer run inflation at 2.0%.
- 15 • Unemployment rate of 4.5% for 2021, 3.9% for 2022, and 3.5% for 2023.  
16 Longer run unemployment rate of 4.0%.
- 17 • Growth in real GDP of 7.0% for 2021, 3.3% for 2022, and 2.4% for 2023.  
18 Longer run growth rate of 1.8%.<sup>6</sup>

19

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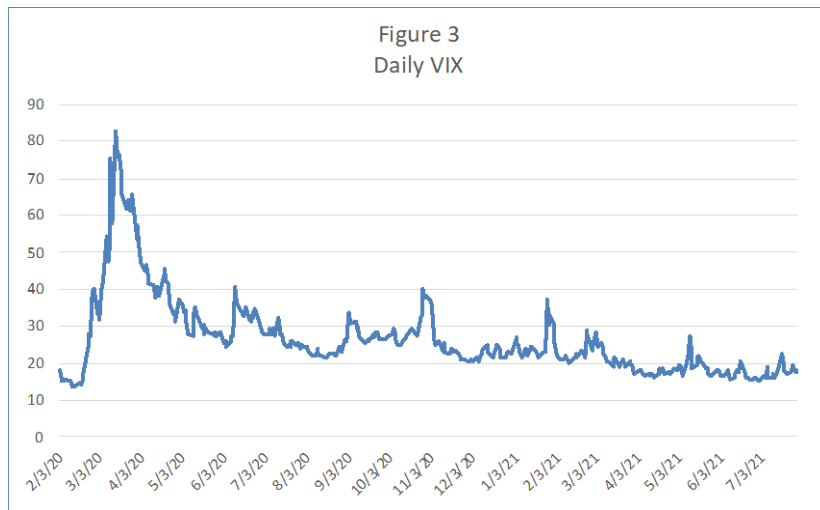
<sup>5</sup> <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/spf-q2-2021>

<sup>6</sup> <https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210616.pdf>

1 I conclude from these economic forecasts that the consensus is continued economic  
 2 recovery from the economic shutdowns related to the pandemic, declining  
 3 unemployment, and a moderate increase in inflation in the near term.

4 **Q. Please provide the Commission with some additional background information**  
 5 **regarding market volatility since January 2020 through July 2021.**

6 A. A widely used measure of market volatility is the Chicago Board Options Exchange  
 7 (“CBOE”) Volatility Index (“VIX”), also called the “fear index” or “fear gauge.”  
 8 Basically, the VIX measures the market’s expectations for volatility over the next  
 9 30-day period. The higher the VIX, the greater the expectation of volatility and  
 10 market risk. Figure 3 on the following page presents the VIX from February 1,  
 11 2020 through July 30, 2021.



13  
 14  
 15 Figure 3 shows that the VIX was much lower at the beginning of February 2020  
 16 (17.97), shot up to a high of 82.69 on March 16, then generally declined through  
 17 the year and the first half of 2021, with the VIX at 18.24 on July 30, 2021. Figure



1 3 shows us that stock market volatility has declined substantially since the March -  
2 April 2020 period and is comparable to the daily average for 2019, which was  
3 15.39.

4 **Q. How does the investment community regard the gas distribution utility**  
5 **industry as a whole?**

6 A. The May 28, 2021 Value Line report on the gas distribution industry made the  
7 following conclusion:

8 With the exception of Chesapeake Utilities, the stocks in our category don't stand  
9 out for Timeliness. Still, they ought to draw the attention of income-minded  
10 investors with a conservative orientation, since those good yielding issues possess  
11 high grades for Price Stability, and most are ranked 1 (Highest) or 2 (Above  
12 Average) for Safety. And, as stated above, there are some good choices for price  
13 performance in the 18-month period and out to 2024-2026.  
14

15 **Q. What are the current credit ratings for DEKY?**

16 A. DEKY is currently assigned a BBB+ issuer credit rating from Standard and Poor's  
17 ("S&P") and a Baa1 long-term rating from Moody's. Both of these credit ratings  
18 are firmly in the investment grade category. Both S&P's and Moody's credit  
19 outlooks for DEKY are stable.

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

21 **Q. Please describe the methods you employed in estimating a fair rate of return**  
22 **for the regulated gas operations of DEKY.**

23 A. I employed a DCF analysis using a proxy group of seven regulated gas distribution  
24 utilities. My DCF analysis is my standard constant growth form of the model that  
25 employs growth rate forecasts from the following three sources: dividend and  
26 earnings growth from Value Line, and earnings growth from Yahoo! Finance, and

1 Zacks. I also employed CAPM analyses using both historical and forward-looking  
2 data. Although I did not rely on the CAPM for my recommended ROE of 9.10%  
3 for DEKY, the CAPM provides an alternative approach to estimating the ROE for  
4 the Company, albeit a less reliable one. In this case, the CAPM results were below  
5 the DCF results.

## 6 **DCF Model**

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

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

$$14 \quad V = \frac{R}{(1+r)} + \frac{R}{(1+r)^2} + \frac{R}{(1+r)^3} + \dots + \frac{R}{(1+r)^n}$$

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

18 This is no different from determining the value of any asset from an economic point  
19 of view; however, the commonly employed DCF model makes certain simplifying  
20 assumptions. One is that the stream of income from the equity share is assumed to  
21 be perpetual; that is, there is no salvage or residual value at the end of some maturity  
22 date (as is the case with a bond). Another important assumption is that financial  
23 markets are reasonably efficient; that is, they correctly evaluate the cash flows

1 relative to the appropriate discount rate, thus rendering the stock price efficient  
2 relative to other alternatives. Finally, the model I typically employ also assumes a  
3 constant growth rate in dividends. The fundamental relationship employed in the  
4 DCF method is described by the formula:

$$5 \quad k = D_1/P_0 + g$$

6           Where:     *D*<sub>1</sub> = the next period dividend  
7                        *P*<sub>0</sub> = current stock price  
8                        *g* = expected growth rate  
9                        *k* = investor-required return

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

19 **Q. What was your first step in conducting your DCF analysis for DEKY?**

20 A. My first step was to construct a proxy group of companies with a risk profile that  
21 is reasonably similar to the Company. DEKY is a subsidiary of Duke Energy and,  
22 as such, does not have publicly traded stock. Thus, one cannot estimate a DCF cost  
23 of equity on the Company directly. Instead, one must estimate the ROE for a  
24 reliable proxy group of companies.

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

2 A. For purposes of this case, I chose to rely on the proxy group that DEKY witness  
3 D'Ascendis used for his analysis. Mr. D'Ascendis described the criteria he used to  
4 select companies for his proxy group beginning on pages 13 through 14 of his  
5 Direct Testimony. Mr. D'Ascendis' criteria for group selection are reasonable and  
6 I will adopt his proxy group for purposes of this case.

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

9 A. I first determined the current dividend yield,  $D_1/P_0$ , from the basic equation. My  
10 general practice is to use six months as the most reasonable period over which to  
11 estimate the dividend yield. The six-month period I used covered the months from  
12 February through July 2021. I obtained historical prices and dividends from  
13 Yahoo! Finance. The annualized dividend divided by the average monthly price  
14 represents the average dividend yield for each month in the period.

15

16 The resulting average dividend yield for the proxy group is 3.51%. These  
17 calculations are shown in Exhibit RAB-2.

18 **Q. What is the monthly trend of dividend yields for the proxy group?**

19 A. The average dividend yield for the proxy group declined from a high of 3.77% in  
20 February 2021 to 3.40% in May 2021. The proxy group dividend yield increased  
21 to 3.51% in July 2021.

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

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

8  
9 For my analysis in this proceeding, I used three major sources of analysts' forecasts  
10 for growth: Value Line, Zacks, and Yahoo! Finance. This is the method I typically  
11 use for estimating growth for my DCF calculations.

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

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

20  
21 Zacks gathers opinions from a variety of analysts on earnings growth forecasts for  
22 numerous firms including regulated gas utilities. The estimates of the analysts  
23 responding are combined to produce consensus average estimates of earnings

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

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

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

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

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

19 **Q. How did you proceed to determine the DCF ROE for the proxy group?**

20 A. To estimate the expected dividend yield ( $D_1$ ), the current dividend yield must be  
21 moved forward in time to account for dividend increases over the next twelve

1 months. I estimated the expected dividend yield by multiplying the current  
2 dividend yield by one plus one-half the expected growth rate.

3  
4 Exhibit RAB-3, page 2, presents my standard method of calculating dividend  
5 yields, growth rates, and return on equity for the proxy group of companies. The  
6 proxy group DCF ROE section shows the application of each of four growth rates  
7 to the current proxy group dividend yield of 3.51% to calculate the expected  
8 dividend yield. I then added the expected growth rates to the expected dividend  
9 yield. My DCF ROE was calculated using two different methods. Method 1 uses  
10 the average growth rates for the group shown on page 1 of Exhibit RAB-3 and  
11 Method 2 utilizes the median growth rates shown on that page.

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

13 A. For Method 1 (average growth rates), the results range from 8.46% to 11.00%, with  
14 the average of these results being 9.45%. For Method 2 (median growth rates), the  
15 results range from 8.09% to 10.64%, with the average of these results being 9.11%<sup>7</sup>.

16 **Capital Asset Pricing Model**

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

18 A. The theory underlying the CAPM approach is that investors, through diversified  
19 portfolios, may combine assets to minimize the total risk of the portfolio.  
20 Diversification allows investors to diversify away all risks specific to a particular

---

<sup>7</sup> Refer to Exhibit RAB-3, page 2, for these results.

1 company and be left only with market risk that affects all companies. Thus, the  
2 CAPM theory identifies two types of risks for a security: company-specific risk and  
3 market risk. Company-specific risk includes such events as strikes, management  
4 errors, marketing failures, lawsuits, and other events that are unique to a particular  
5 firm. Market risk includes inflation, business cycles, war, variations in interest  
6 rates, and changes in consumer confidence. Market risk tends to affect all stocks  
7 and cannot be diversified away. The idea behind the CAPM is that diversified  
8 investors are rewarded with returns based on market risk.

9  
10 Within the CAPM framework, the expected return on a security is equal to the risk-  
11 free rate of return plus a risk premium that is proportional to the security's market,  
12 or non-diversifiable, risk. Beta is the factor that reflects the inherent market risk of  
13 a security and measures the volatility of a particular security relative to the overall  
14 market for securities. For example, a stock with a beta of 1.0 indicates that if the  
15 market rises by 15%, that stock will also rise by 15%. This stock moves in tandem  
16 with movements in the overall market. Stocks with a beta of 0.5 will only rise or  
17 fall 50% as much as the overall market. So with an increase in the market of 15%,  
18 this stock will only rise 7.5%. Stocks with betas greater than 1.0 will rise and fall  
19 more than the overall market. Thus, beta is the measure of the relative risk of  
20 individual securities vis-à-vis the market.

21  
22 Based on the foregoing discussion, the equation for determining the return for a  
23 security in the CAPM framework is:



1 
$$K = R_f + \beta(MRP)$$

2           Where:         $K$      = *Required Return on equity*

3                        $R_f$     = *Risk-free rate*

4                        $MRP$  = *Market risk premium*

5                        $\beta$      = *Beta*

6

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

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

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

1 in his best-selling book on investing:

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

12 Pratt and Grabowski also stated the following with respect to the CAPM:<sup>9</sup>

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

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

---

<sup>8</sup> *A Random Walk Down Wall Street*, Burton G. Malkiel, page 218, 2019 edition.

<sup>9</sup> *Cost of Capital*, Shannon Pratt and Roger Grabowski, 5th Edition, page 288, published by Wiley.

1

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

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

10 A. I used two approaches to estimate the MRP portion of the CAPM equation. One  
11 approach uses the expected return on the market and is forward-looking. The other  
12 approach employs an historical risk premium based on actual stock and bond  
13 returns from 1926 through 2020.

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

15 A. The first source I used was the Value Line Investment Analyzer Plus Edition for  
16 July 22, 2021. The Value Line Investment Analyzer provides a summary statistical  
17 report detailing, among other things, forecasted total annual return over the next 3  
18 to 5 years. I present Value Line's projected annual returns on page 2 of Exhibit  
19 RAB-4. I included median and average projected annual return, resulting in a range  
20 of 8.00% to 8.68%. The average of these market returns is 8.34%.

21 **Q. Please continue with your market return analysis.**

22 A. I also considered a supplemental check to the Value Line projected market return

1 estimates. Duff and Phelps compiled a study of historical returns on the stock  
2 market in its *Cost of Capital Navigator: U.S. Cost of Capital Module*, which is part  
3 of its Cost of Capital Navigator subscription service. Some analysts employ this  
4 historical data to estimate the MRP of stocks over the risk-free rate. The  
5 assumption is that a risk premium calculated over a long period of time is reflective  
6 of investor expectations going forward. Exhibit RAB-5 presents the calculation of  
7 the market returns and MRPs using the historical data from Duff and Phelps.

8 **Q. Please explain how this historical risk premium is calculated.**

9 A. Exhibit RAB-5 shows the arithmetic average of yearly historical stock market  
10 returns over the historical period from 1926 – 2020. The average annual income  
11 return for the 20-year Treasury bond is subtracted from these historical stock  
12 returns to obtain the historical MRP of stock returns over long-term Treasury bond  
13 income returns. The resulting historical MRP is 7.30%.

14 **Q. Did you add an additional measure of the historical risk premium in this case?**

15 A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and Dr.  
16 Peng Chen indicating that the historical risk premium of stock returns over long-  
17 term government bond returns has been significantly influenced upward by  
18 substantial growth in the price/earnings (“P/E”) ratio.<sup>10</sup> Duff and Phelps noted that  
19 this growth in the P/E ratio for stocks was subtracted out of the historical risk  
20 premium to arrive at an adjusted “supply side” historical arithmetic MRP. The most

---

<sup>10</sup> 2019 *Cost of Capital: Annual U.S. Guidance and Examples*, Duff and Phelps, Cost of Capital Navigator, Chapter 3, pp. 45 - 47.

1 recent "supply side" historical MRP is 6.00%, which I have also included in Exhibit  
2 RAB-5.

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

4 A. I used two different measures for the risk-free rate. The first measure is the average  
5 30-year Treasury bond yield for the six-month period from February through July,  
6 2021. This represents a current measure of the risk-free rate based on actual current  
7 Treasury yields, which is 2.18%.

8  
9 The second measure comes from Duff and Phelps' most recent "normalized" risk-  
10 free rate of April 2021. Duff and Phelps developed this normalized risk-free rate  
11 using its measure of the "real risk free rate" and expected inflation. The Duff and  
12 Phelps normalized risk-free rate is 2.5%.

13 **Q. Please summarize your calculated MRP estimates with the forward-looking**  
14 **data from Value Line and the historical Duff and Phelps equity risk premiums.**

15 A. My MRPs from Exhibit RAB-4 and Exhibit RAB-5 are as follows:

- |    |                                 |               |
|----|---------------------------------|---------------|
| 16 | • Forward-looking risk premiums | 5.84% - 6.16% |
| 17 | • Historical risk premium       | 6.00% - 7.30% |

18 By way of comparison, Duff and Phelps currently recommends a market equity risk  
19 premium of 5.5% that, combined with its normalized risk-free rate of 2.5%, resulted  
20 in a base U.S. cost of capital estimate of 8.0%. Based on this comparison, my range  
21 of equity risk premium estimates are certainly not overly conservative or  
22 understated.

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

2 **A.** I obtained the betas for the companies in the proxy group from most recent Value  
3 Line reports. The average of the Value Line betas for the proxy group is 0.90.

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

5 **A.** For my forward-looking CAPM ROE estimates, the CAPM results range from  
6 7.72% to 7.76%.<sup>11</sup> Using historical risk premiums, the CAPM results range from  
7 7.58% to 9.07%.<sup>12</sup>

8 **Recommended ROE and Weighted Cost of Capital**

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

10 **A.** Table 2 summarizes my ROE results using the DCF and CAPM for the proxy group  
11 of companies.

12

---

<sup>11</sup> Refer to Exhibit RAB-4, page 1.

<sup>12</sup> Refer to Exhibit RAB-5.

**TABLE 2**  
**SUMMARY OF ROE ESTIMATES**

<u>DCF Methodology</u>	
Average Growth Rates	
- High	11.00%
- Low	8.46%
- Average	9.45%
Median Growth Rates:	
- High	10.64%
- Low	8.09%
- Average	9.11%
<u>CAPM Methodology</u>	
Forward-looking Market Return:	
- Current 30-Year Treasury	7.72%
- D&P Normalized Risk-free Rate	7.76%
Historical Risk Premium:	
- Current 30-Year Treasury	7.58% - 8.75%
- D&P Normalized Risk-free Rate	7.90% - 9.07%

1

2 **Q. What is your recommended ROE range for DEKY?**

3 A. I recommend that the KPSC adopt a ROE range of 8.50% - 9.30% for the gas  
4 distribution operations of DEKY. My recommended ROE for the Company is  
5 9.10%. At this point in time, the average ROE results using the Value Line earnings  
6 growth estimates appear to be inflated by two unsustainable double digit earnings  
7 growth estimates (10.0% and 11.5%). In this case, I based my recommended ROE  
8 range on the average Value Line dividend growth ROE and the consensus analysts'  
9 forecasted ROE results. Finally, the average of median ROE results also supports  
10 my recommendation.

11 **Q. Do you agree with DEKY's requested cost of long-term debt?**

12 A. No. According to the Direct Testimony of DEKY witness Chris Bauer, page 14,  
13 the Company included two long-term senior unsecured debt issues forecasted for

1 September 2021 and September 2022. The company assumed a coupon rate of  
2 3.686% for the \$50 million September 2021 issue and a coupon rate of 3.896% for  
3 the \$70 million September 2022 issue. According to Mr. Bauer, these coupon rates  
4 were estimated using a weighted average of Bloomberg's forward curves for the 5-  
5 year, 10-year and 30-year US Treasury yield, respectively, as of February 2021 plus  
6 a 140 basis point credit spread for the 5 year debt offering, 150 basis point credit  
7 spread for the 10 year debt offering and a 175 basis point credit spread for the 30  
8 year debt offering.

9  
10 In AG-DR-01-046 (c), the KYOAG requested that DEKY update its calculations  
11 of the coupon rates for the two future unsecured debt issues using current  
12 Bloomberg forward curves. The Company responded with its Attachment 3 to this  
13 data request, which I have attached to my testimony as Exhibit RAB-6. The  
14 updated coupon rates provided by the Company are 3.28% for the September 2021  
15 issuance and 3.44% for the September 2022 issuance, both substantial reductions  
16 to the Company's originally filed estimate.

17  
18 I recommend that the revised and updated coupon rate of 3.28% for the September  
19 2021 issuance be used for both issuances. We cannot be sure what will happen to  
20 interest rates by September 2022 and the 3.44% coupon rate based on Bloomberg's  
21 forward curves is speculative at best. The 3.28% rate, which is more current, is  
22 also more certain, supportable, and reasonable. Using 3.28% for both issuances  
23 results in a cost of long-term debt of 3.80%.



1  
2 In addition, I recommend that Mr. Bauer present the Commission with the actual  
3 coupon rate for the September 2021 issuance in his Rebuttal Testimony so that the  
4 Commission, the Commission Staff, and other parties can be informed of the actual  
5 cost of debt for that issuance. I further recommend that the actual coupon rate for  
6 the September 2021 issuance be used for the September 2022 issuance in the  
7 calculation of the long-term cost of debt in this proceeding.

8 **Q. What is your recommended weighted cost of capital for DEKY?**

9 A. I recommend a weighted cost of capital of 6.18%. My recommendation includes:

- 10 • A recommended ROE of 9.10%.
- 11 • A recommended revised cost of long-term debt of 3.80%.
- 12 • A capital structure and cost of short-term debt based on KYOAG witness  
13 Kollen's recommendations.

14  
15 Table 3 below presents the details of the KYOAG weighted cost of capital.

	<u>Pct.</u>	<u>Cost</u>	<u>Weighted Cost</u>
Short-term Debt	5.433%	0.94%	0.05%
Long-term Debt	46.721%	3.80%	1.78%
Common Equity	47.846%	9.10%	4.35%
<b>Total</b>	<b>100.00%</b>		<b>6.18%</b>

1 **ROE Recommendation for Proposed Rider GMA**

2 **Q. Are you familiar with DEKY's proposed Governmental Mandate Adjustment**  
3 **("GMA") rider?**

4 A. Yes. The Company's proposed Rider GMA is described in the Direct Testimony  
5 of DEKY witness Sarah Lawler beginning on page 7. Ms. Lawler testified that this  
6 proposed rider "corresponds to the Company's obligation to adhere to governmental  
7 directives or mandates impacting the utility that are outside of its control." Part of  
8 Rider GMA would be the inclusion of natural gas infrastructure costs associated  
9 with compliance with regulations issued by the United States Department of  
10 Transportation, Pipeline and Hazardous Materials Safety Administration. These  
11 costs are described in more detail in the Direct Testimonies of DEKY witnesses  
12 Amy Spiller and Brian Weisker. According to Ms. Lawler, the Company "would  
13 calculate a revenue requirement to recover a return on the rate base associated with  
14 these incremental capital costs along with recovery of the associated depreciation  
15 and property tax expenses. Rate base would be calculated as gross plant in-service  
16 less accumulated depreciation less accumulated deferred income taxes associated  
17 with the plant in-service." (Lawler Direct Testimony at page 9, lines 7 - 12). On  
18 page 10, Ms. Lawler testified that the Company would apply its weighted average  
19 cost of capital to the incremental capital investments included in Rider GMA.

20 **Q. If the Commission approves the Company's proposed Rider GMA, should it**  
21 **also consider a lower ROE for the incremental investments included in the**  
22 **rider?**

23 A. Yes. The Commission has applied a lower ROE to the capital costs being recovered  
24 in automatic adjustment mechanisms like DEKY's proposed Rider GMA. For

1 example, in Case No. 2020-00061, the Commission approved a lower ROE for  
2 Louisville Gas and Electric Company ("LG&E") based on lower capital costs as  
3 well as lower risk of capital cost recovery through its Environmental Cost Recovery  
4 ("ECR") rider. The Commission's final Order in that proceeding, dated September  
5 29, 2020, stated the following on page 20:

6 The cost of equity is affected by the risk of shareholders not adequately recovering  
7 their investment, the risk associated with recovering the investment later than  
8 desired, and the risk from the shareholder receiving less than comparable  
9 investments. To reduce shareholder risk, utilities can recover specified  
10 expenditures, such as environmental expenditures, with more certainty and without  
11 filing a general rate case through specific riders. With a rider, since a return is  
12 guaranteed and the time line of recovery is known and ordinarily not meaningfully  
13 delayed, the required return is less than the ROE associated with a rate case as the  
14 risk involved is decreased and most lag associated with recovery is eliminated.  
15 According to the S&P Global Report for Major Rate Case Decisions - January -  
16 June 2020, after removing ROE premiums, limited rider ROEs are 43 basis points  
17 below the January - June 2020 vertically integrated ROE average of 9.67 percent.  
18

19 Likewise in its Orders in Case Nos. 2020-00349 and 2020-00350 dated June 30,  
20 2021, the Commission once again approved a lower ROE for the ECR riders for  
21 LG&E and Kentucky Utilities ("KU"). In its Orders in these cases the Commission  
22 (1) lowered the stipulated ROE from 9.55% to 9.425% and (2) approved the lower  
23 stipulated ROE applicable to the ECR of 9.35%.<sup>13</sup>

24  
25 Finally, in its Order dated January 13, 2021 in Case No. 2020-00174 the  
26 Commission approved a 9.30% ROE for Kentucky Power Company and a 9.10%  
27 ROE for its ECR rider.<sup>14</sup>

---

<sup>13</sup> Refer to the Commission's discussion on pp. 19 - 23 of its Orders in Case No. 2020-00349 and pp. 21 - 26 in Case No. 2020-00350.

<sup>14</sup> See pp. 26 - 28 and pp. 40 - 51 of the Commission's Order.

1 **Q. How much of a reduction in the allowed ROE should the Commission apply to**  
2 **Rider GMA if it decides to approve it?**

3 A. Based on the Commission's past Orders, I recommend the Commission consider a  
4 reduction in the range of 10 - 20 basis points, or 0.10% - 0.20% to its allowed ROE  
5 in the case. If the Commission accepts my recommended ROE of 9.10%, then the  
6 ROE applied to Rider GMA would be in the range of 8.90% - 9.00%.

7 **IV. RESPONSE TO DUKE ENERGY KENTUCKY ROE TESTIMONY**

8 **Q. Please summarize your conclusions with respect to Mr. D'Ascendis' ROE**  
9 **recommendation.**

10 A. Mr. D'Ascendis' recommended 10.30% ROE is excessive and should be rejected by  
11 the Commission. A 10.30% ROE is inconsistent with the current financial market  
12 evidence and the low interest rate environment that I have described earlier in my  
13 Direct Testimony. The remainder of this section of my testimony will present my  
14 points of disagreement with Mr. D'Ascendis and how his CAPM and risk premium  
15 analyses in particular contributed significantly to an inflated ROE recommendation  
16 for DEKY.

17 **Q. How did Mr. D'Ascendis develop his recommended ROE range for DEKY?**

18 A. On page 4 of his Direct Testimony, Mr. D'Ascendis presented his recommended  
19 range for DEKY's ROE, 9.57% - 10.65%, then increased this range by 0.15% for a  
20 small size adjustment, by 0.14% for a credit risk adjustment, and by 0.12% for  
21 flotation costs. This resulted in an adjusted ROE range of 9.98% - 12.68%.

22

1 On page 5 of his Direct Testimony, Mr. D'Ascendis testified that the "wide range  
2 of model results may reflect increased uncertainty related to the COVID-19  
3 pandemic and unknown timeframe for when economic conditions will normalize  
4 as vaccinations ramp up and the public health crises subsides." Due to this  
5 uncertainty, Mr. D'Ascendis recommended a ROE for DEKY toward the lower end  
6 of the range of results, which is 10.30%.

7 **Q. In your opinion, does the wide range of results that Mr. D'Ascendis obtained**  
8 **from his ROE analyses stem from the uncertainties he identified on page 5 of**  
9 **his Direct Testimony?**

10 A. No. The problem with Mr. D'Ascendis' approach is the unreasonable and  
11 excessively high ROE results from the application of his risk premium and CAPM  
12 analyses as well as results from the inclusion of a group of 48 "comparable risk,  
13 non-price regulated companies". Specifically, note the following ROE results that  
14 Mr. D'Ascendis included in his Direct Testimony and that formed his recommended  
15 ROE range for DEKY:

- 16 • CAPM - 11.62%
- 17 • Market results from comparable risk, non-price regulated companies -  
18 12.27%

19 As I will demonstrate in the next subsection of my testimony that responds to Mr.  
20 D'Ascendis' risk premium analyses, ROE results in the range of 11.67% - 12.27%  
21 are so far above recently authorized Commission-allowed returns that they cannot  
22 be seriously considered as viable estimates of the investor required ROE for a lower  
23 risk regulated gas distribution utility like DEKY. This is especially the case given  
24 the long period of low interest rates that I described in Section II of my Direct

1           Testimony. The extremely high ROE results from Mr. D'Ascendis' risk premium  
2           and CAPM analyses were generated by incorrect and unreasonable assumptions  
3           and by the data that Mr. D'Ascendis used. I will identify the problem with these  
4           analyses in more detail later in my testimony.

5           **DCF Analyses**

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

7           A.     Mr. D'Ascendis presented the results of his DCF analysis in Attachment DWD-2.  
8           He presented both the mean (9.78%) and median (9.35%) results for the proxy  
9           group. I would note that the mean result is inflated by an unsustainable 12.62%  
10          growth rate from Bloomberg for Spire, Inc. For this reason, his average result for  
11          the proxy group is overstated. I recommend that the Commission look to my DCF  
12          results, which are more current, in determining the allowed ROE for DEKY.

13          **Risk Premium Analyses**

14          **Q.     Before you address the specifics of Mr. D'Ascendis' risk premium ("RP")**  
15          **analyses, do you have any general comments regarding the risk premium**  
16          **method of estimating the investor required ROE for regulated utilities?**

17          A.     Yes. The bond yield plus risk premium approach is imprecise and can only provide  
18          very general guidance on the current authorized ROE for a regulated gas utility.  
19          Historical risk premiums can change substantially over time based on investor  
20          preferences and market conditions. As such, this approach is a "blunt instrument,"  
21          if you will, for estimating the ROE in regulated proceedings. In my view, a properly  
22          formulated DCF model using current stock prices and growth forecasts is far more

1 reliable and accurate than the bond yield plus risk premium model that relies on an  
2 historical analysis of risk premiums.

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

5 A. According to Mr. D'Ascendis' Direct Testimony, page 20, he relied on two  
6 methods to estimate a risk premium ROE. This first method employed the  
7 Predictive Risk Premium Model ("PRPM") and the second method used a total  
8 market approach. The PRPM approach yielded a range of 10.61% - 11.31%, with  
9 the average of the median and average results being 10.96%. The total market  
10 approach yielded an average equity cost rate of 10.33%. The results for these RP  
11 models are summarized in Mr. D'Ascendis' Attachment DWD-3, page 1 of 13.

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

14 A. For the PRPM, Mr. D'Ascendis utilized a forecasted 30-Year Treasury Bond yield  
15 of 2.73%. For the total market approach, Mr. D'Ascendis developed a projected  
16 utility bond yield, the components of which may be found on page 24 of his Direct  
17 Testimony. These components include a forecasted bond yield on Moody's Aaa-  
18 rated corporate bonds (3.44%), an adjustment to reflect the yield spread between  
19 Aaa-rated corporate bonds and Moody's A2-rated utility bonds (0.42%), and an  
20 adjustment to reflect the utility proxy group's average Moody's bond rating of  
21 A2/A3 (0.05%). Summing these components resulted in a prospective bond yield  
22 for the utility proxy group of 3.91%.

1 **Q. Should Mr. D'Ascendis have considered current utility bond yields for his total**  
2 **MRP?**

3 A. Yes. The current Mergent average utility bond yield was 2.99% as of July 2021,  
4 which is 92 basis points (0.92%) lower than the prospective yield developed by Mr.  
5 D'Ascendis.

6 **Q. Are current interest rates indicative of investor expectations regarding the**  
7 **future direction of interest rates?**

8 A. Yes. Securities markets are efficient and most likely reflect investors' expectations  
9 about future interest rates. As Dr. Morin pointed out in *New Regulatory Finance*:

10 A considerable body of empirical evidence indicates that U.S.  
11 capital markets are efficient with respect to a broad set of  
12 information, including historical and publicly available  
13 information.<sup>15</sup>  
14

15 Dr. Morin also noted the following:

16 There is extensive literature concerning the prediction of interest  
17 rates. From this evidence, it appears that the no-change model of  
18 interest rates frequently provides the most accurate forecasts of  
19 future interest rates while at other times, the experts are more  
20 accurate. Naïve extrapolations of current interest rates frequently  
21 outperform published forecasts. The literature suggests that on  
22 balance, the bond market is very efficient in that it is difficult to  
23 consistently forecast interest rates with greater accuracy than a no-  
24 change model. The latter model provides similar, and in some cases,  
25 superior accuracy than professional forecasts.<sup>16</sup>  
26

27 It is important to realize that investor expectations of changes in future interest  
28 rates, if any, are likely already embodied in current securities prices, which include

---

<sup>15</sup> Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 279.

<sup>16</sup> Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 172.



1 debt securities and stock prices. Current interest rates provide tangible and  
2 verifiable market evidence of investor return requirements today and these are the  
3 interest rates and bond yields that should be used in both the CAPM and in the bond  
4 yield plus risk premium analyses. To the extent that investors give forecasted  
5 interest rates any weight at all, they are likely already incorporated in current  
6 securities prices.

7 **Q. Did Mr. D'Ascendis' risk premium models produce unreasonable results with**  
8 **respect to DEKY's ROE?**

9 A. Yes. On page 7 of Attachment DWD-3, Mr. D'Ascendis presented the results of  
10 three risk premium studies, one of which was the calculated RP based on the total  
11 market using the beta approach. The RP for that approach was 7.99%. Adding this  
12 RP to Mr. D'Ascendis' projected utility bond yield of 3.91% results in a RP ROE  
13 of 11.90%. Mr. D'Ascendis also provided data on historical commission-allowed  
14 ROEs for gas distribution companies in connection with Exhibit DWD-3, page 13.  
15 This data includes authorized ROEs from 1980 through February 2021. My review  
16 of these historical allowed ROEs revealed that since January 2008, there has only  
17 been one Commission-allowed ROE near 11.90%, according to the data provided  
18 by Mr. D'Ascendis.<sup>17</sup> From this data, I calculated that the average commission-  
19 allowed ROEs in 2019 and 2020 were 9.77% and 9.44%, respectively. Based on  
20 these benchmarks alone, an 11.90% ROE cannot be considered a viable estimate  
21 of the investor required ROE today. This ROE result is an outlier, is completely

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<sup>17</sup> Data provided in response to Staff DR-02-016.

1 unrepresentative of current investor required ROEs for lower risk regulated gas  
2 distribution utilities, and should be rejected and excluded by the Commission.

3 **Q. Please comment on the RP analysis using Commission-allowed returns**  
4 **included by Mr. D'Ascendis on page 13 of his Attachment DWD-3.**

5 A. As I mentioned earlier, Mr. D'Ascendis estimated a RP ROE based on a regression  
6 analysis using Commission-allowed returns from 1980 through February 2021.  
7 The analysis measured the extent to which the RP between allowed ROE and the  
8 yield on the A2-rated Moody's utility bond varied with changes in interest rates.  
9 The ROE may be determined using the equation on page 13 of Attachment DWD-  
10 3. Substituting the July 2021 Mergent utility bond yield of 2.99% into this equation  
11 results in the following RP ROE:

12

$$13 \quad ROE = 7.563324\% + (-.48579 * 2.99\%) + 2.99\% = 9.10\%$$

14

15 Note that I am not recommending that the Commission use this method to  
16 determine the ROE for DEKY in this case. I am using the above equation from Mr.  
17 D'Ascendis' analysis of Commission-allowed returns to demonstrate that based on  
18 today's interest rates and bond yields, the RP ROE result is much lower than Mr.  
19 D'Ascendis recommends and is more in line with my recommended ROE of 9.10%.  
20 Based on my experience with the KPSC, it is my understanding that the  
21 Commission considers the RP as one of the methods to assess its allowed ROE in  
22 rate proceedings. This alternative is a RP result the Commission could consider in  
23 this case.

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

2 A. Mr. D'Ascendis described his PRPM approach beginning on page 20 of his Direct  
3 Testimony. According to Mr. D'Ascendis, the PRPM estimates the risk-return  
4 relationship by predicting volatility or risk. On page 21, Mr. D'Ascendis testified  
5 that the PRPM is not based on an estimate of investor behavior, "but rather on an  
6 evaluation of the results of that behavior (i.e., the variance of historical equity risk  
7 premiums)." The historical annual equity risk premium is generated using  
8 GARCH, generalized autoregressive conditional heteroscedasticity, and Eviews©  
9 statistical software. Mr. D'Ascendis relied on historical returns on the common  
10 shares of each member of his Utility Proxy Group minus the historical monthly  
11 yield on long-term U.S. Treasury securities through March 2021.

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

14 A. No. Mr. D'Ascendis did not show that the model he developed is relied upon by  
15 investors to determine their required ROE for regulated gas distribution companies.  
16 Neither did he demonstrate that his PRPM is an accepted approach by regulatory  
17 commissions.

18

19 Mr. D'Ascendis' PRPM approach was recently rejected by the Florida Public  
20 Service Commission ("FPSC") in Docket No. 20200139-WS. The FPSC made the  
21 following conclusion with respect to the PRPM:

22 The only cost of equity model analysis that supports a 10.75 percent ROE  
23 is UIF witness D'Ascendis' Predictive Risk Premium Model (PRPM) with  
24 an average result of 11.66 percent. However, the record showed that the  
25 PRPM is based on the GARCH model, which used Eviews statistical

1 software to derive a predictive equity risk premium, which is added to a  
2 projected risk-free rate. This method is akin to a black box calculation where  
3 the inputs were entered and a result was produced using statistical software.  
4 Witness D'Ascendis and his colleagues developed the PRPM method and  
5 admitted that it is used primarily by himself and other colleagues familiar  
6 with the methodology. The record failed to support that witness  
7 D'Ascendis' PRPM methodology is widely accepted by other jurisdictions  
8 as a method to estimate the equity risk premium. Therefore, we find that the  
9 cost of equity models using the PRPM shall be discounted in this case.<sup>18</sup>

10

11 The "black box" aspect of Mr. D'Ascendis' PRPM is indeed a concern. Mr.  
12 D'Ascendis' Attachment DWD-3, page 2, and his work papers contain variance  
13 results, GARCH series, and GARCH coefficients that were generated from the  
14 Eviews software. Whether or not this information accurately portrays investor  
15 required returns is an open question. In fact, the inflated ROE results from the  
16 PRPM, 10.61% - 11.31%, strongly suggest that the PRPM is not reflective of  
17 investor expectations. Looking at the individual ROE results in Attachment DWD-  
18 3, page 2, three of the seven results range from 11.49% - 15.00%. These are  
19 excessive and highly unrepresentative ROE results to say the least and they inflated  
20 the average PRPM ROE results.

21

22 Moreover, the PRPM is still based on historical risk premium relationships that may  
23 or may not hold for the future. In other words, we do not really know if investors  
24 expect the variance of historical risk premiums to continue or if they even use this  
25 information to assist them in determining their required ROE.

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<sup>18</sup> Docket No. 20200139-WS, Order No. PSC-2021-0206-FOF-WS, June 4, 2021, page 94.

1 **CAPM and ECAPM**

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

3 A. Mr. D'Ascendis' Attachment DWD-4, page 1, presents a summary of his  
4 CAPM/ECAPM analyses. The mean results range from 11.55% - 11.73%. The  
5 median results range from 11.51% - 11.70%.

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

8 A. Mr. D'Ascendis' CAPM/ECAPM results are so grossly overstated for a low risk  
9 regulated gas utility like DEKY that they should be rejected out of hand by the  
10 Commission. As I mentioned earlier in my response to Mr. D'Ascendis' RP  
11 analyses, there has been only one commission-allowed return near 11.90% since  
12 2008, with far lower average allowed ROEs in 2019 and 2020. Mr. D'Ascendis'  
13 CAPM/ECAPM results simply do not pass the reasonableness test.

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

16 A. Mr. D'Ascendis presented six different RP analyses that he used to estimate the  
17 expected MRP for the CAPM/ECAPM. Mr. D'Ascendis explained on pages 37  
18 and 38 of his Direct Testimony that his MRP was derived from an average of three  
19 historical data-based MRPs, two Value Line data-based MRPs, and one Bloomberg  
20 data-based MRP.

21

22 The MRPs for each method are shown on the following page in Table 4.

TABLE 4

**D'Ascendis MRP Results**

<b>Historical MRP Studies:</b>	
Ibbotson Historical Data	7.15%
Regression Analysis on Ibbotson Historical Data	9.54%
Application of PRPM to Ibbotson Historical Data	10.46%
<b>Projected MRP Studies:</b>	
Value Line Summary & Index	5.74%
MRP for S&P 500, Value Line Data	11.48%
MRP Based on Bloomberg Data	12.88%
<b>Average</b>	<b>9.54%</b>
<b>Average of Historical MRP</b>	<b>9.05%</b>
<b>Avg. Projected S&amp;P 500 Value Line and Bloomberg</b>	<b>12.18%</b>

1

2 **Q. What is the CAPM result using the average of Mr. D'Ascendis' projected**  
3 **MRPs for the S&P 500, Value Line Data and Bloomberg Data?**

4 A. The average of the projected MRPs for the Value Line and Bloomberg data is  
5 12.18%. Using Mr. D'Ascendis' risk free rate of 2.73%, a proxy group average  
6 beta of 0.92, and the average projected MRP of 12.18%, the traditional CAPM  
7 result is:

8

9

$$CAPM\ ROE = 2.73\% + (.92 * 12.18\%) = 13.94\%$$

10

11

12

13

14

15

Mr. D'Ascendis' CAPM result using his projected Value Line S&P 500 and  
Bloomberg MRPs is even further out of line with recently allowed ROEs than his  
overall CAPM/ECAPM results. I note once again that I do not recommend that the  
Commission base its ROE determination on the allowed returns in other regulatory  
jurisdictions. Rather, I cite allowed returns as a rough benchmark by which the  
Commission can judge the reasonableness of Mr. D'Ascendis' CAPM results and

1           how excessive they are compared to recent experience. Indeed, a CAPM result of  
2           13.94% is clearly unreasonable.

3   **Q.   Why are Mr. D’Ascendis’ projected MRPs for Value Line and Bloomberg so**  
4   **high?**

5   A.   The problem with Mr. D’Ascendis’ projected MRPs stems from his overstated  
6       expected market returns. These overstated expected market returns range from  
7       14.21% - 15.61%, with expected earnings growth rates that ranged from 12.56% -  
8       14.08%. I calculated these expected growth rates summing the weighted average  
9       growth rates in Mr. D’Ascendis’ projected MRP analyses. The short-term earnings  
10      growth rates from Value Line and Bloomberg are unsustainably high in that they  
11      vastly exceed both the historical capital appreciation for the S&P 500 as well as  
12      historical and projected GDP growth rates. Duff and Phelps’ historical analysis  
13      shows that the arithmetic average capital appreciation for the S&P 500 was 8.0%  
14      for the historical period 1926 - 2020.<sup>19</sup> Geometric, or compound growth was  
15      6.20%. This historical experience stands in stark contrast to Mr. D’Ascendis’  
16      growth rates of 12.56% - 14.08% for the S&P 500 using Value Line data and  
17      Bloomberg.

18  
19      The inflated growth rates are not supportable when one further considers both  
20      historical and forecasted GDP growth for the U.S. Based on data from the Bureau  
21      of Economic Analysis, U.S. Department of Commerce, I calculated that the

---

<sup>19</sup>       *Summary Statistics of Annual Total Returns, Income Returns, and Capital Appreciation Returns of Basic U.S. Asset Classes, 1926 - 2020, Cost of Capital Navigator: U.S. Cost of Capital Module*

1 compound yearly growth rate for U.S. GDP from 1929 - 2020 was 6.0%. Note how  
2 this growth nearly matched the historical compound growth rate for capital  
3 appreciation for the S&P 500. Regarding forecasts, the Fed's projections that I  
4 referenced in Section II of my testimony called for longer-run real GDP growth of  
5 1.8% and PCE inflation of 2.0%. This translates into forecasted nominal GDP of  
6 roughly 3.80%. The July 2021 *Update to the Economic Outlook: 2021 to 2031*  
7 from the Congressional Budget Office ("CBO") shows forecasted nominal GDP to  
8 grow at a yearly rate of 3.40% - 3.70% from 2024 to 2031. If we assume forecasted  
9 long run GDP growth of around 4.0%, then it is highly unlikely that the market  
10 growth rates of 12.56% - 14.08% are sustainable over the long run.

11

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

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

23

24 Since the constant growth DCF requires a sustainable long-run growth rate, Mr.

25 D'Ascendis' inflated projected market return and MRP estimates are erroneous and

26 should be rejected.

---

<sup>20</sup> *Cost of Capital*, Shannon Pratt and Roger Grabowski, Fifth Edition, page 1195, published by Wiley.



1 **Q. How do Mr. D’Ascendis’ estimates of the overall market return compare to**  
2 **yours?**

3 A. My estimates of the market required return are as follows:

- 4 • Value Line 3-5 Year Total Return: 8.00% - 8.68%
- 5 • S&P Average Historical Returns: 12.20%

6 **Q. Is there another source of which you are aware that suggest Mr. D’Ascendis’**  
7 **MRP estimates are unreasonably high?**

8 A. Yes. In the authoritative corporate finance textbook by Brealey, Myers, and Allen  
9 the authors stated “Brealey, Myers, and Allen have no official position on the issue,  
10 but we believe that a range of 5 to 8 percent is reasonable for the risk premium in  
11 the United States.”<sup>21</sup>

12  
13 As I cited earlier in my Direct Testimony, Duff and Phelps currently recommends  
14 a MRP of 5.5%, a risk free rate of 2.5%, and an overall U. S. cost of equity of 8.0%.  
15 These sources underscore how much Mr. D’Ascendis’ recommended MRPs  
16 inflated his CAPM/ECAPM ROE estimates.

17 **Q. Please address Mr. D’Ascendis’ use of the ECAPM.**

18 A. The ECAPM is designed to account for the possibility that the CAPM understates  
19 the ROE for companies with betas less than 1.0. Mr. D’Ascendis provided a  
20 discussion of the ECAPM beginning on page 35 of his Direct Testimony. My  
21 review of Mr. D’Ascendis’ Exhibit DWD-4 indicates that he applied an ECAPM

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<sup>21</sup> Richard A. Brealey, Stewart C. Myers, and Paul Allen, *Principles of Corporate Finance*, page 154; McGraw-Hill/Irwin, 8th Edition, 2006.

1 formula included in *New Regulatory Finance* by Dr. Roger Morin, which is set  
2 forth on page 36 of his Direct Testimony.

3

4 The argument that an adjustment factor is needed to “correct” the CAPM results  
5 for companies with betas less than 1.0 is further evidence of the lack of accuracy  
6 inherent in the CAPM itself and with beta in particular, as I pointed out in Section  
7 III of my Direct Testimony. The ECAPM adjustment also suggests that published  
8 betas by such sources as Value Line are incorrect and that investors should not rely  
9 on them in formulating their estimates using the CAPM. Finally, although Mr.  
10 D’Ascendis cited the source of the ECAPM formula he used, he provided no  
11 evidence that investors favor this version of the ECAPM over the standard CAPM.

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

13 A. On page 37 of his Direct Testimony, Mr. D’Ascendis testified that he used a  
14 forecasted 30-year Treasury Bond yield of 2.73% from the *Blue Chip Financial*  
15 *Forecasts*. Mr. D’Ascendis also used this forecasted yield for his PRPM risk  
16 premium analysis that I cited in the previous section of my testimony.

17 **Q. Should Mr. D’Ascendis have considered current yields on 30-Year Treasury**  
18 **Bonds in his CAPM/ECAPM analyses?**

19 A. Yes, and for the same reasons I cited earlier with respect to his risk premium  
20 analyses. Current interest rates provide tangible evidence of investor preferences  
21 and required returns for Treasury securities. The recent 6-month average of 2.11%  
22 on 30-year Treasury Bonds is substantially lower than the 2.73% forecasted yield

1 used by Mr. D'Ascendis and it is clear that this forecasted Treasury Bond yield  
2 contributed to his inflated CAPM results.

3 **Non-Utility Group ROE**

4 **Q. Beginning at page 40 of his Direct Testimony, Mr. D'Ascendis presented a**  
5 **proposal for including a group of 48 domestic, non-price regulated companies**  
6 **in his ROE analyses. Is it appropriate to use a group of unregulated companies**  
7 **to estimate a fair ROE for DEKY?**

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

11

12 Utilities have protected markets, e.g., service territories, and may increase the  
13 prices they charge in the face of falling demand or loss of customers. This is  
14 contrary to competitive, unregulated companies who often lower their prices when  
15 demand for their products decline. Obviously, the non-utility companies face risks  
16 that lower risk regulated gas utilities like DEKY do not face. As a consequence,  
17 non-utility companies will have higher required returns from their shareholders.  
18 According to Mr. D'Ascendis' Attachment DWD-6, page 1, the average ROE results  
19 for Mr. D'Ascendis' non-price regulated group range from 11.59% - 12.60%.  
20 These results are far higher than the utility proxy group DCF results for both myself  
21 and Mr. D'Ascendis. They are also well in excess of recent commission-allowed  
22 returns for regulated gas companies. Mr. D'Ascendis' analysis makes it very clear  
23 that investors require higher returns for the members of this group of unregulated  
24 companies and that these returns should in no way be applied to DEKY.

1 **Size Adjustment**

2 **Q. Beginning on page 44 of his Direct Testimony, Mr. D'Ascendis presented his**  
3 **position on including a small size risk premium adjustment designed to**  
4 **compensate for the alleged additional risk associated with DEKY's small size**  
5 **relative to the Utility Proxy Group. Should the Commission consider**  
6 **increasing DEKY's ROE based on its smaller size relative to the proxy group?**

7 A. No. The data that Mr. D'Ascendis relied on to make this adjustment came from the  
8 *Duff and Phelps 2020 Valuation Handbook - U.S. Guide to Cost of Capital - Market*  
9 *Results through 2019* ("D&P 2020"). Mr. D'Ascendis calculated a risk premium  
10 of 0.79% associated with DEKY's small size that was based on the size premium  
11 difference between the Decile 7 group of companies in the D&P 2020 study and  
12 the Decile 4 group of companies. The Decile 7 group is comprised of smaller  
13 companies with market capitalization similar to DEKY's. The Decile 4 group is a  
14 subset of larger companies with market capitalization similar to the Utility Proxy  
15 Group used by Mr. D'Ascendis. In his final recommendation, Mr. D'Ascendis  
16 reduced the size adjustment from 0.79% to 0.15%.

17  
18 The problem with Mr. D'Ascendis' approach is that the Decile 7 group of  
19 companies contains many smaller and more risky unregulated companies.  
20 Moreover, this Decile 7 group had an average beta of 1.25 - 1.39 depending on the  
21 calculation method used by Duff and Phelps. These betas are far greater than the  
22 average utility proxy group betas, which average 0.90 in my CAPM analyses. The  
23 beta comparison indicates that the unregulated companies that Mr. D'Ascendis  
24 used to calculate his size premium are far riskier than regulated gas distribution  
25 utilities like DEKY. There is no evidence to suggest that the size premium

1 recommended by Mr. D'Ascendis applies to regulated utility companies, which on  
2 average are very different from and less risky than the smaller groups of companies  
3 included in the Duff and Phelps research on size premiums. Further, there is no  
4 sound basis for the assumption that DEKY would have a beta of 1.25 - 1.39 like the  
5 group of companies in the Decile 7 group.

6  
7 Finally, DEKY is an operating company of Duke Energy, a large utility holding  
8 company. It is not a small stand-alone company like the small unregulated  
9 companies in the Duff and Phelps study. There is no basis for Mr. D'Ascendis'  
10 assumption that investors would require a small company ROE premium for a  
11 regulated utility operating company that is part of a much larger holding company  
12 like Duke Energy. I recommend that the Commission reject Mr. D'Ascendis' size  
13 premium.

14 **Credit Risk Adjustment**

15 **Q. Briefly describe Mr. D'Ascendis' proposed credit risk adjustment to the ROE**  
16 **for DEKY.**

17 A. On page 48 of his Direct Testimony, Mr. D'Ascendis recommended an upward  
18 adjustment to DEKY's ROE based on the Company's lower Moody's credit rating  
19 (Baa1) compared to the Utility Proxy Group (A2/A3).

20 **Q. Should the Commission accept Mr. D'Ascendis' credit risk adjustment for**  
21 **DEKY?**

22 A. No. Mr. D'Ascendis incorrectly reflected the Moody's credit rating for Spire Inc.,  
23 which is currently Baa2. Rather than using Spire, Inc.'s credit rating, Mr.

1 D'Ascendis used the credit ratings for two of Spire's operating companies, which  
2 are currently rated A1/A2 by Moody's. In evaluating relative credit risk between  
3 DEKY and the proxy group, one must use the credit rating of the publicly traded  
4 parent company. This is the credit rating that investors will use to evaluate the  
5 credit risk of the total company, not just the higher credit ratings of two subsidiary  
6 companies. Said another way, the investor cannot buy the stock of the two Spire  
7 subsidiaries because they are not publicly traded entities. They must buy Spire with  
8 its total credit risk reflecting its Baa2 credit rating, which is one notch lower than  
9 DEKY.

10  
11 In addition, Southwest Gas Holdings now has a lower credit rating (Baa2) than Mr.  
12 D'Ascendis reported in his Attachment DWD-3.

13  
14 Correcting Mr. D'Ascendis' erroneous credit rating for Spire, Inc. and updating  
15 Southwest Gas Holdings' credit rating, the proxy group has the following Moody's  
16 credit ratings:<sup>22</sup>

- 17 • Atmos Energy and New Jersey Resources - A1
- 18 • One Gas, Inc. and South Jersey Industries - A3
- 19 • Northwest Natural Holding Co. - Baa1
- 20 • Spire, Inc. and Southwest Gas Holdings, Inc. - Baa2

21  

---

<sup>22</sup> Ratings retrieved on August 24, 2021.

1 DEKY falls within the range of credit ratings, with three companies in the Baa  
2 grouping and four in the A grouping. In my opinion, given the range of credit  
3 ratings in the proxy group there is no need for an additional increment to DEKY's  
4 ROE for additional credit risk.

5 **Flotation Costs**

6 **Q. Beginning on page 48 of his Direct Testimony, Mr. D'Ascendis discussed**  
7 **flotation costs and the need for including a flotation cost adjustment to**  
8 **DEKY's allowed ROE. Are flotation costs a legitimate consideration for the**  
9 **Commission's determination of ROE in this proceeding?**

10 A. No. Mr. D'Ascendis recommended that the Commission consider adding an  
11 adjustment of 0.12% to DEKY's ROE to recognize flotation costs. A flotation cost  
12 adjustment attempts to recognize and collect the costs of issuing common stock. Such  
13 costs typically include legal, accounting, and printing costs as well as broker fees and  
14 discounts.

15  
16 It is likely that flotation costs are already accounted for in current stock prices and that  
17 adding an adjustment for flotation costs is double counting. A DCF model using  
18 current stock prices should already account for investor expectations regarding the  
19 collection of flotation costs. Multiplying the dividend yield by a 4% flotation cost  
20 adjustment, for example, essentially assumes that the current stock price is wrong and  
21 that it must be adjusted downward to increase the dividend yield and the resulting cost  
22 of equity. This is not an appropriate assumption regarding investor expectations or  
23 current stock prices. Stock prices most likely already account for flotation costs, to  
24 the extent that such costs are even considered by investors.

1 Q. Does this complete your Direct Testimony?

2 A. Yes.




**AFFIDAVIT**

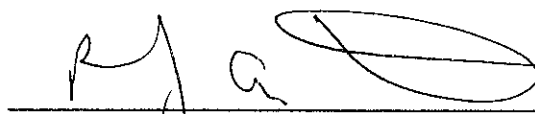
STATE OF GEORGIA        )

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  
1st day of September 2021.

  
\_\_\_\_\_  
Notary Public

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

**In the Matter of:**

**ELECTRONIC APPLICATION OF )  
DUKE ENERGY KENTUCKY, INC. FOR )  
1) AN ADJUSTMENT OF THE NATURAL ) CASE NO. 2021-00190  
GAS RATES; 2) APPROVAL OF NEW )  
TARIFFS, AND 3) ALL OTHER REQUIRED )  
APPROVALS, WAIVERS, AND RELIEF )**

**EXHIBITS  
OF  
RICHARD A. BAUDINO**

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

**J. KENNEDY AND ASSOCIATES, INC.  
ROSWELL, GEORGIA**

**SEPTEMBER 1, 2021**

## **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

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

**Expert Testimony Appearances  
of  
Richard A. Baudino  
As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
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 September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdct.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
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  
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Richard A. Baudino  
As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
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  
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As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
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.



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As of September 2021**

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

**Expert Testimony Appearances  
of  
Richard A. Baudino  
As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
10/99	R-00994782	PA	Peoples Industrial Intervenor	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenor	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenor	UGI Utilities, Inc.	Universal service costs, balancing, penalty charges, capacity Assignment.
01/00	8829	MD	Maryland Industrial Gr.	Baltimore Gas & Electric Co.	Revenue requirements, cost allocation, rate design.
02/00	R-00994788	PA	Penn Fuel Transportation	PFG Gas, Inc., and	Tariff charges, balancing provisions.
05/00	U-17735	LA	Louisiana Public Service Comm.	Louisiana Electric Cooperative	Rate restructuring.
07/00	2000-080	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric Co.	Cost allocation.
07/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket E)	LA	Louisiana Public Service Commission	Southwestern Electric Power Co.	Stranded cost analysis.
09/00	R-00005654	PA	Philadelphia Industrial And Commercial Gas Users Group.	Philadelphia Gas Works	Interim relief analysis.
10/00	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring, Business Separation Plan.
11/00	R-00005277 (Rebuttal)	PA	Penn Fuel Transportation Customers	PFG Gas, Inc. and North Penn Gas Co.	Cost allocation issues.
12/00	U-24993	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity.
03/01	U-22092	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Stranded cost analysis.
04/01	U-21453 U-20925 (SC), U-22092 (SC) (Subdocket B) (Addressing Contested Issues)	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Restructuring issues.
04/01	R-00006042	PA	Philadelphia Industrial and Commercial Gas Users Group	Philadelphia Gas Works	Revenue requirements, cost allocation and tariff issues.

**Expert Testimony Appearances  
of  
Richard A. Baudino  
As of September 2021**

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

**Expert Testimony Appearances  
of  
Richard A. Baudino  
As of September 2021**

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

**Expert Testimony Appearances  
of  
Richard A. Baudino  
As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
07/08	R-2008-2039634	PA	PPL Gas Large Users Group	PPL Gas	Retainage, LUFG Pct.
08/08	6680-UR-116	WI	Wisconsin Industrial Energy Group	Wisconsin P&L	Cost of Equity
08/08	6690-UR-119	WI	Wisconsin Industrial Energy Group	Wisconsin PS	Cost of Equity
09/08	ER-2008-0318	MO	The Commercial Group	AmerenUE	Cost and revenue allocation
10/08	R-2008-2029325	PA	U.S. Steel & Univ. of Pittsburgh Med. Ctr.	Equitable Gas Co.	Cost and revenue allocation
10/08	08-G-0609	NY	Multiple Intervenors	Niagara Mohawk Power	Cost and Revenue allocation
12/08	27800-U	GA	Georgia Public Service Commission	Georgia Power Company	CWIP/AFUDC issues, Review financial projections
03/09	ER08-1056	FERC	Louisiana Public Service Commission	Entergy Services, Inc.	Capital Structure
04/09	E002/GR-08-1065	MN	The Commercial Group	Northern States Power	Cost and revenue allocation and rate design
05/09	08-0532	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation
07/09	080677-EI	FL	South Florida Hospital and Health Care Association	Florida Power & Light	Cost of equity, capital structure, Cost of short-term debt
07/09	U-30975	LA	Louisiana Public Service Commission	Cleco LLC, Southwestern Public Service Co.	Lignite mine purchase
10/09	4220-UR-116	WI	Wisconsin Industrial Energy Group	Northern States Power	Class cost of service, rate design
10/09	M-2009-2123945	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Smart Meter Plan cost allocation
10/09	M-2009-2123944	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Company	Smart Meter Plan cost allocation
10/09	M-2009-2123951	PA	West Penn Power Industrial Intervenors	West Penn Power	Smart Meter Plan cost allocation
11/09	M-2009-2123948	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Smart Meter Plan cost allocation
11/09	M-2009-2123950	PA	Met-Ed Industrial Users Group Penelec Industrial Customer Alliance, Penn Power Users Group	Metropolitan Edison, Pennsylvania Electric Co., Pennsylvania Power Co.	Smart Meter Plan cost allocation

**Expert Testimony Appearances  
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Richard A. Baudino  
As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
03/10	09-1352-E-42T	WV	West Virginia Energy Users Group	Monongahela Power	Return on equity, rate of return Potomac Edison
03/10	E015/GR-09-1151	MN	Large Power Intervenors	Minnesota Power	Return on equity, rate of return
04/10	2009-00459	KY	Kentucky Industrial Utility Consumers	Kentucky Power	Return on equity
04/10	2009-00548 2009-00549	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
05/10	10-0261-E-GI	WV	West Virginia Energy Users Group	Appalachian Power Co./ Wheeling Power Co.	EE/DR Cost Recovery, Allocation, & Rate Design
05/10	R-2009-2149262	PA	Columbia Industrial Intervenors	Columbia Gas of PA	Class cost of service & cost allocation
06/10	2010-00036	KY	Lexington-Fayette Urban County Government	Kentucky American Water Company	Return on equity, rate of return, revenue requirements
06/10	R-2010-2161694	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities	Rate design, cost allocation
07/10	R-2010-2161575	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Return on equity
07/10	R-2010-2161592	PA	Philadelphia Area Industrial Energy Users Group	PECO Energy Co.	Cost and revenue allocation
07/10	9230	MD	Maryland Energy Group	Baltimore Gas and Electric	Electric and gas cost and revenue allocation; return on equity
09/10	10-70	MA	University of Massachusetts-Amherst	Western Massachusetts Electric Co.	Cost allocation and rate design
10/10	R-2010-2179522	PA	Duquesne Industrial Intervenors	Duquesne Light Company	Cost and revenue allocation, rate design
11/10	P-2010-2158084	PA	West Penn Power Industrial Intervenors	West Penn Power Co.	Transmission rate design
11/10	10-0699-E-42T	WV	West Virginia Energy Users Group	Appalachian Power Co. & Wheeling Power Co.	Return on equity, rate of Return
11/10	10-0467	IL	The Commercial Group	Commonwealth Edison	Cost and revenue allocation and rate design
04/11	R-2010-2214415	PA	Central Pen Gas Large Users Group	UGI Central Penn Gas, Inc.	Tariff issues, revenue allocation
07/11	R-2011-2239263	PA	Philadelphia Area Energy Users Group	PECO Energy	Retainage rate

**Expert Testimony Appearances  
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As of September 2021**

<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
08/11	R-2011-2232243	PA	AK Steel	Pennsylvania-American Water Company	Rate Design
08/11	11AL-151G	CO	Climax Molybdenum	PS of Colorado	Cost allocation
09/11	11-G-0280	NY	Multiple Intervenors	Corning Natural Gas Co.	Cost and revenue allocation
10/11	4220-UR-117	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
02/12	11AL-947E	CO	Climax Molybdenum, CF&I Steel	Public Service Company of Colorado	Return on equity, weighted cost of capital
07/12	120015-EI	FL	South Florida Hospitals and Health Care Association	Florida Power and Light Co.	Return on equity, weighted cost of capital
07/12	12-0613-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal for Century Aluminum
07/12	R-2012-2290597	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities Corp.	Cost allocation
09/12	05-UR-106	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Class cost of service, cost and revenue allocation, rate design
09/12	2012-00221 2012-00222	KY	Kentucky Industrial Utility Consumers	Louisville Gas and Electric, Kentucky Utilities	Return on equity.
10/12	9299	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design Cost of equity, weighted cost of capital
10/12	4220-UR-118	WI	Wisconsin Industrial Energy Group	Northern States Power Company	Class cost of service, cost and revenue allocation, rate design
10/12	473-13-0199	TX	Steering Committee of Cities Served by Oncor	Cross Texas Transmission, LLC	Return on equity, capital structure
01/13	R-2012-2321748 et al.	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation
02/13	12AL-1052E	CO	Cripple Creek & Victor Gold Mining, Holcim (US) Inc.	Black Hills/Colorado Electric Utility Company	Cost and revenue allocations
06/13	8009	VT	IBM Corporation	Vermont Gas Systems	Cost and revenue allocation, rate design
07/13	130040-EI	FL	WCF Hospital Utility Alliance	Tampa Electric Co.	Return on equity, rate of return
08/13	9326	MD	Maryland Energy Group	Baltimore Gas and Electric	Cost and revenue allocation, rate design, special rider

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<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
08/13	P-2012-2325034	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities, Corp.	Distribution System Improvement Charge
09/13	4220-UR-119	WI	Wisconsin Industrial Energy Group	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
11/13	13-1325-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal, Felman Production
06/14	R-2014-2406274	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation, rate design
08/14	05-UR-107	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
10/14	ER13-1508 et al.	FERC	Louisiana Public Service Comm.	Entergy Services, Inc.	Return on equity
11/14	14AL-0660E	CO	Climax Molybdenum Co. and CFI Steel, LP	Public Service Co. of Colorado	Return on equity, weighted cost of capital
11/14	R-2014-2428742	PA	AK Steel	West Penn Power Company	Cost and revenue allocation
12/14	42866	TX	West Travis Co. Public Utility Agency	Travis County Municipal Utility District No. 12	Response to complain of monopoly power
3/15	2014-00371 2014-00372	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
3/15	2014-00396	KY	Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity, weighted cost of capital
6/15	15-0003-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Cost and revenue allocation, Infrastructure Replacement Program
9/15	15-0676-W-42T	WV	West Virginia Energy Users Gp.	West Virginia-American Water Company	Appropriate test year, Historical vs. Future
9/15	15-1256-G-390P	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Rate design for Infrastructure Replacement and Expansion Program
10/15	4220-UR-121	WI	Wisconsin Industrial Energy Gp.	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
12/15	15-1600-G-390P	WV	West Virginia Energy Users Gp.	Dominion Hope	Rate design and allocation for Pipeline Replacement & Expansion Prog.
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital



**Expert Testimony Appearances  
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<b>Date</b>	<b>Case</b>	<b>Jurisdct.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
2/16	9406	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design, proposed Rider 5
3/16	39971	GA	GA Public Service Comm. Staff	Southern Company / AGL Resources	Credit quality and service quality issues
04/16	2015-00343	KY	Kentucky Office of the Attorney General	Atmos Energy	Cost of equity, cost of short-term debt, capital structure
05/16	16-G-0058 16-G-0059	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, service quality issues
06/16	16-0073-E-C	WV	Constellium Rolled Products Ravenswood, LLC	Appalachian Power Co.	Complaint; security deposit
07/16	9418	MD	Healthcare Council of the National Capital Area	Potomac Electric Power Co.	Cost of equity, cost of service, Cost and revenue allocation
07/16	160021-EI	FL	South Florida Hospital and Health Care Association	Florida Power and Light Co.	Return on equity, cost of debt, capital structure
07/16	16-057-01	UT	Utah Office of Consumer Svcs.	Dominion Resources, Questar Gas Co.	Credit quality and service quality issues
08/16	8710	VT	Vermont Dept. of Public Service	Vermont Gas Systems	Return on equity, cost of debt, cost of capital
08/16	R-2016-2537359	PA	AK Steel Corp.	West Penn Power Co.	Cost and revenue allocation
09/16	2016-00162	KY	Kentucky Office of the Attorney General	Columbia Gas of Ky.	Return on equity, cost of short-term debt
09/16	16-0550-W-P	WV	West Va. Energy Users Gp.	West Va. American Water Co.	Infrastructure Replacement Program Surcharge
01/17	46238	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring fencing and other conditions for acquisition, service quality and reliability
02/17	45414	TX	Cities of Midland, McAllen, and Colorado City	Sharyland Utilities, LP and Sharyland Dist. and Transmission Services, LLC	Return on equity
02/17	2016-00370 2016-00371	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
03/17	10580	TX	Atmos Cities Steering Committee	Atmos Pipeline Texas	Return on equity, capital structure, weighted cost of capital
03/17	R-3867-2013	Quebec, Canada	Canadian Federation of Independent Businesses	Gaz Metro	Marginal Cost of Service Study

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05/17	R-2017-2586783	PA	Philadelphia Industrial and Commercial Gas Users Gp.	Philadelphia Gas Works	Cost and revenue allocation, rate design, Interruptible tariffs
08/17	R-2017-2595853	PA	AK Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design
8/17	17-3112-INV	VT	Vt. Dept. of Pubic Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
9/17	4220-UR-123	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
10/17	2017-00179	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity, cost of short-term debt
12/17	2017-00321	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
1/18	2017-00349	KY	Office of the Attorney General	Atmos Energy	Return on equity, cost of debt, weighted cost of capital
5/18	Fiscal Years 2019-2021 Rates	PA	Philadelphia Large Users Group	Philadelphia Water Department	Cost and revenue allocation
8/18	18-0974-TF	VT	Vt. Dept. of Public Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
8/18	48401	TX	Cities Served by Texas-New Mexico Power Company	Texas-New Mexico Power Co.	Return on equity, capital structure
8/18	18-05-16	CT	Connecticut Industrial Energy Consumers	Connecticut Natural Gas Co.	Cost and revenue allocation
9/18	9484	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design
9/18	2017-370-E	SC	South Carolina Office of Regulatory Staff	South Carolina Electric & Gas, Dominion Resources, SCANA	Return on equity, service quality standards, credit quality conditions
10/18	18-1115-G-390P	WV	West Va. Energy Users Group	Mountaineer Gas Company	Customer protections for Infrastructure Replacement and Expansion Program
12/18	R-2018-3003558, R-2018-3003561	PA	Aqua Large Users Group	Aqua Pennsylvania, Inc.	Cost and revenue allocation
02/19	UD-18-07	CCNO	Crescent City Power Users' Gp.	Entergy New Orleans, LLC	Return on equity, Reliability Incentive Mechanism, other proposed riders
03/19	2018-00358	KY	Office of the Attorney General	Kentucky American Water Co.	Return on equity, Qualified Infrastructure Program rider
05/19	19-E-0065 19-G-0066	NY	City of New York	Consolidated Edison Co.	Cost and revenue allocation, rate design, tariff issues, fast-charging station incentives

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<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
05/2019	19-0513-TF	VT	Vt. Dept. of Public Service	Vermont Gas Systems	Return on equity, capital structure
06/2019	5-TG-100	WI	Wisconsin Industrial Energy Group	WEPCO, Wisconsin Gas, Wisconsin PS	Transportation and balancing issues
07/2019	49494	TX	Cities Served by AEP Texas	AEP Texas, Inc.	Return on equity, capital structure
08/2019	19-G-0309 19-G-0310	NY	City of New York	Brooklyn Union Gas Co., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, tariff issues and modifications
08/2019	19-0316-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Company	Cost and revenue allocation
8/2019	5-UR-109	WI	Wisconsin Industrial Energy Gp.	Wisconsin Electric Power Co., Wisconsin Gas, LLC	Cost Allocation, Class cost of service study
8/2019	6690-UR-126	WI	Wisconsin Industrial Energy Gp.	Wisconsin Public Service Corp.	Cost Allocation, Class cost of service study
9/2019	9610	MD	Maryland Energy Group	Baltimore Gas and Electric Co.	Cost and revenue allocation, rate design
12/2019	2019-00271	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
2/2020	49831	TX	Texas Industrial Energy Consumers	Southwestern Public Service Co.	Return on equity, capital structure, rate of return
2/2020	E-7. Sub 1214	NC	NC Attorney General's Office	Duke Energy Carolinas	Return on equity, capital structure, rate of return, economic conditions
2/2020	E-2. Sub 1219	NC	NC Attorney General's Office	Duke Energy Progress	Return on equity, capital structure, rate of return, economic conditions
5/2020	R-2019- 3015162	PA	Industrial Energy Consumers of Pennsylvania	UGI Utilities, Inc.	Return on equity, cost of debt, revenue allocation, rate design
6/2020	20-G-0101	NY	Multiple Intervenors	Corning Natural Gas Corp.	Cost and revenue allocation
9/2020	R-2020- 2019369	PA	AK Steel	Pennsylvania-American Water Company	Cost and revenue allocation, rate design
9/2020	20-035-04	UT	The Kroger Co.	Rocky Mountain Power	Cost and revenue allocation, rate design
10/2020	2020-00174	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Power Co.	Return on equity
3/2021	2020-00349	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Utilities Co.	Return on equity
3/2021	2020-00350	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Louisville Gas and Electric Co.	Return on equity

**Expert Testimony Appearances  
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<b>Date</b>	<b>Case</b>	<b>Jurisdict.</b>	<b>Party</b>	<b>Utility</b>	<b>Subject</b>
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

**PROXY GROUP**  
**AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD**

		Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21
<b>Atmos Energy Corp.</b>	High Price (\$)	94.300	99.250	104.990	104.790	101.840	101.760
	Low Price (\$)	84.590	85.590	97.080	96.840	95.670	95.210
	Avg. Price (\$)	89.445	92.420	101.035	100.815	98.755	98.485
	Dividend (\$)	0.625	0.625	0.625	0.625	0.625	0.625
	Mo. Avg. Div.	2.80%	2.71%	2.47%	2.48%	2.53%	2.54%
	6 mos. Avg.	2.59%					
<b>New Jersey Resources</b>	High Price (\$)	40.400	42.570	43.410	43.940	44.410	40.970
	Low Price (\$)	34.610	39.010	39.460	41.590	39.210	37.480
	Avg. Price (\$)	37.505	40.790	41.435	42.765	41.810	39.225
	Dividend (\$)	0.333	0.333	0.333	0.333	0.333	0.333
	Mo. Avg. Div.	3.55%	3.26%	3.21%	3.11%	3.18%	3.39%
	6 mos. Avg.	3.28%					
<b>Northwest Natural Holding Co.</b>	High Price (\$)	50.180	54.270	56.750	56.110	55.700	54.010
	Low Price (\$)	43.120	46.770	52.610	52.500	51.370	50.830
	Avg. Price (\$)	46.650	50.520	54.680	54.305	53.535	52.420
	Dividend (\$)	0.480	0.480	0.480	0.480	0.480	0.480
	Mo. Avg. Div.	4.12%	3.80%	3.51%	3.54%	3.59%	3.66%
	6 mos. Avg.	3.70%					
<b>ONE Gas, Inc.</b>	High Price (\$)	74.780	77.700	81.900	81.550	78.960	75.930
	Low Price (\$)	66.770	67.290	75.690	72.500	73.190	72.010
	Avg. Price (\$)	70.775	72.495	78.795	77.025	76.075	73.970
	Dividend (\$)	0.580	0.580	0.580	0.580	0.580	0.580
	Mo. Avg. Div.	3.28%	3.20%	2.94%	3.01%	3.05%	3.14%
	6 mos. Avg.	3.10%					
<b>South Jersey Industries, Inc.</b>	High Price (\$)	26.500	29.240	25.470	26.870	27.990	26.720
	Low Price (\$)	21.980	21.130	22.450	24.600	25.620	24.520
	Avg. Price (\$)	24.240	25.185	23.960	25.735	26.805	25.620
	Dividend (\$)	0.303	0.303	0.303	0.303	0.303	0.303
	Mo. Avg. Div.	5.00%	4.81%	5.06%	4.71%	4.52%	4.73%
	6 mos. Avg.	4.81%					
<b>Southwest Gas Holdings, Inc.</b>	High Price (\$)	66.640	71.350	73.540	72.570	68.200	71.900
	Low Price (\$)	58.910	61.770	67.610	65.290	62.540	64.630
	Avg. Price (\$)	62.775	66.560	70.575	68.930	65.370	68.265
	Dividend (\$)	0.570	0.570	0.570	0.595	0.595	0.595
	Mo. Avg. Div.	3.63%	3.43%	3.23%	3.45%	3.64%	3.49%
	6 mos. Avg.	3.48%					

**PROXY GROUP**  
**AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD**

		Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21
<b>Spire Inc.</b>	High Price (\$)	69.390	75.780	77.950	77.870	76.850	74.460
	Low Price (\$)	60.500	65.790	72.700	71.480	69.770	68.700
	Avg. Price (\$)	64.945	70.785	75.325	74.675	73.310	71.580
	Dividend (\$)	0.650	0.650	0.650	0.650	0.650	0.650
	Mo. Avg. Div.	4.00%	3.67%	3.45%	3.48%	3.55%	3.63%
	6 mos. Avg.	3.63%					
	<b>Monthly Avg. Dividend Yield</b>	3.77%	3.55%	3.41%	3.40%	3.44%	3.51%
	<b>6-month Avg. Dividend Yield</b>	3.51%					

**Source: Yahoo! Finance**

**PROXY GROUP**  
**DCF Growth Rate Analysis**

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) <u>Zacks</u>	(4) Yahoo! <u>Finance</u>
1 Atmos Energy Corp.	7.50%	7.00%	7.30%	7.17%
2 New Jersey Resources	5.50%	2.00%	7.10%	6.00%
3 Northwest Natural Holding Co.	0.50%	5.50%	3.90%	3.80%
4 ONE Gas, Inc.	7.00%	6.50%	5.00%	5.00%
5 South Jersey Industries, Inc.	4.50%	11.50%	5.40%	4.80%
6 Southwest Gas Holdings, Inc.	4.50%	9.00%	5.50%	4.00%
7 Spire Inc.	4.50%	10.00%	5.50%	7.31%
Averages	4.86%	7.36%	5.67%	5.44%
Median	4.50%	7.00%	5.50%	5.00%

**Sources:** Value Line Investment Survey, May 28, 2021  
Yahoo! Finance and Zacks growth rates retrieved July 23, 2021

**PROXY GROUP  
DCF RETURN ON EQUITY**

	(1) Value Line <u>Dividend Gr.</u>	(2) Value Line <u>Earnings Gr.</u>	(3) Zack's <u>Earning Gr.</u>	(4) Yahoo! <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
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Method 1:

Dividend Yield	3.51%	3.51%	3.51%	3.51%	3.51%
Average Growth Rate	4.86%	7.36%	5.67%	5.44%	5.83%
Expected Div. Yield	<u>3.60%</u>	<u>3.64%</u>	<u>3.61%</u>	<u>3.61%</u>	<u>3.62%</u>
<b><i>DCF Return on Equity</i></b>	<b>8.46%</b>	<b>11.00%</b>	<b>9.28%</b>	<b>9.05%</b>	<b>9.45%</b>

Method 2:

Dividend Yield	3.51%	3.51%	3.51%	3.51%	3.51%
Median Growth Rate	4.50%	7.00%	5.50%	5.00%	5.50%
Expected Div. Yield	<u>3.59%</u>	<u>3.64%</u>	<u>3.61%</u>	<u>3.60%</u>	<u>3.61%</u>
<b><i>DCF Return on Equity</i></b>	<b>8.09%</b>	<b>10.64%</b>	<b>9.11%</b>	<b>8.60%</b>	<b>9.11%</b>



**PROXY GROUP  
Capital Asset Pricing Model Analysis**

**30-Year Treasury Bond, Value Line Beta**

<u>Line No.</u>		<u>Value Line</u>
1	Market Required Return Estimate	8.34%
2	Risk-free Rate of Return, 30-Year Treasury Bond	
3	Average of Last Six Months	2.18%
4	Risk Premium	
5	(Line 1 minus Line 3)	6.16%
6	Proxy Group Beta	0.90
7	Proxy Group Beta * Risk Premium	
8	(Line 5 * Line 6)	5.54%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.72%

**Duff and Phelps Normalized Risk-free Rate**

1	Market Required Return Estimate	8.34%
2	Duff and Phelps Normalized Risk-free Rate	2.50%
3	Risk Premium	
4	(Line 1 minus Line 2)	5.84%
5	Proxy Group Beta	0.90
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	5.26%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	7.76%

**PROXY GROUP**  
**Capital Asset Pricing Model Analysis**

**Supporting Data for CAPM Analyses**

<u>30 Year Treasury Bond Data</u>		<u>Comparison Group Betas:</u>	<u>Value Line</u>
	<u>Avg. Yield</u>	Atmos Energy Corp.	0.80
February-21	2.04%	New Jersey Resources	1.00
March-21	2.34%	Northwest Natural Holding Co.	0.85
April-21	2.30%	ONE Gas, Inc.	0.80
May-21	2.32%	South Jersey Industries, Inc.	1.05
June-21	2.16%	Southwest Gas Holdings, Inc.	0.95
Jul-21	<u>1.94%</u>	Spire Inc.	<u>0.85</u>
6 month average	2.18%		
Source: <a href="http://www.federalreserve.gov">www.federalreserve.gov</a>		Average	0.90
		Source: Value Line Investment Survey	

Value Line Market Return Data:

Value Line Projected 3-5 Yr.	
Median Annual Total Return	8.00%
Average Annual Total Return	<u>8.68%</u>
Average	8.34%

Source: Value Line Investment Analyzer,  
July 22, 2021

**PROXY GROUP  
Capital Asset Pricing Model Analysis  
Historic Market Premium**

	<u>Arithmetic Mean</u>	<u>Adjusted Arithmetic Mean</u>
<b>CAPM with Current 30-Year Treasury Yield</b>		
Long-Term Annual Return on Stocks	12.20%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>4.90%</u>	
Historical Market Risk Premium	7.30%	6.00%
Proxy Group Beta, Value Line	<u>0.90</u>	<u>0.90</u>
Beta * Market Premium	6.57%	5.40%
Current 30-Year Treasury Bond Yield	<u>2.18%</u>	<u>2.18%</u>
<b>CAPM Cost of Equity, Value Line Beta</b>	<b><u>8.75%</u></b>	<b><u>7.58%</u></b>
<b>CAPM with D&amp;P Normalized Risk-Free Rate</b>		
Historical Market Risk Premium	7.30%	6.00%
Proxy Group Beta, Value Line	0.90	0.90
Beta * Market Premium	6.57%	5.40%
D&P Normalized Risk-Free Rate	2.50%	2.50%
<b>CAPM Cost of Equity, Normalized Risk-Free Rate</b>	<b><u>9.07%</u></b>	<b><u>7.90%</u></b>

Source: Duff and Phelps Cost of Capital Navigator: U.S. Cost of Capital Module  
*Summary Statistics of Annual Total Returns, Income Returns, and  
Capital Appreciation Returns of Basic U.S. Asset Classes; Exhibit 3.6  
1926 - 2020*

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		9/15/2021	Current	
Tenor	Weight	UST	Spread	Cpn
5-yr	10%	0.86%	1.40%	2.26%
10-yr	35%	1.39%	1.50%	2.89%
30-yr	55%	1.97%	1.75%	3.72%
<b>Weighted Average</b>	<b>20.5-yr</b>	1.65%	1.63%	3.28%

		9/15/2022	Current	
Tenor	Weight	UST	Spread	Cpn
5-yr	10%	1.21%	1.40%	2.61%
10-yr	35%	1.63%	1.50%	3.13%
30-yr	55%	2.05%	1.75%	3.80%
<b>Weighted Average</b>	<b>20.5-yr</b>	1.82%	1.63%	3.44%