

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

In the Matter of:

**ELECTRONIC APPLICATION OF KENTUCKY)
POWER COMPANY FOR (1) A GENERAL)
ADJUSTMENT OF ITS RATES FOR ELECTRIC)
SERVICE; (2) AN ORDER APPROVING ITS 2017)
ENVIRONMENTAL COMPLIANCE PLAN;)
(3) AN ORDER APPROVING ITS TARIFFS)
AND RIDERS; (4) AN ORDER APPROVING)
ACCOUNTING PRACTICES TO ESTABLISH)
REGULATORY ASSETS AND LIABILITIES; AND)
(5) AN ORDER GRANTING ALL OTHER)
REQUIRED APPROVALS AND RELIEF)**

CASE NO. 2017-00179

DIRECT TESTIMONY

AND EXHIBITS

OF

RICHARD A. BAUDINO

ON BEHALF OF

KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

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

OCTOBER 3, 2017

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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 Associates,
3 Inc. (“Kennedy and Associates”), 570 Colonial Park Drive, Suite 305, Roswell,
4 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

1 I began my professional career with the New Mexico Public Service Commission
2 Staff in October 1982 and was employed there as a Utility Economist. During my
3 employment with the Staff, my responsibilities included the analysis of a broad range
4 of issues in the ratemaking field. Areas in which I testified included cost of service,
5 rate of return, rate design, revenue requirements, analysis of sale/leasebacks of
6 generating plants, utility finance issues, and generating plant phase-ins.

7

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

14

15 Exhibit No. ____ (RAB-1) summarizes my expert testimony experience.

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

17 A. I am testifying on behalf of the Kentucky Industrial Utility Customers, Inc.
18 ("KIUC").

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

20 A. The purpose of my Direct Testimony is to address the allowed return on equity for
21 regulated electric operations for Kentucky Power Company ("KPC", or "Company").
22 I will also respond to the Direct Testimony of Mr. Adrien McKenzie, witness for
23 KPC.

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

2 A. Based on current financial market conditions, I recommend that the Kentucky Public
3 Service Commission ("KPSC" or "Commission") adopt an 8.85% return on equity
4 for Kentucky Power Company in this proceeding. My recommendation is based on
5 the results of a Discounted Cash Flow ("DCF") model analysis. My DCF analysis
6 incorporates my standard approach to estimating the investor required return on
7 equity and includes a group of 15 comparison companies and dividend and earnings
8 growth forecasts from the Value Line Investment Survey, IBES, and Zacks.

9
10 I also included two Capital Asset Pricing Model ("CAPM") analyses for additional
11 information. I did not incorporate the results of the CAPM in my recommendation,
12 however the results from the CAPM support my 8.85% ROE recommendation for
13 KPC. In fact, my CAPM results are somewhat lower than my DCF results.

14
15 In Section IV, I respond to the testimony and ROE recommendation of the
16 Company's witness Mr. McKenzie. I will demonstrate that his recommended ROE
17 of 10.31% significantly overstates the current investor required return for KPC.
18 Today's financial environment of low interest rates has been deliberately and
19 methodically supported by Federal Reserve policy actions since 2009. Although the
20 Federal Reserve began to raise short-term interest rates in 2016, both short-term and
21 long-term interest rates are still low. A 10.31% ROE is inconsistent with investor
22 required returns for low-risk utilities like KPC.

23

1 A 10.31% ROE would inflate the Company's revenue requirement and contribute to
2 a burdensome rate increase for Kentucky ratepayers. This is due to the fact that KPC
3 must collect income taxes on the equity portion of its weighted cost of capital. My
4 recommended 8.85% ROE equates to a 14.54% return when income taxes are
5 applied. This is also referred to as the pre-tax return on equity. Mr. McKenzie's
6 recommended 10.31% ROE equates to a 16.94% pre-tax return on equity. The
7 difference between my recommendation and Mr. McKenzie's results in an increased
8 base rate revenue requirement of \$11.838 million per year, according to calculations
9 made by KIUC witness Mr. Kollen. I strongly recommend that the KPSC reject the
10 Company's requested 10.31% ROE in this proceeding and approve my
11 recommended 8.85% ROE.

12

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

2 **Q. Mr. Baudino, what has the trend been in long-term capital costs over the last**
3 **few years?**

4 A. Long-term capital costs as measured by the general level of interest rates in the
5 economy have declined over the last few years, though they have increased since the
6 November 2016 election. Exhibit No. ___(RAB-2) presents a graphic depiction of
7 the trend in interest rates from January 2008 through August 2017. The interest rates
8 shown in this exhibit are for the 20-year U.S. Treasury Bond and the average public
9 utility bond from the Mergent Bond Record. In January 2008, the average public
10 utility bond yield was 6.08% and the 20-year Treasury Bond yield was 4.35%. As of
11 August 2017, the average public utility bond yield was 3.92%, representing a decline
12 of 216 basis points, or 2.16%, from January 2008. Likewise, the 20-year Treasury
13 bond stood at 2.55% in August 2017, a decline of 1.80% (181 basis points) from
14 January 2008.

15 **Q. Was there a significant change in Federal Reserve policy during the historical**
16 **period shown in DPS-RAB-2 that affected the general level of interest rates?**

17 A. Yes. In response to the 2007 financial crisis and severe recession that followed in
18 December 2007, the Federal Reserve ("Fed") undertook a series of steps to stabilize
19 the economy, ease credit conditions, and lower unemployment and interest rates.
20 These steps are commonly known as Quantitative Easing ("QE") and were
21 implemented in three distinct stages: QE1, QE2, and QE3. The Fed's stated purpose

1 of QE was "to support the liquidity of financial institutions and foster improved
2 conditions in financial markets."¹

3
4 QE1 was implemented from November 2008 through approximately March 2010.
5 During this time, the Fed cut its key Federal Funds Rate to nearly 0% and purchased
6 \$1.25 trillion of mortgage-backed securities and \$175 billion of agency debt
7 purchases.

8
9 QE2 was implemented in November 2010 with the Fed announcing that it would
10 purchase an additional \$600 billion of Treasury securities by the second quarter of
11 2011.²

12
13 Beginning in September 2011, the Fed initiated a "maturity extension program" in
14 which it sold or redeemed \$667 billion of shorter-term Treasury securities and used
15 the proceeds to buy longer-term Treasury securities. This program, also known as
16 "Operation Twist," was designed by the Fed to lower long-term interest rates and
17 support the economic recovery.

18
19 QE3 began in September 2012 with the Fed announcing an additional bond
20 purchasing program of \$40 billion per month of agency mortgage backed securities.

¹ (http://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm).

² (<http://www.federalreserve.gov/newsevents/press/monetary/20101103a.htm>)

1 The Fed began to pare back its purchases of securities in the last few years. On
2 January 29, 2014 the Fed stated that beginning in February 2014 it would reduce its
3 purchases of long-term Treasury securities to \$35 billion per month. The Fed
4 continued to reduce these purchases throughout the year and in a press release issued
5 October 29, 2014 announced that it decided to close this asset purchase program in
6 October.³

7 **Q. Has the Fed recently indicated any important changes to its monetary policy?**

8 A. Yes. In March 2016, the Fed began to raise its target range for the federal funds rate,
9 increasing it to 1/4% to 1/2% from 0% to 1/4%. The Fed further increased the
10 target range to 1/2% to 3/4% in a press release dated December 14, 2016. On June
11 14, 2017, the Fed announced a further increase to 1% - 1 1/4%. On September 20,
12 2017 the Fed decided to maintain the federal funds rate at current levels. In its press
13 release on that date, the Fed noted the following:

14 “Consistent with its statutory mandate, the Committee seeks to foster maximum
15 employment and price stability. Hurricanes Harvey, Irma, and Maria have devastated
16 many communities, inflicting severe hardship. Storm-related disruptions and
17 rebuilding will affect economic activity in the near term, but past experience
18 suggests that the storms are unlikely to materially alter the course of the national
19 economy over the medium term. Consequently, the Committee continues to expect
20 that, with gradual adjustments in the stance of monetary policy, economic activity
21 will expand at a moderate pace, and labor market conditions will strengthen
22 somewhat further. Higher prices for gasoline and some other items in the aftermath
23 of the hurricanes will likely boost inflation temporarily; apart from that effect,
24 inflation on a 12-month basis is expected to remain somewhat below 2 percent in the
25 near term but to stabilize around the Committee's 2 percent objective over the
26 medium term. Near-term risks to the economic outlook appear roughly balanced, but
27 the Committee is monitoring inflation developments closely.
28

³ (<http://www.federalreserve.gov/newsevents/press/monetary/20141029a.htm>)

1 In view of realized and expected labor market conditions and inflation, the
2 Committee decided to maintain the target range for the federal funds rate at 1 to 1-
3 1/4 percent. The stance of monetary policy remains accommodative, thereby
4 supporting some further strengthening in labor market conditions and a sustained
5 return to 2 percent inflation.
6

7 In determining the timing and size of future adjustments to the target range for the
8 federal funds rate, the Committee will assess realized and expected economic
9 conditions relative to its objectives of maximum employment and 2 percent inflation.
10 This assessment will take into account a wide range of information, including
11 measures of labor market conditions, indicators of inflation pressures and inflation
12 expectations, and readings on financial and international developments. The
13 Committee will carefully monitor actual and expected inflation developments
14 relative to its symmetric inflation goal. *The Committee expects that economic*
15 *conditions will evolve in a manner that will warrant gradual increases in the federal*
16 *funds rate; the federal funds rate is likely to remain, for some time, below levels that*
17 *are expected to prevail in the longer run. However, the actual path of the federal*
18 *funds rate will depend on the economic outlook as informed by incoming data.*⁴
19 (italics added)

20 **Q. Mr. Baudino, why is it important to understand the Fed's actions since 2008?**

21 A. The Fed's monetary policy actions since 2008 were deliberately undertaken to lower
22 interest rates and support economic recovery. The Fed's actions have been
23 successful in lowering interest rates given that the 20-year Treasury Bond yield in
24 June 2007 was 5.29% and the public utility bond yield was 6.34%. The U.S.
25 economy is currently in a low interest rate environment. As I will demonstrate later
26 in my testimony, low interest rates have also significantly lowered investors' required
27 return on equity for the stocks of regulated utilities.

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

⁴ <https://www.federalreserve.gov/newsevents/pressreleases/monetary20170920a.html>

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

4 "A considerable body of empirical evidence indicates that U.S. capital
5 markets are efficient with respect to a broad set of information, including
6 historical and publicly available information."⁵
7

8 Despite recent increases in the general level of interest rates since the second half of
9 2016, the U.S. economy continues to operate in a low interest rate environment. It is
10 important to realize that investor expectations of higher future interest rates, if any,
11 are already embodied in current securities prices, which include debt securities and
12 stock prices.

13
14 Moreover, the current low interest rate environment favors lower risk regulated
15 utilities. It would not be advisable for utility regulators to raise ROEs in anticipation
16 of higher interest rates that may or may not occur.

17 **Q. How has the increase in interest rates last year affected utility stocks in terms of**
18 **bond yields and stock prices?**

19 A. Table 1 below tracks movements in the 20-year Treasury bond yield, the Mergent
20 average utility bond yield, and the Dow Jones Utilities Average ("DJUA") from
21 January 2016 through August 2017.
22

⁵ Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 279.

1

	<u>20-Year Treasury %</u>	<u>Avg. Utility Bond %</u>	<u>DJUA</u>
<u>2016</u>			
January	2.49	4.62	611.35
February	2.20	4.44	620.70
March	2.28	4.40	668.57
April	2.21	4.16	654.44
May	2.22	4.06	659.44
June	2.02	3.93	716.52
July	1.82	3.70	711.42
August	1.89	3.73	666.87
September	2.02	3.80	668.13
October	2.17	3.90	675.23
November	2.54	4.21	632.67
December	2.84	4.39	645.86
<u>2017</u>			
January	2.75	4.24	668.87
February	2.76	4.25	703.16
March	2.83	4.30	697.28
April	2.67	4.19	704.35
May	2.70	4.19	726.62
June	2.54	4.01	706.91
July	2.65	4.06	726.48
August	2.55	3.92	743.24

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Table 1 shows that the 20-year Treasury bond yield was slightly higher in August 2017 than it was in January 2016 before the Fed began raising short-term interest rates. However, the yield on the Mergent average public utility bond was substantially lower in August 2017 than in January 2016. Similarly, the DJUA was substantially higher in August 2017 than it was in January 2016.

My conclusion from this data is that even though the Federal Reserve raised short-term interest rates since March 2016, utility bond yields are lower and the DJUA is

1 higher than they were at the beginning of 2016. Utility stocks and bonds have not
2 been adversely affected by the Fed's raising of the federal funds rate.

3 **Q. How does the investment community regard the electric utility industry as a**
4 **whole?**

5 A. The Value Line Investment Survey's September 15, 2017 summary report on the
6 Electric Utility (Central) Industry noted the following regarding interest rates and
7 utility stocks.

8 "This has been an excellent year for most stocks in the Electric Utility Industry.
9 The price of almost every issue in the group has risen, and the majority have
10 advanced by more than 10%. A few equities, including CenterPoint Energy, have
11 climbed more than 20%. This has occurred despite the raising of interest rates by
12 the Federal Reserve and the expectation that at least one more increase might be
13 in the offing. Interest rates are still quite low, by historical standards, so investors
14 continue to "reach for yield." The average dividend yield of stocks in the Electric
15 Utility Industry is 3.3%. This is still above the median of dividend-paying equities
16 under our coverage, but the gap is narrower than usual."
17

18 **Q. In 2017, the Edison Electric Institute ("EEI") published its *2016 Financial***
19 ***Review* of the investor-owned electric utility industry. Please summarize EEI's**
20 **conclusions with respect to credit ratings for the electric utility industry.**

21 A. EEI's report noted the following with respect to the industry's credit ratings:

22 "The industry's average credit rating was BBB+ in 2016, remaining for a third
23 straight year above the BBB average that has held since 2004. Ratings activity, at 67
24 changes, was in line with the industry's annual average of 70 changes per year since
25 2008. Upgrades were 73.1% of total actions, the third-highest annual figure for
26 upgrades in our dataset. In fact, the last four years have produced the four highest
27 annual upgrade percentages in our historical data. EEI captures upgrades and
28 downgrades at the subsidiary level; multiple actions within a parent holding
29 company are included in the upgrade/downgrade totals. The industry's average credit
30 rating and outlook are based on the unweighted averages of all Standard & Poor's
31 (S&P) parent company ratings and outlooks.
32

33 While the industry's average rating was unchanged at BBB+, the underlying data
34 show a modest strengthening. Six companies received upgrades at the parent level
35 while only two were downgraded. Our universe of U.S. "parent" company electric
36 utilities includes a few that are either a subsidiary of an independent power producer,
37 a subsidiary of a foreign-owned company, or that have been acquired by an

1 investment firm; three of the year's upgrades focused on a relationship with that
2 ultimate parent company. Two other upgrades cited a reduced focus on merchant
3 generation and an improved business risk profile. At January 1, 2017, 74.0% of
4 ratings outlooks were "stable", 18.0% were "negative" or "watch-negative", 6.0%
5 were "positive" or "watch-positive", and 2.0% were "developing".
6

7 EEI's analysis shows that the investor-owned electric utility industry had strong,
8 stable, and slightly improving credit metrics in 2016.

9 **Q. What are the current credit ratings and bond ratings for KPC?**

10 A. Standard and Poor's ("S&P") current credit rating for the Company is A- and its
11 senior unsecured bond rating is A-. Moody's current long-term issuer rating for the
12 KPC is Baa2, with a rating of Baa2 for senior unsecured bonds. These credit ratings
13 are relatively consistent with the recent average utility credit rating of BBB+ as
14 reported by EEI. The also show that KPC is a strong, investment grade utility
15 company.
16

III. DETERMINATION OF FAIR RATE OF RETURN

1
2 **Q. Please describe the methods you employed in estimating a fair rate of return for**
3 **KPC.**

4 A. I employed a Discounted Cash Flow (“DCF”) analysis using a group of regulated
5 electric utilities. My DCF analysis is my standard constant growth form of the
6 model that employs four different growth rate forecasts from the Value Line
7 Investment Survey, IBES, and Zacks. I also employed Capital Asset Pricing Model
8 (“CAPM”) analyses using both historical and forward-looking data. Although I did
9 not rely on the CAPM for my recommended 8.85% ROE for KPC, the CAPM
10 provide an alternative approach to estimating the ROE for KPC, albeit a less reliable
11 one.

12 **Q. What are the main guidelines to which you adhere in estimating the cost of**
13 **equity for a firm?**

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

19
20 From an economist’s perspective, the notion of “opportunity cost” plays a vital role
21 in estimating the return on equity. One measures the opportunity cost of an
22 investment equal to what one would have obtained in the next best alternative. For
23 example, let us suppose that an investor decides to purchase the stock of a publicly
24 traded electric utility. That investor made the decision based on the expectation of

1 dividend payments and perhaps some appreciation in the stock's value over time;
2 however, that investor's opportunity cost is measured by what she or he could have
3 invested in as the next best alternative. That alternative could have been another
4 utility stock, a utility bond, a mutual fund, a money market fund, or any other
5 number of investment vehicles.

6
7 The key determinant in deciding whether to invest, however, is based on
8 comparative levels of risk. Our hypothetical investor would not invest in a particular
9 electric company stock if it offered a return lower than other investments of similar
10 risk. The opportunity cost simply would not justify such an investment. Thus, the
11 task for the rate of return analyst is to estimate a return that is equal to the return
12 being offered by other risk-comparable firms.

13 **Q. What are the major types of risk faced by utility companies?**

14 A. In general, risk associated with the holding of common stock can be separated into
15 three major categories: business risk, financial risk, and liquidity risk. Business risk
16 refers to risks inherent in the operation of the business. Volatility of the firm's sales,
17 long-term demand for its product(s), the amount of operating leverage, and quality of
18 management are all factors that affect business risk. The quality of regulation at the
19 state and federal levels also plays an important role in business risk for regulated
20 utility companies.

21
22 Financial risk refers to the impact on a firm's future cash flows from the use of debt
23 in the capital structure. Interest payments to bondholders represent a prior call on the

1 firm's cash flows and must be met before income is available to the common
2 shareholders. Additional debt means additional variability in the firm's earnings,
3 leading to additional risk.

4
5 Liquidity risk refers to the ability of an investor to quickly sell an investment without
6 a substantial price concession. The easier it is for an investor to sell an investment
7 for cash, the lower the liquidity risk will be. Stock markets, such as the New York
8 and American Stock Exchanges, help ease liquidity risk substantially. Investors who
9 own stocks that are traded in these markets know on a daily basis what the market
10 prices of their investments are and that they can sell these investments fairly quickly.
11 Many electric utility stocks are traded on the New York Stock Exchange and are
12 considered liquid investments.

13 **Q. Are there any sources available to investors that quantify the total risk of a**
14 **company?**

15 **A.** Bond and credit ratings are tools that investors use to assess the risk comparability of
16 firms. Bond rating agencies such as Moody's and Standard and Poor's perform
17 detailed analyses of factors that contribute to the risk of a particular investment. The
18 result of their analyses is a bond and/or credit rating that reflect these risks.

19 **Discounted Cash Flow ("DCF") Model**

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

21 **A.** The basic DCF approach is rooted in valuation theory. It is based on the premise that
22 the value of a financial asset is determined by its ability to generate future net cash
23 flows. In the case of a common stock, those future cash flows generally take the

1 form of dividends and appreciation in stock price. The value of the stock to
 2 investors is the discounted present value of future cash flows. The general equation
 3 then is:

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

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

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

$$k = D_1/P_0 + g$$

17 Where: *D₁ = the next period dividend*
 18 *P₀ = current stock price*
 19 *g = expected growth rate*
 20 *k = investor-required return*

21 Under the formula, it is apparent that “k” must reflect the investors’ expected return.
 22 Use of the DCF method to determine an investor-required return is complicated by
 23 the need to express investors’ expectations relative to dividends, earnings, and book

1 value over an infinite time horizon. Financial theory suggests that stockholders
2 purchase common stock on the assumption that there will be some change in the rate
3 of dividend payments over time. We assume that the rate of growth in dividends is
4 constant over the assumed time horizon, but the model could easily handle varying
5 growth rates if we knew what they were. Finally, the relevant time frame is
6 prospective rather than retrospective.

7 **Q. What was your first step in conducting your DCF analysis for KPC?**

8 A. My first step was to construct a comparison group of companies with a risk profile
9 that is reasonably similar to KPC. Since KPC is a subsidiary of American Electric
10 Power, it does not have publicly traded stock. Thus, one cannot estimate a DCF cost
11 of equity on the Company directly. It is necessary to use a group of companies that
12 are similarly situated and have reasonably similar risk profiles to KPC.

13 **Q. Please describe your approach for selecting a group of electric companies.**

14 A. For purposes of this case, I chose to rely on the proxy group that Companies witness
15 McKenzie used for his analysis. Although the selection criteria he used are
16 somewhat different from those I have used in past cases, the constituent members of
17 his proxy group comprise a reasonable basis for purposes of estimating the ROE for
18 the Company, with three exceptions. I eliminated the following companies from Mr.
19 McKenzie's proxy group as follows:

- 20
- 21 • Avangrid Inc.: NMF (no meaningful figure) for Value Line earnings and
22 dividend growth forecasts and Value Line beta. Since Value Line is one of

1 my primary sources for growth rate forecasts, there is not enough Value Line
2 information to include this company in the proxy group.

- 3 • Emera, Inc.: Emera completed the acquisition of TECO Energy in 2016 and
4 as a result has Value Line earnings and dividend growth estimates – 8.5%
5 and 11.0% respectively, that reflect higher short-term growth, but are not
6 reflective of longer term growth as Emera assimilates TECO into its
7 corporate earnings and dividends. Value Line predicted that Emera’s revenue
8 will increase from \$2.789 billion in 2015 to \$6.875 billion in 2017.⁶ Clearly,
9 Emera is a different company today from what it was in 2015 and its
10 expected short-term growth in dividends and revenues reflect this.
- 11 • Fortis, Inc.: Fortis acquired ITC Holdings in October 2016 and is a different
12 company from what is was in 2015. Value Line forecasted that its revenues
13 would increase from \$6.727 billion in 2015 to \$8.5 billion in 2017 and its
14 total capital will increase from \$21.151 billion in 2015 to \$37.525 billion in
15 2017. This is expected to fuel a rise in earnings of 9.0% over the next five
16 years, according to Value Line.⁷

17
18 The resulting comparison group of 15 companies that I used in my analysis is shown
19 in the Table 2 below.
20

⁶ Value Line Investment Survey Report, June 23, 2017.

⁷ Value Line Investment Survey Report, September 15, 2017.

TABLE 2
Credit Ratings
Proxy Group and Kentucky Power

	<u>S&P</u>	<u>Moody's</u>
Alliant Energy	A-	Baa1
Ameren Corp.	BBB+	Baa!
American Elec Pwr	A-	Baa1
CMS Energy Corp.	BBB+	Baa1
Dominion Energy	BBB+	Baa2
DTE Energy Co.	BBB+	Baa1
Duke Energy Corp.	A-	Baa1
Eversource Energy	A-	Baa1
NextEra Energy, Inc.	A-	Baa1
PPL Corp.	A-	Baa2
Pub Sv Enterprise Grp.	BBB+	Baa1
SCANA Corp.	BBB+	Baa3
Sempra Energy	BBB+	Baa1
Southern Company	A-	Baa2
Vectren Corp.	A-	NR
Kentucky Power	A-	Baa2

1

2 **Q. What was your first step in determining the DCF return on equity for the**
3 **comparison group?**

4 A. I first determined the current dividend yield, D_1/P_0 , from the basic equation. My
5 general practice is to use six months as the most reasonable period over which to
6 estimate the dividend yield. The six-month period I used covered the months from
7 March through August 2017. I obtained historical prices and dividends from Yahoo!
8 Finance. The annualized dividend divided by the average monthly price represents
9 the average dividend yield for each month in the period.

10

11 The resulting average dividend yield for the comparison group is 3.45%. These
12 calculations are shown in Exhibit No. ___(RAB-3).

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

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

10

11 For my analysis in this proceeding, I used three major sources of analysts' forecasts
12 for growth. These sources are The Value Line Investment Survey, Zacks, and IBES.
13 This is the method I typically use for estimating growth for my DCF calculations.

14 **Q. Please briefly describe Value Line, Zacks, and IBES.**

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

22 Zacks gathers opinions from a variety of analysts on earnings growth forecasts for
23 numerous firms including regulated electric utilities. The estimates of the analysts

1 responding are combined to produce consensus average estimates of earnings
2 growth. I obtained Zacks' earnings growth forecasts from its web site.

3

4 Like Zacks, IBES also compiles and reports consensus analysts' forecasts of
5 earnings growth. I obtained these forecasts from Yahoo! Finance.

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

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

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

15 Q. Columns (1) through (5) of the top section of Exhibit No. ____ (RAB-4) shows the
16 forecasted dividend, earnings, and retention growth rates from Value Line and the
17 earnings growth forecasts from IBES and Zacks. In my analysis, I used four of these
18 growth rates: dividend and earnings growth from Value Line and earnings growth
19 from Zacks and IBES. It is important to include dividend growth forecasts in the
20 DCF model since the model calls for forecasted cash flows. Value Line is the only
21 sources of which I am aware that forecasts dividend growth and my approach gives
22 this forecast equal weight with each of the three earnings growth forecasts.

1 **Q. How did you proceed to determine the DCF return of equity for the comparison**
2 **group?**

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

7

8 Exhibit No. ___(RAB-4) presents my standard method of calculating dividend
9 yields, growth rates, and return on equity for the comparison group of companies.

10 The DCF Return on Equity Calculation section shows the application of each of four
11 growth rates to the current group dividend yield of 3.45% to calculate the expected
12 dividend yield. I then added the expected growth rates to the expected dividend
13 yield. In evaluating investor expected growth rates, I use both the average and the
14 median values for the comparison group under consideration.

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

16 A. For Method 1 (average growth rates), the results range from 8.14% to 9.25%, with
17 the average of these results being 8.86%. For Method 2 (median growth rates), the
18 results range from 8.28% to 9.55%, with the average of these results being 8.85%.

19 **Capital Asset Pricing Model**

20 **Q. Briefly summarize the Capital Asset Pricing Model ("CAPM") approach.**

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

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 rates,
6 and changes in consumer confidence. Market risk tends to affect all stocks and
7 cannot be diversified away. The idea behind the CAPM is that diversified investors
8 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, or
12 non-diversifiable, risk. Beta is the factor that reflects the inherent market risk of a
13 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 fall
17 50% as much as the overall market. So with an increase in the market of 15%, this
18 stock will only rise 7.5%. Stocks with betas greater than 1.0 will rise and fall more
19 than the overall market. Thus, beta is the measure of the relative risk of individual
20 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:

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

1 Where: *K* = *Required Return on equity*
 2 *R_f* = *Risk-free rate*
 3 *MRP* = *Market risk premium*
 4 *β* = *Beta*

5

6 This equation tells us about the risk/return relationship posited by the CAPM.

7 Investors are risk averse and will only accept higher risk if they expect to receive

8 higher returns. These returns can be determined in relation to a stock's beta and the

9 market risk premium. The general level of risk aversion in the economy determines

10 the market risk premium. If the risk-free rate of return is 3.0% and the required

11 return on the total market is 15%, then the risk premium is 12%. Any stock's

12 required return can be determined by multiplying its beta by the market risk

13 premium. Stocks with betas greater than 1.0 are considered riskier than the overall

14 market and will have higher required returns. Conversely, stocks with betas less than

15 1.0 will have required returns lower than the market.

16 **Q. In general, are there concerns regarding the use of the CAPM in estimating the**
 17 **return on equity?**

18 A. Yes. There is some controversy surrounding the use of the CAPM.⁸ There is

19 evidence that beta is not the primary factor for determining the risk of a security. For

20 example, Value Line's "Safety Rank" is a measure of total risk, not its calculated

21 beta coefficient. Beta coefficients usually describe only a small amount of total

22 investment risk.

⁸ For a more complete discussion of some of the controversy surrounding the use of the CAPM, refer to *A Random Walk Down Wall Street* by Burton Malkiel, pp. 206 - 211, 2007 edition.

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There is also substantial judgment involved in estimating the required market return. In theory, the CAPM requires an estimate of the return on the total market for investments, including stocks, bonds, real estate, etc. It is nearly impossible for the analyst to estimate such a broad-based return. Often in utility cases, a market return is estimated using the S&P 500 or the return on Value Line's stock market composite. However, these are limited sources of information with respect to estimating the investor's required return for all investments. In practice, the total market return estimate faces significant limitations to its estimation and, ultimately, its usefulness in quantifying the investor required ROE.

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

19 **Q.**

How did you estimate the market return portion of the CAPM?

20 **A.**

The first source I used was the Value Line Investment Analyzer, Plus Edition, for September 20, 2017. This edition covers several thousand stocks. The Value Line Investment Analyzer provides a summary statistical report detailing, among other things, forecasted growth rates for earnings and book value for the companies Value

23

1 Line follows as well as the projected total annual return over the next 3 to 5 years. I
2 present these growth rates and Value Line's projected annual return on page 2 of
3 Exhibit No. ____ (RAB-5). I included median earnings and book value growth rates.
4 The estimated market returns using Value Line's market data range from 9.00% to
5 9.91%. The average of these market returns is 9.45%.

6 **Q. Why did you use median growth rate estimates rather than the average growth**
7 **rate estimates for the Value Line companies?**

8 A. Using median growth rates is likely a more accurate method of estimating the central
9 tendency of Value Line's large data set compared to the average growth rates.
10 Average earnings and book value growth rates may be unduly influenced by very
11 high or very low 3 - 5-year growth rates that are unsustainable in the long run. For
12 example, Value Line's Statistical Summary shows both the highest and lowest value
13 for earnings and book value growth forecasts. For earnings growth, Value Line
14 showed the highest earnings growth forecast to be 90.5% and the lowest growth rate
15 to be -27.5%. The highest book value growth rate was 98.5% and the lowest was
16 -32.5%. Neither of these levels of growth is compatible with long-run growth
17 prospects for the market. The median growth rate is not influenced by such extremes
18 because it represents the middle value of a very wide range of earnings growth rates.

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

20 A. I also considered a supplemental check to the Value Line projected market return
21 estimates. Duff and Phelps compiled a study of historical returns on the stock
22 market in its 2017 SBBI Yearbook. Some analysts employ this historical data to
23 estimate the market risk premium of stocks over the risk-free rate. The assumption is

1 that a risk premium calculated over a long period is reflective of investor
2 expectations going forward. Exhibit No. ___(RAB-6) presents the calculation of the
3 market returns using the historical data.

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

5 A. Exhibit No. ___(RAB-6) shows both the geometric and arithmetic average of yearly
6 historical stock market returns over the historical period from 1926 - 2016. The
7 average annual income return for 20-year Treasury bond is subtracted from these
8 historical stocks returns to obtain the historical market risk premium of stock returns
9 over long-term Treasury bond income returns. The historical market risk premium
10 range is 5.0% - 7.0%.

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

12 A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and Dr.
13 Peng Chen indicating that the historical risk premium of stock returns over long-term
14 government bond returns has been significantly influenced upward by substantial
15 growth in the price/earnings ("P/E") ratio for stocks from 1980 through 2001.⁹ Duff
16 and Phelps noted that this growth in the P/E ratio for stocks was subtracted out of the
17 historical risk premium because "it is not believed that P/E will continue to increase
18 in the future." The adjusted historical arithmetic market risk premium is 5.97%,
19 which I have also included in Exhibit No. ___(RAB-6). This risk premium estimate
20 falls near the middle of the market risk premium range.

⁹ 2017 *SBBI Yearbook*, Duff and Phelps, pp. 10-28 through 10-30.

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

2 A. I used the average yields on the 20-year Treasury bond and five-year Treasury note
3 over the six-month period from March through August 2017. This was the latest
4 available data from the Federal Reserve's Selected Interest Rates (Daily) H.15 web
5 site during the preparation of my Direct Testimony. The 20-year Treasury bond is
6 often used by rate of return analysts as the risk-free rate, but it contains a significant
7 amount of interest rate risk. The five-year Treasury note carries less interest rate risk
8 than the 20-year bond and is more stable than three-month Treasury bills. Therefore,
9 I have employed both securities as proxies for the risk-free rate of return. This
10 approach provides a reasonable range over which the CAPM return on equity may be
11 estimated.

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

13 A. I obtained the betas for the companies in the electric company comparison group
14 from most recent Value Line reports. The average of the Value Line betas for the
15 comparison group is 0.67.

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

17 A. For my forward-looking CAPM return on equity estimates, the CAPM results are
18 6.90% - 7.15%. Using historical risk premiums, the CAPM results are 5.99% -
19 7.32%.

20 **Conclusions and Recommendations**

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

- 1 A. Table 3 below summarizes my return on equity results using the DCF and CAPM for
2 my comparison group of companies.

TABLE 3	
SUMMARY OF ROE ESTIMATES	
Baudino DCF Methodology:	
Average Growth Rates	
- High	9.25%
- Low	8.14%
- Average	8.86%
Median Growth Rates:	
- High	9.55%
- Low	8.28%
- Average	8.85%
CAPM:	
- 5-Year Treasury Bond	6.90%
- 20-Year Treasury Bond	7.15%
- Historical Returns	5.99% - 7.32%

3

4 **Q. What is your recommended return on equity for KPC?**

5 A. I recommend that the KPSC adopt an 8.85% return on equity for KPC. My
6 recommendation is consistent with the average DCF results from my constant growth
7 DCF model. Based on current market evidence, an 8.85% return on equity is fair and
8 reasonable for A-/Baa2 rated electric utility company like KPC.

9 **Q. Mr. Baudino, are you concerned that your recommended cost of equity is too**
10 **low?**

11 A. No, not at all. The preponderance of market evidence I examined fully supports my
12 ROE recommendation for KPC in this proceeding. As I described in Section II of
13 my testimony, the U. S. economy is in a low interest rate environment, one that has
14 been supported in a deliberate and considered fashion by Federal Reserve monetary

1 policy. Both my DCF and CAPM ROE estimates show that the investor required
2 ROE for KPC, as well as other regulated electric and gas utilities, reflects this low
3 interest rate environment.

4 **Q. Does KIUC recommend the inclusion of short-term debt in KPC's capital**
5 **structure?**

6 A. Yes. Mr. Kollen addresses the inclusion of short-term debt in the Company's
7 capital structure. I will address the cost of short-term debt.

8 **Q. What is your recommended cost of short-term debt?**

9 A. I recommend a cost of short-term debt of 1.25%. This recommendation is based on
10 my review of the rates on short-term commercial paper and on the London Interbank
11 Offer Rate ("LIBOR"). LIBOR is one of the most widely used sources for
12 determining short-term interest rates. Commercial paper is typically defined as
13 short-term debt issued by corporations for financing such items as accounts
14 receivable and other short-term obligations.

15

16 As of September 18, 2017, the Federal Reserve reported that the cost of 1-month
17 commercial paper was 1.11%. The Wall Street Journal also reported on September
18 20, 2017 that the one-month LIBOR was 1.237%. For purposes of this case, I
19 recommend using the approximate upper end of this range of estimates, 1.25%, as a
20 reasonable proxy for the cost of short-term debt for KPC in this proceeding.

21

1 **IV. RESPONSE TO KENTUCKY POWER TESTIMONY**2 **Q. Have you reviewed the Direct Testimony of Mr. McKenzie?**

3 A. Yes.

4 **Q. Please summarize your conclusions with respect to his testimony and return on**
5 **equity recommendation.**6 A. Mr. McKenzie's recommended 10.31% return on equity is overstated and inconsistent
7 with the current low interest rate environment. As I shall demonstrate later in this
8 section of my testimony, Mr. McKenzie made judgments that served to inflate his ROE
9 results, particularly for the DCF and CAPM. As such, his testimony and analyses
10 provide very little useful guidance for the Commission with respect to the investor
11 required ROE for KPC.12 **Outlook for Capital Costs**13 **Q. Beginning on page 16, line 19 of his Direct Testimony, Mr. McKenzie presented**
14 **his view of current capital market conditions, noting that these conditions**
15 **“continue to be affected by the Federal Reserve’s unprecedented monetary**
16 **policy actions, which were designed to push interest rates to historically and**
17 **artificially low levels ...” Please respond to Mr. McKenzie’s position with**
18 **respect to current capital market conditions.**19 A. I agree that the economy is in a low interest rate environment that is being supported
20 quite deliberately by Federal Reserve policy. Nonetheless, current financial market
21 conditions do indeed provide a representative basis for estimating the cost of equity
22 capital for Kentucky Power Company and for utilities generally. The fact that interest
23 rates are relatively low by historical standards does not preclude the rate of return
24 analyst from making a reasonable assessment of investor required ROEs using currently
25 prevailing stock prices and interest rates.

1 **Q. On page 21 of Mr. McKenzie's Direct Testimony, Figure 1 shows higher**
2 **forecasted interest rates through 2021 from several different forecasting**
3 **sources. Should the Commission increase its allowed return on equity based on**
4 **these higher interest rate forecasts?**

5 A. No. As I stated in Section II my Direct Testimony, current interest rates embody
6 investor expectations based on their assessments of all available market information.
7 This includes interest rate forecasts cited by Mr. McKenzie as well as statements
8 from the Federal Reserve. The KPSC should not invest in the interest rate forecasts
9 cited by Mr. McKenzie in determining a fair rate of return for KPC in this
10 proceeding.

11

12 There is evidence that economists have systematically overestimated interest rates in
13 recent years. Jared Bernstein wrote the following in a recent article in the New York
14 Times¹⁰:

15 In the early 1980s, forecasters did a good job of predicting the path of bond rates,
16 though their job was a bit easier than usual because rates were so highly elevated that
17 it was a pretty sure bet they'd be headed back down. ("Regression to the mean," for
18 all you statistics fans.)

19

20 But since the mid-1990s, government forecasters have consistently overestimated
21 this critical variable.

22

23 This "consistently" point is essential. Most economic forecasts are off one way or the
24 other — too high or too low, but they tend to be pretty much balanced in either
25 direction. But on the 10-year bond rate, the errors are systemic.

26

27 Forecasters are regularly overestimating and thus regularly overstating, all else being
28 equal, future interest payments on the debt.

29

¹⁰ "We Keep Flunking Forecasts on Interest Rates, Distorting the Budget Outlook", Jared Bernstein, *New York Times*, Feb. 23, 2015.

1 Another article by Akin Oyedele entitled "Interest Rate Forecasters Are Shockingly
2 Wrong Almost All Of The Time"¹¹ showed that from June 2010 through June 2015
3 interest rate forecasts were wrong most of the time. Mr. Oyedele noted that 2014
4 "was particularly bad, when strategists became too optimistic that the Federal
5 Reserve would hike rates."

6
7 These articles highlight the consistent upward bias that is likely embodied in the
8 forecasts presented by Mr. McKenzie.

9 **Q. Is there support for the position that today's currently low interest rates is part**
10 **of a long-term trend?**

11 A. Yes. In a weekly blog at the Brookings Institution, former Federal Reserve
12 Chairman Ben Bernanke wrote the following:¹²

13 Interest rates around the world, both short-term and long-term, are exceptionally low
14 these days. The U.S. government can borrow for ten years at a rate of about 1.9
15 percent, and for thirty years at about 2.5 percent. Rates in other industrial countries
16 are even lower: For example, the yield on ten-year government bonds is now around
17 0.2 percent in Germany, 0.3 percent in Japan, and 1.6 percent in the United
18 Kingdom. In Switzerland, the ten-year yield is currently slightly negative, meaning
19 that lenders must pay the Swiss government to hold their money! The interest rates
20 paid by businesses and households are relatively higher, primarily because of credit
21 risk, but are still very low on an historical basis.

22
23 Low interest rates are not a short-term aberration, but part of a long-term trend. As
24 the figure below shows, ten-year government bond yields in the United States were
25 relatively low in the 1960s, rose to a peak above 15 percent in 1981, and have been
26 declining ever since. That pattern is partly explained by the rise and fall of inflation,
27 also shown in the figure. All else equal, investors demand higher yields when
28 inflation is high to compensate them for the declining purchasing power of the

¹¹ Akin Oyedele, "Interest Rate Forecasters Are Shockingly Wrong Almost All of the Time", *Business Insider*, July 18, 2015.

¹² Ben S. Bernanke, "Why Are Interest Rates So Low", Weekly Blog, Brookings, March 30, 2015. <https://www.brookings.edu/blog/ben-bernanke/2015/03/30/why-are-interest-rates-so-low/>

1 dollars with which they expect to be repaid. But yields on inflation-protected bonds
2 are also very low today; the real or inflation-adjusted return on lending to the U.S.
3 government for five years is currently about *minus* 0.1 percent.

4
5 Why are interest rates so low? Will they remain low? What are the implications for
6 the economy of low interest rates?

7
8 If you asked the person in the street, “Why are interest rates so low?”, he or she
9 would likely answer that the Fed is keeping them low. That’s true only in a very
10 narrow sense. The Fed does, of course, set the benchmark nominal short-term
11 interest rate. The Fed’s policies are also the primary determinant of inflation and
12 inflation expectations over the longer term, and inflation trends affect interest rates,
13 as the figure above shows. But what matters most for the economy is the real, or
14 inflation-adjusted, interest rate (the market, or nominal, interest rate minus the
15 inflation rate). The real interest rate is most relevant for capital investment decisions,
16 for example. The Fed’s ability to affect real rates of return, especially longer-term
17 real rates, is transitory and limited. Except in the short run, real interest rates are
18 determined by a wide range of economic factors, including prospects for economic
19 growth—not by the Fed.

20 **Q. Did Mr. McKenzie present forecasted interest rates in the testimony he co-**
21 **sponsored in Kentucky Utilities (“KU”) and Louisville Gas and Electric**
22 **(“LGE”) Case Nos. 2014-00371 and 2014-00372?**

23 A. Yes. On page 13 of the Direct Testimony he co-sponsored with Dr. Avera in those
24 cases, Mr. McKenzie presented Figure 2 on page 13 of his KU testimony that
25 showed forecasted interest rates with a graph like the one included in his Direct
26 Testimony in this case on page 21. I reviewed the work papers submitted by Dr.
27 Avera and Mr. McKenzie in those proceedings and found the Blue Chip financial
28 forecast dated June 1, 2014, which formed part of the basis of Figure 2 in their
29 testimony in those cases, which was filed on November 26, 2014.

30
31 *In the Blue Chip forecasts dated June 1, 2014 presented by Mr. McKenzie in Case*
32 *Nos. 2014-00371 and 2014-00372, the consensus forecast for the 30-year Treasury*

1 *Bond was 4.7% for 2016 and 5.1% for 2017.*¹³ The actual December 2016 30-Year
2 Treasury Bond yield was 3.11% and for August 2017 was only 2.80%. The June
3 2014 Blue Chip consensus forecasts presented by Mr. McKenzie overshot the recent
4 actual 30-Year Treasury Bond rates by 159 – 230 basis points. Stated another way,
5 the Blue Chip consensus forecasts missed the recent actual 30-Year Treasury Bond
6 rates by 1.59% to 2.30%.

7
8 The magnitude of the overstatement by the Blue Chip consensus forecasts is strong
9 support for my recommendation that the Commission disregard interest rate forecasts
10 when considering its allowed ROE for KPC in this proceeding.

11 **DCF Model**

12 **Q. Briefly summarize Mr. McKenzie's approach to the DCF model.**

13 A. Mr. McKenzie constructed a group of electric and gas utilities for purposes of
14 estimating the DCF ROE for KPC. He used several sources of growth rate forecasts,
15 which included IBES, Zacks, Value Line, Bloomberg, and S&P Capital IQ as well as
16 an estimate of sustainable growth. I ultimately adopted Mr. McKenzie's proxy
17 group with the three exceptions I noted earlier.

18
19 In his Exhibit AMM-5, Mr. McKenzie adjusted his DCF ROE results by excluding
20 certain company ROE results that, in his view, were either too low or too high. On

¹³ KU response to AG 1-187, Docket No. 2014-00371, WP-25.

1 the low end, these results ranged from 4.2% to 6.9%. On the high end, Mr.
2 McKenzie excluded one value of 15.2%, but saw fit to include ROE results ranging
3 from 12.5% to 14.0%. After making these exclusions, his resulting DCF range was
4 8.7% to 9.8% using an average of the remaining results. The midpoints ranged from
5 9.8% to 10.8%.

6 **Q. Please comment on Mr. McKenzie's approach to formulating his DCF**
7 **recommendation to the Commission.**

8 A. Mr. McKenzie conducted a biased approach in formulating his DCF
9 recommendations. He applied a test for excluding ROE results that, in his view,
10 were too low but failed to exclude other results that are excessively high. For
11 example, the average Commission-allowed ROE for 2016 that was reported by Mr.
12 McKenzie in his Exhibit AMM-9 was 9.77%. *However, Mr. McKenzie included*
13 *ROEs in his Exhibit AMM-5 in that are 273 – 423 basis points higher than 9.77%.*
14 My review of Commission allowed returns contained in Mr. McKenzie's Exhibit
15 AMM-9 reveals that 2002 was the last year that allowed returns on equity were as
16 high as 11% and that the last Commission allowed return near 13% was in 1989.

17
18 It is abundantly clear that Mr. McKenzie's approach to excluding ROE results from
19 his DCF analysis had the effect of inflating his DCF ROE recommendation.

20 **Q. Have you conducted an alternative analysis that includes all the DCF results**
21 **from Mr. McKenzie's Exhibit AMM-5?**

22 A. Yes. Table 4 below presents the average and median ROEs utilizing all the DCF
23 results from Mr. McKenzie's Exhibit AMM-5, page 3 of 3.

1

**Table 4
McKenzie ROE Results**

<u>Company</u>	<u>V Line</u>	<u>IBES</u>	<u>Zacks</u>	<u>Bloomberg</u>	<u>S&P Capital/IQ</u>	<u>BR+SV Growth</u>	<u>Average ROE</u>
Alliant Energy	9.2%	9.6%	8.7%	9.6%	9.1%	8.8%	9.2%
Ameren Corp.	9.3%	9.3%	9.8%	9.1%	9.4%	7.1%	9.0%
American Elec Pwr	7.6%	6.0%	9.2%	7.6%	7.7%	7.9%	7.6%
Avangrid, Inc.	n/a	13.0%	12.5%	13.0%	11.8%	5.7%	11.2%
CMS Energy Corp.	9.5%	10.5%	9.0%	9.8%	10.4%	8.8%	9.7%
Dominion Energy	9.5%	8.0%	10.0%	9.0%	9.6%	4.2%	8.4%
DTE Energy Co.	8.3%	7.9%	9.2%	9.3%	9.0%	7.5%	8.5%
Duke Energy Corp.	9.7%	7.8%	10.2%	10.7%	8.8%	7.6%	9.1%
Emera Inc.	13.4%	n/a	n/a	11.4%	12.6%	12.5%	12.5%
Eversource Energy	9.7%	9.2%	9.5%	9.3%	9.0%	7.4%	9.0%
Fortis Inc.	14.0%	n/a	10.5%	10.0%	11.2%	8.1%	10.8%
NextEra Energy, Inc.	9.5%	9.7%	10.1%	10.0%	9.9%	9.3%	9.8%
PPL Corp.	n/a	6.7%	9.2%	5.4%	9.4%	11.0%	8.3%
Pub Sv Enterprise	6.4%	4.6%	6.9%	7.1%	9.0%	8.5%	7.1%
SCANA Corp.	7.8%	9.6%	9.1%	9.8%	9.2%	8.5%	9.0%
Sempra Energy	11.0%	12.9%	11.7%	15.2%	11.0%	6.7%	11.4%
Southern Company	8.2%	8.5%	9.7%	9.3%	9.1%	8.2%	8.8%
Vectren Corp.	9.9%	8.4%	8.6%	8.4%	8.6%	9.2%	8.8%
Average	9.6%	8.8%	9.6%	9.7%	9.7%	8.2%	9.3%
Median	9.5%	8.9%	9.5%	9.5%	9.3%	8.1%	9.0%

2

3 Rather than simply excluding low-end results, I recommend that the median be used
4 as an alternative measure of central tendency. As I testified in Section III, the
5 median is not affected by extremely high or low results, but instead represents the
6 middle value of the data set. If there are concerns about results that are either too
7 high or too low, the median may be used as an additional reference for the investor
8 required ROE.

9

1 Table 4 shows that when all results are considered, the average and median results
2 from Mr. McKenzie's Exhibit AMM-5 are closer to my DCF results. I would add
3 that Avangrid Inc, Emera, Inc., and Fortis Inc. inflate these DCF results and should
4 be excluded for the reasons I stated earlier.

5 **CAPM and ECAPM**

6 **Q. Beginning on page 50 of his Direct Testimony, Mr. McKenzie described the**
7 **Empirical CAPM ("ECAPM") analysis. Is this a reasonable method to use to**
8 **estimate the investor required ROE for KPC?**

9 A. No. The ECAPM is supposed to account for the possibility that the CAPM
10 understates the return on equity for companies with betas less than 1.0. I believe it is
11 highly unlikely that investors use the ECAPM formulation shown in Mr. McKenzie's
12 Exhibit No. 8 to "correct" CAPM returns for regulated electric utilities. To the extent
13 investors use the CAPM to estimate their required returns, I believe it is much more
14 likely that they use the traditional CAPM equation that I used in Section III of my
15 testimony. Mr. McKenzie presented no evidence that investors use the adjustment
16 factors contained in his ECAPM analysis to adjust their expected returns for
17 regulated utilities. Moreover, the use of an adjustment factor to "correct" the CAPM
18 results for companies with betas less than 1.0 suggests that published betas by such
19 sources as Value Line are incorrect and that investors should not rely on them. In
20 fact, Mr. McKenzie testified on page 48, lines 16 through 18 of his Direct Testimony
21 that Value Line is "the most widely referenced source for beta is regulatory
22 proceedings."

23 **Q. Please continue your evaluation of the results of Mr. McKenzie's CAPM and**
24 **ECAPM analysis.**

1 A. I disagree with Mr. McKenzie's general formulation of the CAPM and ECAPM and
2 in particular with his estimate of the expected market return. He estimated the
3 market return portion of the CAPM and ECAPM by estimating the current market
4 return for dividend paying stocks in the S&P 500. The market return portion of the
5 CAPM should represent the most comprehensive estimate of the total return for all
6 investment alternatives, not just a small subset of publicly traded stocks that pay
7 dividends. In practice, of course, finding such an estimate is difficult and is one of
8 the thornier problems in estimating an accurate ROE when using the CAPM. If one
9 limits the market return to stocks, then there are more comprehensive measures of
10 the stock market available, such as the Value Line Investment Survey that I used in
11 my CAPM analysis. Value Line's projected earnings growth used a sample of 2,001
12 stocks and its book value growth estimate used 1,523 stocks. Value Line's projected
13 annual percentage return included 1,660 stocks. These are much broader samples
14 than Mr. McKenzie's limited sample of dividend paying stocks from the S&P 500.

15 **Q. Did Mr. McKenzie overstate the expected market return component of the**
16 **CAPM and ECAPM.**

17 A. Yes. My forward-looking market returns show an expected return on the market of
18 9.45%, far less than the 12.0% expected return result for the limited sample of
19 companies Mr. McKenzie used for his ECAPM and CAPM market return.

20 **Q. On page 49 of his Direct Testimony, Mr. McKenzie explained that he**
21 **incorporated a size adjustment to his CAPM and ECAPM results. This**
22 **increased his average CAPM results by about 30 basis points, or 0.30%. Is this**
23 **size adjustment appropriate?**

24 A. No. The data that Mr. McKenzie relied upon to make this adjustment came from the
25 *2017 Valuation Handbook-U.S. Guide to Cost of Capital* by Duff and Phelps. The

1 groups of companies from which he took this significant upward adjustment to his
2 CAPM and ECAPM results contain many unregulated companies. Further, the
3 decile groups from which these adjustments were taken had average betas ranging
4 from 0.92 to 1.11¹⁴. These betas are greatly in excess of my utility proxy group
5 average beta of 0.67, indicating that the unregulated companies that Mr. McKenzie
6 used to make his size adjustment are riskier than regulated utilities. There is no
7 evidence to suggest that the size premium used by Mr. McKenzie applies to
8 regulated utility companies, which on average are quite different from the group of
9 companies included in the *2017 SBBI Yearbook* research on size premiums. I
10 recommend that the Commission reject Mr. McKenzie's size premium in the CAPM
11 and ECAPM ROE.

12 **Q. On page 50 of his Direct Testimony, Mr. McKenzie recommended using**
13 **projected bond yields in the CAPM ROE models. Should the Commission use**
14 **forecasted bond yields in its ROE analysis in this proceeding?**

15 A. No. Current interest rates and bond yields embody all the relevant market data and
16 expectations of investors, including expectations of changing future interest rates.
17 Current interest rates present tangible market evidence of investor return
18 requirements today, and these are the interest rates and bond yields that should be
19 used in the CAPM, ECAPM, and in the bond yield plus risk premium analyses. To
20 the extent that investors give forecasted interest rates any weight at all, they are
21 already incorporated in current securities prices.

¹⁴ Duff and Phelps, *2017 SBBI Yearbook*, pg. 7-16.

1 **Utility Risk Premium**

2 **Q. Please summarize Mr. McKenzie's utility risk premium approach.**

3 A. Mr. McKenzie developed an historical risk premium using Commission-allowed
4 returns for regulated utility companies from 1974 through 2016. He also used
5 regression analysis to estimate the value of the inverse relationship between interest
6 rates and risk premiums during that period. On page 52 of his KU Direct Testimony,
7 Mr. McKenzie calculated the risk premium ROE to be 11.0%.

8 **Q. Please respond to the Company witnesses' risk premium analysis.**

9 A. Generally, the bond yield plus risk premium approach is imprecise and can only
10 provide very general guidance on the current authorized ROE for a regulated electric
11 utility. Risk premiums can change substantially over time and with varying risk
12 perceptions of investors. As such, this approach is a "blunt instrument", if you will,
13 for estimating the ROE in regulated proceedings. In my view, a properly formulated
14 DCF model using current stock prices and growth forecasts is far more reliable and
15 accurate than the bond yield plus risk premium approach, which relies on an
16 historical risk premium analysis over a certain period of time.

17

18 Furthermore, Mr. McKenzie's 11.0% risk premium ROE was inflated by using a
19 forecasted utility bond yield of 6.28%. This bond yield is grossly overstated and
20 exceeds the August 2017 average Mergent utility bond yield of 3.92% by 236 basis
21 points, or 2.36%. Looking at this another way, Mr. McKenzie's forecasted 6.28%
22 utility bond yield is 60% higher than the current utility bond yield. I strongly

1 recommend that the Commission reject this unreasonable forecasted bond yield used
2 by Mr. McKenzie.

3 **Expected Earnings Approach**

4 **Q. Beginning on page 64 of his Direct Testimony, Mr. McKenzie presented an**
5 **expected earnings approach based on expected returns on equity using Value**
6 **Line's rates of return on common equity for electric utilities over its 2020 - 2022**
7 **forecast horizon. Is this a reasonable method for estimating the current**
8 **required return on equity in this proceeding?**

9 A. No. The Commission should not rely on forecasted utility ROEs for 2020 - 2022 for
10 the same reasons that it should not rely on interest rate forecasts. These forecasted
11 ROEs have little value in today's market, especially considering that current DCF
12 returns are significantly lower than these forecasts, which range from 11.5% to
13 11.8%. Moreover, recent allowed ROEs for electric utilities averaged about 9.77%
14 in 2016. The expected ROEs presented by Mr. McKenzie are so far removed from
15 recent allowed returns that the Commission should reject them out of hand.

16 **Flotation Costs**

17 **Q. Beginning on page 67 of his Direct Testimony, Mr. McKenzie discussed flotation**
18 **costs. Are flotation costs a legitimate consideration for the Commission's**
19 **determination of ROE in this proceeding?**

20 A. No. Mr. McKenzie recommended that the Commission consider adding an adjustment
21 of 25 basis points to recognize flotation costs. A flotation cost adjustment attempts to
22 recognize and collect the costs of issuing common stock. Such costs typically include
23 legal, accounting, and printing costs as well as well as broker fees and discounts.

24

1 In my opinion, it is likely that flotation costs are already accounted for in current stock
2 prices and that adding an adjustment for flotation costs amounts to double counting. A
3 DCF model using current stock prices should already account for investor expectations
4 regarding the collection of flotation costs. Multiplying the dividend yield by a 4%
5 flotation cost adjustment, for example, essentially assumes that the current stock price is
6 wrong and that it must be adjusted downward to increase the dividend yield and the
7 resulting cost of equity. This is an appropriate assumption regarding investor
8 expectations. Current stock prices most likely already account for flotation costs, to the
9 extent that such costs are even accounted for by investors.

10 Non-Utility Benchmark

11 **Q. Beginning of page 73 of his Direct Testimony, Mr. McKenzie presented the**
12 **results of a low-risk non-utility DCF model. Is it appropriate to use a group of**
13 **unregulated companies to estimate a fair return on equity for LGE and KU?**

14 A. No. Mr. McKenzie's use of unregulated non-utility companies to estimate a fair rate
15 of return for LGE and KU is completely inappropriate and should be rejected by the
16 Commission.

17
18 Utilities have protected markets, e.g. service territories, and may increase the prices
19 they charge in the face of falling demand or loss of customers. This is contrary to
20 competitive, unregulated companies who often lower their prices when demand for
21 their products decline. Obviously, the non-utility companies face risks that a lower
22 risk electric company like KPC does not face. As a consequence, non-utility
23 companies will have higher required returns from their shareholders. The average
24 DCF results for Mr. McKenzie's non-utility group range from 10.4% - 11.5%. This

1 is substantially greater than the utility proxy group DCF results for both myself and
2 Mr. McKenzie and shows that investors expect higher return for unregulated
3 companies.

4

5 Although Mr. McKenzie stated that he did not directly consider the non-utility group
6 DCF results in arriving at this recommendation, he stated that it was a “relevant
7 consideration in evaluating a fair ROE for the Company,” (McKenzie Direct
8 Testimony, page 73. Lines 8 - 11). I disagree. The relevant consideration should be
9 the DCF results for the utility proxy group that I employed in my analysis.

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

11 **A. Yes.**

AFFIDAVIT

STATE OF GEORGIA)

COUNTY OF FULTON)

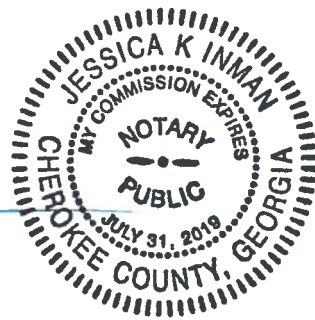
RICHARD A. BAUDINO, being duly sworn, deposes and states: that the attached is his sworn testimony and that the statements contained are true and correct to the best of his knowledge, information and belief.

Richard A. Baudino
Richard A. Baudino

Sworn to and subscribed before me on this
2nd day of October 2017.

Jessica K. Inman

Notary Public



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

In the Matter of:

**ELECTRONIC APPLICATION OF KENTUCKY)
POWER COMPANY FOR (1) A GENERAL)
ADJUSTMENT OF ITS RATES FOR ELECTRIC)
SERVICE; (2) AN ORDER APPROVING ITS 2017)
ENVIRONMENTAL COMPLIANCE PLAN;)
(3) AN ORDER APPROVING ITS TARIFFS)
AND RIDERS; (4) AN ORDER APPROVING)
ACCOUNTING PRACTICES TO ESTABLISH)
REGULATORY ASSETS AND LIABILITIES; AND)
(5) AN ORDER GRANTING ALL OTHER)
REQUIRED APPROVALS AND RELIEF)**

CASE NO. 2017-00179

**EXHIBITS
OF
RICHARD A. BAUDINO**

ON BEHALF OF

KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

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

OCTOBER 3, 2017

EXHIBIT ____ (RAB-1)

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

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

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

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

1989 to

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

1982 to

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

CLIENTS SERVED

Regulatory Commissions

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

Other Clients and Client Groups

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of October 2017**

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

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

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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

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Date	Case	Jurisdct.	Party	Utility	Subject
03/10	09-1352-	WV E-42T	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

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Date	Case	Jurisdic.	Party	Utility	Subject
08/11	R-2011-2232243	PA	AK Steel	Pennsylvania-American Water Company	Rate Design
08/11	11AL-151G	CO	Climax Molybdenum	PS of Colorado	Cost allocation
09/11	11-G-0280	NY	Multiple Intervenors	Coming 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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Date	Case	Jurisdct.	Party	Utility	Subject
08/13	P-2012-2325034	PA	PP&L Industrial Customer Alliance	PPL Electric Utilities, Corp.	Distribution System Improvement Charge
09/13	4220-UR-119	WI	Wisconsin Industrial Energy Group	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
11/13	13-1325-E-PC	WV	West Virginia Energy Users Group	American Electric Power/APCo	Special rate proposal, Felman Production
06/14	R-2014-2406274	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Cost and revenue allocation, rate design
08/14	05-UR-107	WI	Wisconsin Industrial Energy Group	Wisconsin Electric Power Co.	Cost and revenue allocation, rate design
10/14	ER13-1508 et al.	FERC	Louisiana Public Service Comm.	Entergy Services, Inc.	Return on equity
11/14	14AL-0660E	CO	Climax Molybdenum Co. and CFI Steel, LP	Public Service Co. of Colorado	Return on equity, weighted cost of capital
11/14	R-2014-2428742	PA	AK Steel	West Penn Power Company	Cost and revenue allocation
12/14	42866	TX	West Travis Co. Public Utility Agency	Travis County Municipal Utility District No. 12	Response to complain of monopoly power
3/15	2014-00371 2014-00372	KY	Kentucky Industrial Utility Customers	Louisville Gas & Electric, Kentucky Utilities	Return on equity, cost of debt, weighted cost of capital
3/15	2014-00396	KY	Kentucky Industrial Utility Customers	Kentucky Power Co.	Return on equity, weighted cost of capital
6/15	15-0003-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Cost and revenue allocation, Infrastructure Replacement Program
9/15	15-0676-W-42T	WV	West Virginia Energy Users Gp.	West Virginia-American Water Company	Appropriate test year, Historical vs. Future
9/15	15-1256-G-390P	WV	West Virginia Energy Users Gp.	Mountaineer Gas Co.	Rate design for Infrastructure Replacement and Expansion Program
10/15	4220-UR-121	WI	Wisconsin Industrial Energy Gp.	Northern States Power Co.	Class cost of service, cost and revenue allocation, rate design
12/15	15-1600-G-390P	WV	West Virginia Energy Users Gp.	Dominion Hope	Rate design and allocation for Pipeline Replacement & Expansion Prog.
12/15	45188	TX	Steering Committee of Cities Served by Oncor	Oncor Electric Delivery Co.	Ring-fence protections for cost of capital

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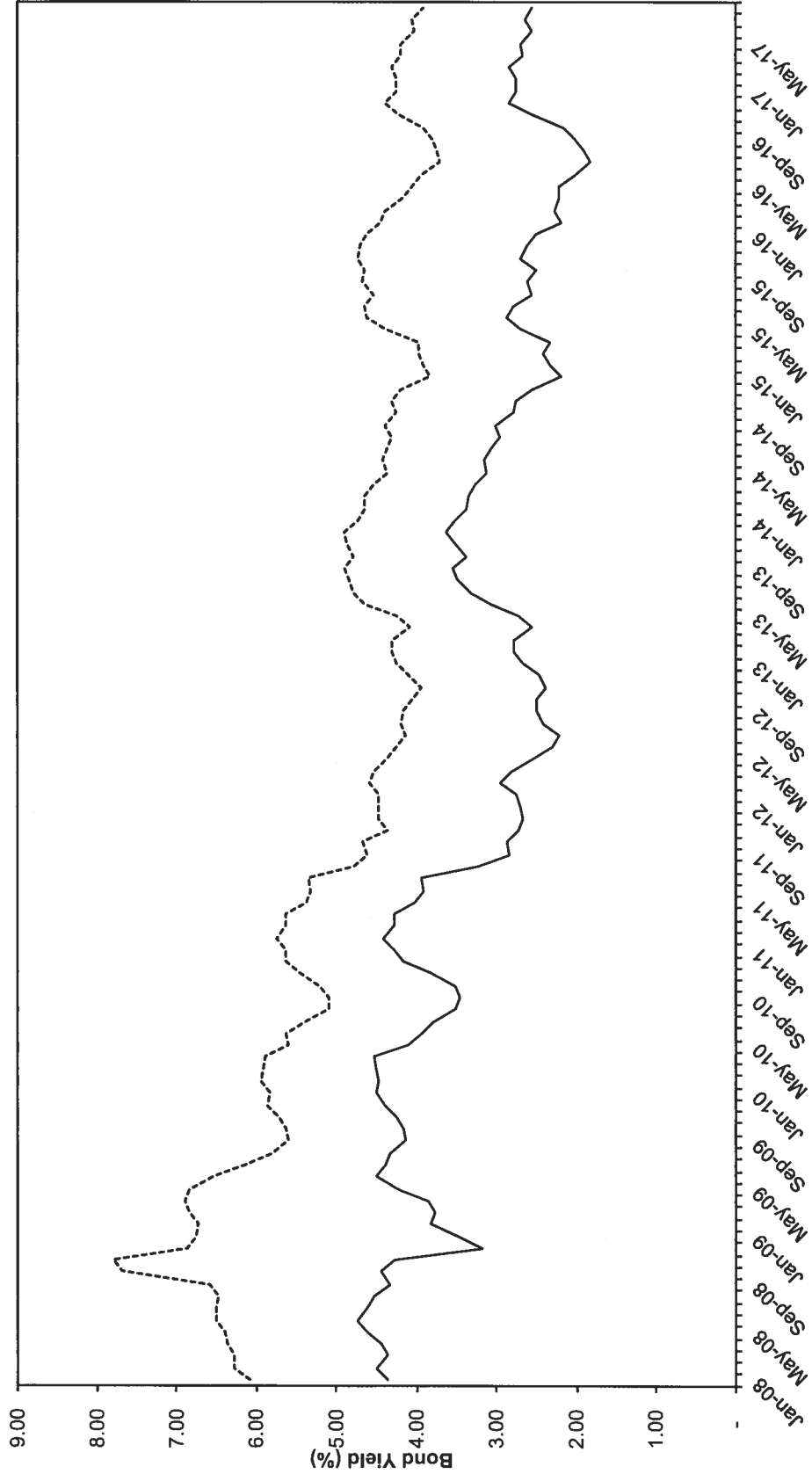
Date	Case	Jurisdct.	Party	Utility	Subject
2/16	9406	MD	Maryland Energy Group	Baltimore Gas & Electric	Cost and revenue allocation, rate design, proposed Rider 5
3/16	39971	GA	GA Public Service Comm. Staff	Southern Company / AGL Resources	Credit quality and service quality issues
04/16	2015-00343	KY	Kentucky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

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Date	Case	Jurisdct.	Party	Utility	Subject
05/17	R-2017-2586783	PA	Philadelphia Industrial and Commercial Gas Users Gp.	Philadelphia Gas Works	Cost and revenue allocation, rate design, interruptible tariffs
08/17	R-2017-2595853	PA	AK Steel	Pennsylvania American Water Co.	Cost and revenue allocation, rate design
8/17	17-3112-INV	VT	Vt. Dept. of Pubic Service	Green Mountain Power	Return on equity, cost of debt, weighted cost of capital
9/17	4220-UR-123	WI	Wisconsin Industrial Energy Group	Northern States Power	Cost and revenue allocation, rate design
10/17	2017-00179	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Power Co.	Return on equity, cost of short-term debt

EXHIBIT __ (RAB-2)

HISTORICAL BOND YIELDS AVERAGE PUBLIC UTILITY BOND VS 20-YEAR TREASURY BOND



— 20-Year Treasury Bond - - - - - Mergent Public Utility Bond

EXHIBIT __ (RAB-3)

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17
Alliant Energy	High Price (\$)	40.320	40.220	41.710	42.190	41.660	43.230
	Low Price (\$)	38.240	39.210	38.950	40.160	39.360	40.500
	Avg. Price (\$)	39.280	39.715	40.330	41.175	40.510	41.865
	Dividend (\$)	0.315	0.315	0.315	0.315	0.315	0.315
	Mo. Avg. Div.	3.21%	3.17%	3.12%	3.06%	3.11%	3.01%
	6 mos. Avg.	3.11%					
Ameren Corp.	High Price (\$)	56.570	55.680	57.090	57.210	56.670	60.790
	Low Price (\$)	53.480	54.030	53.720	54.380	53.540	56.160
	Avg. Price (\$)	55.025	54.855	55.405	55.795	55.105	58.475
	Dividend (\$)	0.440	0.440	0.440	0.440	0.440	0.440
	Mo. Avg. Div.	3.20%	3.21%	3.18%	3.15%	3.19%	3.01%
	6 mos. Avg.	3.16%					
American Electric Power	High Price (\$)	68.250	68.460	71.910	72.970	70.810	74.290
	Low Price (\$)	64.810	66.500	66.930	69.190	68.110	70.080
	Avg. Price (\$)	66.530	67.480	69.420	71.080	69.460	72.185
	Dividend (\$)	0.590	0.590	0.590	0.590	0.590	0.590
	Mo. Avg. Div.	3.55%	3.50%	3.40%	3.32%	3.40%	3.27%
	6 mos. Avg.	3.41%					
CMS Energy Corp.	High Price (\$)	45.550	45.850	47.700	48.370	47.020	48.910
	Low Price (\$)	43.610	44.360	44.750	46.020	45.340	45.980
	Avg. Price (\$)	44.580	45.105	46.225	47.195	46.180	47.445
	Dividend (\$)	0.333	0.333	0.333	0.333	0.333	0.333
	Mo. Avg. Div.	2.99%	2.95%	2.88%	2.82%	2.88%	2.81%
	6 mos. Avg.	2.89%					
Dominion Energy	High Price (\$)	79.360	78.460	81.300	81.650	77.570	80.670
	Low Price (\$)	74.590	76.250	76.390	76.170	75.400	76.560
	Avg. Price (\$)	76.975	77.355	78.845	78.910	76.485	78.615
	Dividend (\$)	0.755	0.755	0.755	0.755	0.755	0.755
	Mo. Avg. Div.	3.92%	3.90%	3.83%	3.83%	3.95%	3.84%
	6 mos. Avg.	3.88%					
DTE Energy Co.	High Price (\$)	102.960	105.810	109.890	111.350	108.000	112.580
	Low Price (\$)	99.450	100.970	103.280	105.130	104.190	106.160
	Avg. Price (\$)	101.205	103.390	106.585	108.240	106.095	109.370
	Dividend (\$)	0.825	0.825	0.825	0.825	0.825	0.825
	Mo. Avg. Div.	3.26%	3.19%	3.10%	3.05%	3.11%	3.02%
	6 mos. Avg.	3.12%					

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

		Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17
Duke Energy Corp.	High Price (\$)	83.590	83.350	86.010	87.490	85.330	87.950
	Low Price (\$)	80.020	81.270	81.850	83.590	82.720	84.650
	Avg. Price (\$)	81.805	82.310	83.930	85.540	84.025	86.300
	Dividend (\$)	0.855	0.855	0.855	0.855	0.855	0.890
	Mo. Avg. Div.	4.18%	4.16%	4.07%	4.00%	4.07%	4.13%
	6 mos. Avg.	4.10%					
Eversource Energy	High Price (\$)	60.360	60.500	62.190	63.340	61.560	63.670
	Low Price (\$)	57.280	58.270	58.110	60.520	59.550	60.370
	Avg. Price (\$)	58.820	59.385	60.150	61.930	60.555	62.020
	Dividend (\$)	0.475	0.475	0.475	0.475	0.475	0.475
	Mo. Avg. Div.	3.23%	3.20%	3.16%	3.07%	3.14%	3.06%
	6 mos. Avg.	3.14%					
NextEra Energy, Inc.	High Price (\$)	133.280	134.330	141.830	144.870	146.880	151.280
	Low Price (\$)	127.780	127.090	132.780	138.150	138.000	145.380
	Avg. Price (\$)	130.530	130.710	137.305	141.510	142.440	148.330
	Dividend (\$)	0.983	0.983	0.983	0.983	0.983	0.983
	Mo. Avg. Div.	3.01%	3.01%	2.86%	2.78%	2.76%	2.65%
	6 mos. Avg.	2.85%					
PPL Corp.	High Price (\$)	37.950	38.320	40.100	40.200	38.840	39.810
	Low Price (\$)	35.820	36.910	37.400	38.440	37.190	38.350
	Avg. Price (\$)	36.885	37.615	38.750	39.320	38.015	39.080
	Dividend (\$)	0.395	0.395	0.395	0.395	0.395	0.395
	Mo. Avg. Div.	4.28%	4.20%	4.08%	4.02%	4.16%	4.04%
	6 mos. Avg.	4.13%					
Public Svc. Enterprise Gp.	High Price (\$)	46.080	45.940	45.270	45.800	45.360	47.470
	Low Price (\$)	43.770	43.920	42.470	42.790	41.670	44.730
	Avg. Price (\$)	44.925	44.930	43.870	44.295	43.515	46.100
	Dividend (\$)	0.430	0.430	0.430	0.430	0.430	0.430
	Mo. Avg. Div.	3.83%	3.83%	3.92%	3.88%	3.95%	3.73%
	6 mos. Avg.	3.86%					
SCANA Corp.	High Price (\$)	70.940	67.870	68.440	71.280	67.990	68.350
	Low Price (\$)	64.200	64.790	64.480	66.810	60.000	59.340
	Avg. Price (\$)	67.570	66.330	66.460	69.045	63.995	63.845
	Dividend (\$)	0.613	0.613	0.613	0.613	0.613	0.613
	Mo. Avg. Div.	3.63%	3.70%	3.69%	3.55%	3.83%	3.84%
	6 mos. Avg.	3.71%					

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

		Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17
Sempra Energy	High Price (\$)	113.150	113.960	116.960	117.970	114.950	119.660
	Low Price (\$)	107.890	107.860	110.030	112.110	110.350	112.850
	Avg. Price (\$)	110.520	110.910	113.495	115.040	112.650	116.255
	Dividend (\$)	0.823	0.823	0.823	0.823	0.823	0.823
	Mo. Avg. Div.	2.98%	2.97%	2.90%	2.86%	2.92%	2.83%
	6 mos. Avg.	2.91%					
Southern Company	High Price (\$)	51.470	50.480	50.930	51.970	48.050	50.080
	Low Price (\$)	49.300	49.010	49.150	47.870	46.710	47.690
	Avg. Price (\$)	50.385	49.745	50.040	49.920	47.380	48.885
	Dividend (\$)	0.560	0.560	0.580	0.580	0.580	0.580
	Mo. Avg. Div.	4.45%	4.50%	4.64%	4.65%	4.90%	4.75%
	6 mos. Avg.	4.65%					
Vectren Corp.	High Price (\$)	59.030	60.470	61.870	62.790	60.240	67.170
	Low Price (\$)	55.060	58.150	58.030	58.240	57.480	59.450
	Avg. Price (\$)	57.045	59.310	59.950	60.515	58.860	63.310
	Dividend (\$)	0.420	0.420	0.420	0.420	0.420	0.420
	Mo. Avg. Div.	2.95%	2.83%	2.80%	2.78%	2.85%	2.65%
	6 mos. Avg.	2.81%					
Monthly Avg. Dividend Yield		3.51%	3.49%	3.44%	3.39%	3.48%	3.38%
6-month Avg. Dividend Yield		3.45%					

Source: Yahoo! Finance

EXHIBIT __ (RAB-4)

PROXY GROUP
DCF Growth Rate Analysis

Exhibit No. ___(RAB-4)
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<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) Value Line <u>B x R</u>	(4) <u>Zacks</u>	(5) First Call/ <u>IBES</u>
Alliant Energy	4.50%	6.00%	5.00%	5.50%	6.90%
Ameren Corp.	4.50%	6.00%	4.00%	6.50%	6.10%
American Elec Pwr	5.00%	4.00%	4.50%	5.40%	2.87%
CMS Energy Corp.	6.50%	6.50%	5.50%	7.00%	7.52%
Dominion Energy	8.50%	5.50%	1.50%	6.00%	3.46%
DTE Energy Co.	7.00%	6.00%	4.00%	5.90%	4.59%
Duke Energy Corp.	4.50%	4.50%	2.00%	4.00%	2.65%
Eversource Energy	5.50%	6.50%	4.50%	6.00%	5.81%
NextEra Energy, Inc.	9.50%	7.00%	5.00%	7.40%	7.34%
PPL Corp.	3.50%	NMF	4.00%	5.00%	0.04%
Pub Sv Enterprise Grp.	5.00%	1.00%	4.50%	2.40%	0.57%
SCANA Corp.	5.00%	4.00%	4.50%	4.70%	4.75%
Sempra Energy	8.50%	8.00%	5.00%	8.50%	7.80%
Southern Company	3.50%	3.50%	3.00%	4.30%	3.22%
Vectren Corp.	<u>4.50%</u>	<u>6.50%</u>	<u>5.00%</u>	<u>5.50%</u>	<u>5.50%</u>
Averages	5.70%	5.36%	4.13%	5.61%	4.61%
Median Values	5.00%	6.00%	4.50%	5.50%	4.75%

Sources: Value Line Investment Survey, July 28, Aug. 18, and Sept. 15, 2017
Yahoo! Finance for IBES growth rates retrieved September 12, 2017
Zacks growth rates retrieved September 12, 2017

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) IBES <u>Earning Gr.</u>	(5) Average of <u>All Gr. Rates</u>
Method 1:					
Dividend Yield	3.45%	3.45%	3.45%	3.45%	3.45%
Average Growth Rate	5.70%	5.36%	5.61%	4.61%	5.32%
Expected Div. Yield	<u>3.55%</u>	<u>3.54%</u>	<u>3.54%</u>	<u>3.53%</u>	<u>3.54%</u>
DCF Return on Equity	9.25%	8.90%	9.15%	8.14%	8.86%
Method 2:					
Dividend Yield	3.45%	3.45%	3.45%	3.45%	3.45%
Median Growth Rate	5.00%	6.00%	5.50%	4.75%	5.31%
Expected Div. Yield	<u>3.53%</u>	<u>3.55%</u>	<u>3.54%</u>	<u>3.53%</u>	<u>3.54%</u>
DCF Return on Equity	8.53%	9.55%	9.04%	8.28%	8.85%

EXHIBIT __ (RAB-5)

**PROXY GROUP
Capital Asset Pricing Model Analysis**

20-Year Treasury Bond, Value Line Beta

<u>Line No.</u>		<u>Value Line</u>
1	Market Required Return Estimate	9.45%
2	Risk-free Rate of Return, 20-Year Treasury Bond	
3	Average of Last Six Months	2.55%
4	Risk Premium	
5	(Line 1 minus Line 3)	6.90%
6	Comparison Group Beta	0.67
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	4.60%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.15%

5-Year Treasury Bond, Value Line Beta

1	Market Required Return Estimate	9.45%
2	Risk-free Rate of Return, 5-Year Treasury Bond	
3	Average of Last Six Months	1.78%
4	Risk Premium	
5	(Line 1 minus Line 3)	7.67%
6	Comparison Group Beta	0.67
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	5.12%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	6.90%

PROXY GROUP
Capital Asset Pricing Model Analysis

Supporting Data for CAPM Analyses

20 Year Treasury Bond Data

	<u>Avg. Yield</u>
March-17	2.83%
April-17	2.67%
May-17	2.70%
June-17	2.54%
July-17	2.65%
August-17	<u>2.55%</u>
6 month average	2.66%

Source: www.federalreserve.gov

5 Year Treasury Bond Data

	<u>Avg. Yield</u>
March-17	2.01%
April-17	1.82%
May-17	1.84%
June-17	1.77%
July-17	1.87%
August-17	<u>1.78%</u>
6 month average	1.85%

Value Line Market Return Data:

Forecasted Data:

Value Line Median Growth Rates:	
Earnings	10.50%
Book Value	<u>7.50%</u>
Average	9.00%
Average Dividend Yield	<u>0.87%</u>
Estimated Market Return	9.91%
Value Line Projected 3-5 Yr. Median Annual Total Return	9.00%
Average of Projected Mkt. Returns	9.45%

Source: Value Line Investment Survey
for Windows retrieved Sept. 21, 2017

Comparison Group Betas:

	<u>Value Line</u>
Alliant Energy	0.70
Ameren Corp.	0.65
American Elec Pwr	0.65
CMS Energy Corp.	0.65
Dominion Energy	0.65
DTE Energy Co.	0.65
Duke Energy Corp.	0.60
Eversource Energy	0.65
NextEra Energy, Inc.	0.65
PPL Corp.	0.70
Pub Sv Enterprise Grp.	0.70
SCANA Corp.	0.65
Sempra Energy	0.80
Southern Company	0.55
Vectren Corp.	0.75
Average	0.67

Source: Value Line Investment Survey

EXHIBIT __ (RAB-6)

PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	<u>Geometric Mean</u>	<u>Arithmetic Mean</u>	<u>Adjusted Arithmetic Mean</u>
Long-Term Annual Return on Stocks	10.00%	12.00%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	<u>5.00%</u>	<u>5.00%</u>	
Historical Market Risk Premium	5.00%	7.00%	5.97%
Comparison Group Beta, Value Line	<u>0.67</u>	<u>0.67</u>	<u>0.67</u>
Beta * Market Premium	3.33%	4.67%	3.98%
Current 20-Year Treasury Bond Yield	<u>2.66%</u>	<u>2.66%</u>	<u>2.66%</u>
CAPM Cost of Equity, Value Line Beta	<u>5.99%</u>	<u>7.32%</u>	<u>6.64%</u>

Source: 2017 SBI Yearbook, Stocks, Bonds, Bills, and Inflation, Duff and Phelps; pp. 2-6, 6-17, 10-30