

**BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION**

In the Matter of:

**APPLICATION OF KENTUCKY UTILITIES)
COMPANY FOR AN ADJUSTMENT OF)
ITS ELECTRIC RATES AND FOR) CASE NO. 2016-00370
CERTIFICATES OF PUBLIC)
CONVENIENCE AND NECESSITY)**

In the Matter of:

**APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY FOR AN)
ADJUSTMENT OF ITS ELECTRIC AND) CASE NO. 2016-00371
GAS RATES AND FOR CERTIFICATES OF)
PUBLIC CONVENIENCE AND NECESSITY)**

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

**ON BEHALF OF
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.
J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA**

MARCH 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

1 of Arts Degree with majors in Economics and English from New Mexico State in
2 1979.

3

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

10

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

17

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

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

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

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

1 A. The purpose of my Direct Testimony is to address the allowed return on equity for
2 regulated electric operations for Louisville Gas and Electric Company and Kentucky
3 Utilities ("LGE", "KU", or "Companies"). I will also respond to the Direct
4 Testimony of Mr. Adrien McKenzie, witness for the Companies.

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

6 A. Based on current financial market conditions, I recommend that the Kentucky Public
7 Service Commission ("KPSC" or "Commission") adopt a 9.0% return on equity for
8 LGE and KU in this proceeding. My recommendation is based on the results of a
9 Discounted Cash Flow ("DCF") model analysis. My DCF analysis incorporates my
10 standard approach to estimating the investor required return on equity and employs a
11 group of 19 proxy companies and dividend and earnings growth forecasts from the
12 Value Line Investment Survey, First Call/IBES, and Zacks.

13

14 I also included two Capital Asset Pricing Model ("CAPM") analyses for additional
15 information. I did not incorporate the results of the CAPM in my recommendation,
16 however the results from the CAPM support my 9.0% ROE recommendation for
17 LGE and KU. In fact, my CAPM results are lower than my DCF results.

18

19 In Section IV, I respond to the testimony and ROE recommendation of the
20 Companies' witness Mr. McKenzie. I will demonstrate that his recommended ROE
21 of 10.23% significantly overstates the current investor required return for the
22 Companies. The current financial environment of low interest rates has been
23 deliberately and methodically supported by Federal Reserve policy actions since

1 2009 and is ongoing, even considering recent increases in the federal funds rate and
2 in interest rates generally. A 10.23% ROE for regulated electric utilities such as
3 LGE and KU simply cannot be supported in the current financial market
4 environment and would contribute to a burdensome rate increase for Kentucky
5 ratepayers. I strongly recommend that the KPSC reject the Companies' requested
6 ROE in this proceeding.

7
8 The ROE numbers I mentioned are stated on an after tax basis; however, they must
9 be grossed-up for income taxes in order to calculate the revenue requirement
10 impacts. In fact, a ROE of 10.23% on an after-tax basis, as requested by the
11 Companies, is equivalent to a return of 16.80% for KU and 16.79% for LGE when
12 grossed up for federal and state income taxes, bad debt expense, and Commission
13 assessment. Similarly, my recommended ROE of 9.0% on an after-tax basis is
14 equivalent to a return of 14.78% for KU and 14.77% for LG&E when grossed-up for
15 federal and state income taxes, bad debt expense, and Commission assessment. Each
16 1.0% return on equity is equivalent to \$31.207 million in revenue requirements for
17 KU and \$20.788 million in revenue requirements for LGE, per calculations made by
18 my colleague, Mr. Lane Kollen. *In total, my recommended ROE of 9.0% results in*
19 *revenue reductions of \$38.508 million for KU and \$25.570 million for LGE.*
20 Please refer to Mr. Kollen's Direct Testimony for the detailed calculations.

21

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. Generally speaking, interest rates have declined over the last few years, though they
5 have increased since the November 2016 election. Exhibit No. ___(RAB-2) presents
6 a graphic depiction of the trend in interest rates from January 2008 through January
7 2017. The interest rates shown in this exhibit are for the 20-year U.S. Treasury Bond
8 and the average public utility bond from the Mergent Bond Record. In January
9 2008, the average public utility bond yield was 6.08% and the 20-year Treasury
10 Bond yield was 4.35%. As of January 2017, the average public utility bond yield
11 was 4.24%, representing a decline of 184 basis points, or 1.84 percentage points,
12 from January 2008. Likewise, the 20-year Treasury bond stood at 2.75% in January
13 2017, a decline of 1.60 percentage points (160 basis points) from January 2008.

14 **Q. Was there a significant change in Federal Reserve policy during the historical**
15 **period shown in Exhibit No. ___(RAB-2)?**

16 A. Yes. In response to the 2007 financial crisis and severe recession that followed in
17 December 2007, the Federal Reserve ("Fed") undertook a series of steps to stabilize
18 the economy, ease credit conditions, and lower unemployment and interest rates.
19 These steps are commonly known as Quantitative Easing ("QE") and were
20 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 More recently, the Fed began to pare back its purchases of securities. For example,
2 on January 29, 2014 the Fed stated that beginning in February 2014 it would reduce
3 its 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 raised its target range for the federal funds rate to 1/4%
9 to 1/2% from 0% to 1/4%. The Fed further increased the target range to 1/2% to
10 3/4% in a press release dated December 14, 2016. In its press release dated February
11 1, 2017, the Fed held the federal funds rate steady and stated:

12 “Consistent with its statutory mandate, the Committee seeks to foster maximum
13 employment and price stability. The Committee expects that, with gradual
14 adjustments in the stance of monetary policy, economic activity will expand at a
15 moderate pace, labor market conditions will strengthen somewhat further, and
16 inflation will rise to 2 percent over the medium term. Near-term risks to the
17 economic outlook appear roughly balanced. The Committee continues to closely
18 monitor inflation indicators and global economic and financial developments.
19

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

25 **Q. Mr. Baudino, why is it important to understand the Fed's actions since 2007?**

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

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

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

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

13 "A considerable body of empirical evidence indicates that U.S. capital
14 markets are efficient with respect to a broad set of information, including
15 historical and publicly available information."⁴
16

17 Despite recent increases in interest rates, including long-term Treasury Bonds and
18 average utility bonds, the U.S. economy continues to operate in a low interest rate
19 environment. It is likely at some point this year that the Federal Reserve will once
20 again raise short-term interest rates. However, the timing and the level of any such
21 move are not known now. It is important to realize that investor expectations of
22 higher interest rates, if any, are already embodied in current securities prices, which
23 include debt securities and stock prices.

⁴ Morin, Roger A., *New Regulatory Finance*, Public Utilities Reports, Inc. (2006) at 279.

1 The current low interest rate environment favors lower risk regulated utilities. It
2 would not be advisable for utility regulators to raise ROEs in anticipation of higher
3 interest rates that may or may not occur.

4 **Q. How does the investment community regard the electric utility industry**
5 **currently?**

6 A. The Value Line Investment Survey issued its report on the Electric Utility (West)
7 Industry dated January 27, 2017. I have taken the following excerpts from that
8 report, which I believe will be helpful in providing a broader perspective on how the
9 current economic environment is affecting the regulated utility industry.

10 “The year that just ended was an excellent one for most electric utility equities. In
11 the first half, most stocks performed tremendously as interest rates declined from an
12 already-low level and many investors sought a (relatively) safe haven in an
13 increasingly volatile market. These issues gave back some of their first-half gains in
14 the final six months of 2016, but the industry posted a total return of 17.4%. This
15 topped the total return of the Standard and Poor’s 500, which was 12.0%.

16
17 * * *

18 In early 2017, most electric utility stocks have not moved significantly. Thus, they
19 retain their high valuation. In 2016, most traded at a price-earnings ratio in the high
20 teens—about the same as the overall market—and the dividend yields of most issues
21 were below 4%. These measures indicate a high valuation, by historical standards.
22 The industry’s current average dividend yield is 3.5%. Investors should note, too,
23 that the recent quotations of some electric utility issues are near the upper end or
24 even above their 2019-2021 Target Price Range.”

25
26 Value Line’s remarks with respect to the electric utility industry indicate that despite
27 the recent increase in interest rates, utility stocks continue to be highly valued
28 investments for their stability in today’s volatile marketplace for stocks. The safety
29 and relatively high dividend yields for regulated utilities are attractive to investors,
30 although Value Line recommended caution due to the group’s currently high price
31 valuation.

1 **Q. What are the current credit ratings and bond ratings for LGE and KU?**

2 A. Standard and Poor's ("S&P") current credit rating for the Companies is A- and their
3 first mortgage bond rating is A. Moody's current long-term issuer rating for the
4 Companies is A3, with a rating of A1 for their first mortgage bonds.

5 **Q. Has LGE's and KU's parent company, PPL Corporation, made recent**
6 **statements regarding the operations and risks of its Kentucky electric utility**
7 **companies?**

8 A. Yes. In a recent presentation⁵, PPL Corp. noted the following about its operations
9 (page 13):

- 10 • Growing, pure-play regulated business operating in premium jurisdictions
- 11 • 5-6% projected earnings growth from 2017 – 2020, with above-average
12 dividend yield
- 13 • Strong dividend growth potential
- 14 • Targeting 8 – 10% annual returns
- 15 • Investing in the future and improving efficiency
- 16 • Confident in our ability to deliver on commitments to shareowners and
17 customers

18 In the same presentation, PPL stated the following about its Kentucky operations
19 (pg. 28):

- 20 • Constructive jurisdiction provides a timely return on planned Cap Ex
- 21 • Environmental Cost Recovery (ECR) with “virtually no regulatory lag”

⁵ *PPL Corporation Poised for Growth. Investing in our future.* Evercore ISI Utility CEO Retreat, Palm Beach, FL, January 12 – 13, 2017.

- 1 • Return mechanisms include CWIP for ECR and Gas Line Tracker
- 2 • Pass through clauses include Purchased Power, Fuel and Gas Supply
- 3 Adjustment and Energy Efficiency/Demand Side Management recovery
- 4 • Cap Ex plans exclude spending that may be required under the Clean Power
- 5 Plan

6 Please refer to Exhibit No. ____ (RAB-3) for selected pages from this presentation.

7

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 **the electric operations of LGE and KU.**

4 A. I employed a Discounted Cash Flow (“DCF”) analysis using a group of 19 regulated
5 electric and gas utilities. My DCF analysis is my standard constant growth form of
6 the model that employs four different growth rate forecasts from the Value Line
7 Investment Survey, First Call/IBES, and Zacks. I also employed Capital Asset
8 Pricing Model (“CAPM”) analyses using both historical and forward-looking data.
9 Although I did not rely on the CAPM for my recommended ROE for LGE and KU,
10 the results from the CAPM tend to support the reasonableness of my
11 recommendation.

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

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

$$k = \frac{D_1}{P_0} + g$$

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 LGE and KU?**

8 A. My first step was to construct a proxy group of companies with a risk profile that is
9 reasonably similar to the Companies. Since LGE and KU are subsidiaries of PPL
10 Corp., they do not have publicly traded stock. Thus, one cannot estimate a DCF cost
11 of equity on the Companies directly. It is necessary to use a group of companies that
12 are similarly situated and have reasonably similar risk profiles to LGE and KU.

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 Companies, with three exceptions. I eliminated the following companies from
19 Mr. McKenzie's proxy group as follows:

- 20
- 21 • Avangrid Inc.: NMF (no meaningful figure) for Value Line earnings and
22 dividend growth forecasts. No Value Line beta, Safety Rank, and Financial
23 Strength ratings. Since Value Line is one of my primary sources for growth

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

- 3 • Entergy Corp.: Negative earnings growth rates from First Call/IBES and
4 Zacks and 0.5% earnings growth rate from Value Line. These earnings
5 growth forecasts are not indicative of long-term growth and negative growth
6 rates cannot reasonably be used in the DCF model to properly estimate the
7 investor required rate of return.
- 8 • PPL Corp.: NMF for Value Line earnings growth forecast.

9
10 The resulting comparison group of 19 electric and gas companies that I used in my
11 analysis is shown in the Table 1 below.

	<u>S&P</u>	<u>Moody's</u>
Alliant Energy Corporation	A-	Baa1
Ameren Corp.	BBB+	Baa1
Avista Corporation	BBB	Baa1
Black Hills Corp.	BBB	Baa2
CenterPoint Energy, Inc.	A-	Baa1
CMS Energy Corp.	BBB+	Baa2
Consolidated Edison	A-	A3
DTE Energy Co.	BBB+	Baa1
Eversource Energy	A	Baa1
Exelon Corp.	BBB	Baa2
NorthWestern Corp.	BBB	A3
PG&E Corp.	BBB+	Baa1
Public Service Enterprise Group	BBB+	Baa2
SCANA Corp.	BBB+	Baa3
Sempra Energy	BBB+	Baa1
Southern Company	A-	Baa2
Vectren Corp.	A-	A2
WEC Energy	A-	A3
Xcel Energy Inc.	A-	A3
LGE&E/KU	A-	A3

12
13 **Q. How do LGE/KU's credit ratings compare to those of the proxy group?**

1 A. LGE and KU have slightly better credit ratings than the proxy group. With respect
2 to Moody's ratings, 4 of the 19 companies have A ratings similar to those of LGE
3 and KU. The remaining 15 companies have Moody's ratings that are lower than the
4 Companies. With respect to the S&P ratings, 11 of the 19 companies in the proxy
5 group have ratings lower than LGE and KU. This suggests that LGE and KU are
6 likely to have a slightly lower required return on equity compared to the proxy
7 group.

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

10 A. I first determined the current dividend yield, D_1/P_0 , from the basic equation. My
11 general practice is to use six months as the most reasonable period over which to
12 estimate the dividend yield. The six-month period I used covered the months from
13 August 2106 through January 2017. I obtained historical prices and dividends from
14 Yahoo! Finance. The annualized dividend divided by the average monthly price
15 represents the average dividend yield for each month in the period.

16

17 The resulting average dividend yield for the comparison group is 3.43%. These
18 calculations are shown in Exhibit No. ___(RAB-4).

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

21 A. The investors' expected growth rate, in theory, correctly forecasts the constant rate
22 of growth in dividends. The dividend growth rate is a function of earnings growth
23 and the payout ratio, neither of which is known precisely for the future. We refer to
24 a perpetual growth rate since the DCF model has no arbitrary cut-off point. We must

1 estimate the investors' expected growth rate because there is no way to know with
2 absolute certainty what investors expect the growth rate to be in the short term, much
3 less in perpetuity.

4
5 For my analysis in this proceeding, I used three major sources of analysts' forecasts
6 for growth. These sources are The Value Line Investment Survey, Zacks, and First
7 Call/IBES. This is the method I typically use for estimating growth for my DCF
8 calculations.

9 **Q. Please briefly describe Value Line, Zacks, and First Call/IBES.**

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

17
18 Zacks gathers opinions from a variety of analysts on earnings growth forecasts for
19 numerous firms including regulated electric utilities. The estimates of the analysts
20 responding are combined to produce consensus average estimates of earnings
21 growth. I obtained Zacks' earnings growth forecasts from its web site.

22

1 Like Zacks, First Call/IBES also compiles and reports consensus analysts' forecasts
2 of earnings growth. I obtained these forecasts from Yahoo! Finance.

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

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

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

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

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

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

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

3
4 Page 2 of Exhibit No. ____ (RAB-5) presents my standard method of calculating
5 dividend yields, growth rates, and return on equity for the comparison group of
6 companies. The DCF Return on Equity Calculation section shows the application of
7 each of four growth rates I used in my analysis to the current group dividend yield of
8 3.43% to calculate the expected dividend yield. I then added the expected growth
9 rates to the expected dividend yield. In evaluating investor expected growth rates, I
10 use both the average and the median values for the group under consideration. The
11 calculations of the resulting DCF returns on equity for both methods are presented on
12 page 2 of Exhibit No. ____ (RAB-5).

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

14 A. The DCF results for the constant growth DCF approach are shown on page 2 of
15 Exhibit No. ____ (RAB-5). For the average growth rates in Method 1, the results
16 range from 8.59% to 9.27%, with the average of these results being 8.83%. Using
17 the median growth rates in Method 2, the results range from 8.51% to 9.53%, with
18 the average of these results being 9.06%.

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 as a whole.

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.⁶ There is

19 evidence that beta is not the primary factor in 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.

⁶ 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.

1

2

There is also substantial judgment involved in estimating the required market return.

3

In theory, the CAPM requires an estimate of the return on the total market for

4

investments, including stocks, bonds, real estate, etc. It is nearly impossible for the

5

analyst to estimate such a broad-based return. Often in utility cases, a market return

6

is estimated using the S&P 500 or the return on Value Line's stock market

7

composite. However, these are limited sources of information with respect to

8

estimating the investor's required return for all investments. In practice, the total

9

market return estimate faces significant limitations to its estimation and, ultimately,

10

its usefulness in quantifying the investor required ROE.

11

12

In the final analysis, a considerable amount of judgment must be employed in

13

determining the risk-free rate and market return portions of the CAPM equation.

14

The analyst's application of judgment can significantly influence the results obtained

15

from the CAPM. My past experience with the CAPM indicates that it is prudent to

16

use a wide variety of data in estimating investor-required returns. Of course, the

17

range of results may also be wide, indicating the difficulty in obtaining a reliable

18

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

21

February 14, 2017. This edition covers several thousand stocks. The Value Line

22

Investment Analyzer provides a summary statistical report detailing, among other

23

things, forecasted growth rates for earnings and book value for the companies Value

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-6). I included median earnings and book value growth rates.
4 The estimated market returns using Value Line's market data range from 9.50% to
5 9.85%. The average of these market returns is 9.67%.

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 140.4% and the lowest growth
15 rate to be -30.5%. The highest book value growth rate was 72.5% and the lowest
16 was -33%. None of these levels of growth is compatible with long-run growth
17 prospects for the market as a whole. The median growth rate is not influenced by
18 such extremes because it represents the middle value of a very wide range of
19 earnings growth rates.

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

21 A. I also considered a supplemental check to the Value Line projected market return
22 estimates. Duff and Phelps publishes a study of historical returns on the stock
23 market in its 2016 SBBI Yearbook. Some analysts employ this historical data to

1 estimate the market risk premium of stocks over the risk-free rate. The assumption is
2 that a risk premium calculated over a long period of time is reflective of investor
3 expectations going forward. Exhibit No. ___(RAB-7) presents the calculation of the
4 market returns using the historical data.

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

6 A. Exhibit No. ___(RAB-7) shows both the geometric and arithmetic average of yearly
7 historical stock market returns over the historical period from 1926 - 2015. The
8 average annual income return for 20-year Treasury bond is subtracted from these
9 historical stocks returns to obtain the historical market risk premium of stock returns
10 over long-term Treasury bond income returns. The historical market risk premium
11 range is 5.0% - 7.0%.

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

13 A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and Dr.
14 Peng Chen indicating that the historical risk premium of stock returns over long-term
15 government bond returns has been significantly influenced upward by substantial
16 growth in the price/earnings ("P/E") ratio for stocks from 1980 through 2001.⁷ Duff
17 and Phelps noted that this growth in the P/E ratio for stocks was subtracted out of the
18 historical risk premium because "it is not believed that P/E will continue to increase
19 in the future." The adjusted historical arithmetic market risk premium is 6.03%,

⁷ 2016 *SBBI Yearbook*, Duff and Phelps, pp. 10-28 through 10-30.

1 which I have also included in Exhibit No. ____ (RAB-7). This risk premium estimate
2 falls near the middle of the market risk premium range.

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

4 A. I used the average yields on the 20-year Treasury bond and five-year Treasury note
5 over the six-month period from August 2016 through January 2017. This was the
6 latest available data from the Federal Reserve's Selected Interest Rates (Daily) H.15
7 web site during the preparation of my Direct Testimony. The 20-year Treasury bond
8 is often used by rate of return analysts as the risk-free rate, but it contains a
9 significant amount of interest rate risk. The five-year Treasury note carries less
10 interest rate risk than the 20-year bond and is more stable than three-month Treasury
11 bills. Therefore, I have employed both securities as proxies for the risk-free rate of
12 return. This approach provides a reasonable range over which the CAPM return on
13 equity may be estimated.

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

15 A. I obtained the betas for the companies in the electric company comparison group
16 from most recent Value Line reports. The average of the Value Line betas for the
17 comparison group is 0.69.

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

19 A. For my forward-looking CAPM return on equity estimates, the CAPM results are
20 7.25% - 7.51%. Using historical risk premiums, the CAPM results are 5.80% -
21 7.18%.

1 **Conclusions and Recommendations**

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

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

TABLE 2	
SUMMARY OF ROE ESTIMATES	
Baudino DCF Methodology:	
Average Growth Rates	
- High	9.27%
- Low	8.59%
- Average	8.83%
Median Growth Rates:	
- High	9.53%
- Low	8.51%
- Average	9.06%
CAPM:	
- 5-Year Treasury Bond	7.25%
- 20-Year Treasury Bond	7.51%
- Historical Returns	5.80% - 7.18%

5

6 **Q. What is your recommended return on equity for LGE and KU?**

7 A. I recommend that the KPSC adopt a 9.0% return on equity for the Companies. My
8 recommendation is consistent with the average DCF results from my constant growth
9 DCF model. Based on current market evidence, a 9.0% return on equity is fair and
10 reasonable for A-rated, lower risk electric utility companies like LGE and KU. In
11 fact, as I demonstrated in Table 1, LGE and KU have credit ratings that slightly
12 exceed those of the proxy group as a whole. Thus, a reasonable case could be made
13 that the Companies' ROE should be set slightly lower than the overall results for the

1 proxy group. However, 9.0% is certainly a reasonable allowed ROE for the
2 Companies in today's low interest rate environment.

3 **Q. What is your recommended weighted cost of capital?**

4 A. Mr. Kollen presents KIUC's recommended weighted cost of capital in his testimony.

5 I have accepted the Companies' proposed capital structures in this proceeding.

6

1 IV. RESPONSE TO LGE AND KU 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 10.23% 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 LGE and KU.

12

13 The rest of Section IV contains my detailed responses to Mr. McKenzie's analyses and
14 recommendations. I will use references from Mr. McKenzie's KU Direct Testimony
15 for purposes of clarity and brevity. Mr. McKenzie used the same approaches to
16 estimating the ROE for both LGE and KU, so my responses apply to Mr. McKenzie's
17 LGE testimony as well.18 **Outlook for Capital Costs**19 **Q. On page 13, Mr. McKenzie presented his view of current capital market**
20 **conditions, noting that these conditions "continue to be deeply affected by the**
21 **Federal Reserve's unprecedented monetary policy actions, which were designed**
22 **to push interest rates to historically and artificially low levels ..."** Please
23 **respond to Mr. McKenzie's position with respect to current capital market**
24 **conditions.**

1 A. I agree that the economy is in a low interest rate environment that is being supported
2 quite deliberately by Federal Reserve policy. Nonetheless, current financial market
3 conditions do indeed provide a representative basis for estimating the cost of equity
4 capital for LGE and KU, and for utilities generally. The fact that interest rates are
5 relatively low by historical standards does not preclude the rate of return analyst from
6 making a reasonable assessment of investor required ROEs using current stock prices
7 and interest rates.

8 **Q. On page 15 of Mr. McKenzie's KU Direct Testimony, Figure 3 shows higher**
9 **forecasted interest rates through 2021 from several different forecasting**
10 **sources. Should the Commission increase its allowed return on equity based on**
11 **these higher interest rate forecasts?**

12 A. No. As I stated in Section II my Direct Testimony, current interest rates embody
13 investor expectations based on their assessments of all available market information.
14 This includes interest rate forecasts cited by Mr. McKenzie as well as statements
15 from the Federal Reserve. The KPSC should not invest in the interest rate forecasts
16 cited by Mr. McKenzie in determining a fair rate of return for LGE and KU.

17
18 There is evidence that economists have systematically overestimated interest rates in
19 recent years. Jared Bernstein wrote the following in a recent article in the New York
20 Times⁸:

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

⁸ "We Keep Flunking Forecasts on Interest Rates, Distorting the Budget Outlook", Jared Bernstein, *New York Times*, Feb. 23, 2015.

1
2 But since the mid-1990s, government forecasters have consistently overestimated
3 this critical variable.

4
5 This “consistently” point is essential. Most economic forecasts are off one way or the
6 other — too high or too low, but they tend to be pretty much balanced in either
7 direction. But on the 10-year bond rate, the errors are systemic.

8
9 Forecasters are regularly overestimating and thus regularly overstating, all else being
10 equal, future interest payments on the debt.

11
12 Another article by Akin Oyedele entitled "Interest Rate Forecasters Are Shockingly
13 Wrong Almost All Of The Time"⁹ showed that from June 2010 through June 2015
14 interest rate forecasts were wrong most of the time. Mr. Oyedele noted that 2014
15 "was particularly bad, when strategists became too optimistic that the Federal
16 Reserve would hike rates."

17
18 These articles highlight the consistent upward bias that is likely embodied in the
19 forecasts presented by Mr. McKenzie.

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

22 **A. Yes.** In a weekly blog at the Brookings Institution, former Federal Reserve
23 Chairman Ben Bernanke wrote the following:¹⁰

24 Interest rates around the world, both short-term and long-term, are exceptionally low
25 these days. The U.S. government can borrow for ten years at a rate of about 1.9
26 percent, and for thirty years at about 2.5 percent. Rates in other industrial countries
27 are even lower: For example, the yield on ten-year government bonds is now around
28 0.2 percent in Germany, 0.3 percent in Japan, and 1.6 percent in the United

⁹ Akin Oyedele, "Interest Rate Forecasters Are Shockingly Wrong Almost All of the Time", *Business Insider*, July 18, 2015.

¹⁰ 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 Kingdom. In Switzerland, the ten-year yield is currently slightly negative, meaning
2 that lenders must pay the Swiss government to hold their money! The interest rates
3 paid by businesses and households are relatively higher, primarily because of credit
4 risk, but are still very low on an historical basis.

5
6 Low interest rates are not a short-term aberration, but part of a long-term trend. As
7 the figure below shows, ten-year government bond yields in the United States were
8 relatively low in the 1960s, rose to a peak above 15 percent in 1981, and have been
9 declining ever since. That pattern is partly explained by the rise and fall of inflation,
10 also shown in the figure. All else equal, investors demand higher yields when
11 inflation is high to compensate them for the declining purchasing power of the
12 dollars with which they expect to be repaid. But yields on inflation-protected bonds
13 are also very low today; the real or inflation-adjusted return on lending to the U.S.
14 government for five years is currently about *minus* 0.1 percent.

15
16 Why are interest rates so low? Will they remain low? What are the implications for
17 the economy of low interest rates?

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

31 **Q. Did Mr. McKenzie present forecasted interest rates in the testimony he co-**
32 **sponsored in KU and LGE Case Nos. 2014-00371 and 2014-00372?**

33 A. Yes. On page 13 of the Direct Testimony he co-sponsored with Dr. Avera in those
34 cases, Mr. McKenzie presented Figure 2 on page 13 of his KU testimony that
35 showed forecasted interest rates with a graph like the one included in his KU Direct
36 Testimony in this case on page 15. I reviewed the work papers submitted by Dr.
37 Avera and Mr. McKenzie in those proceedings and found the Blue Chip financial
38 forecast dated June 1, 2014, which formed part of the basis of Figure 2 in their
39 testimony in those cases, which was filed on November 26, 2014.

1

2

In the Blue Chip forecasts dated June 1, 2014 presented by Mr. McKenzie in the last

3

KU and LGE rate cases, the consensus forecast for the 30-year Treasury Bond was

4

4.7% for 2016 and 5.1% for 2017.¹¹ The actual December 2016 30-Year Treasury

5

Bond yield was 3.11% and for January 2017 was 3.02%. The June 2014 Blu Chip

6

consensus forecasts presented by Mr. McKenzie overshot the recent actual 30-Year

7

Treasury Bond rates by 159 – 208 basis points. Stated another way, the Blue Chip

8

consensus forecasts missed the recent actual 30-Year Treasury Bond rates by 1.59%

9

to 2.08%.

10

11

The magnitude of the overstatement by the Blue Chip consensus forecasts are strong

12

support for my recommendation that the Commission disregard interest rate forecasts

13

when considering its allowed ROE for LGE and KU in this proceeding.

14 **DCF Model**

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

16 A. Mr. McKenzie constructed a group of electric and gas utilities for purposes of

17 estimating the DCF ROE for LEG and KU. He used several sources of growth rate

18 forecasts, which included IBES, Zacks, and Value Line as well as an estimate of

19 sustainable growth. I ultimately adopted Mr. McKenzie's proxy group with the three

20 exceptions I noted earlier.

¹¹ KU response to AG 1-187, Docket No. 2014-00371, WP-25.

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In his Exhibit No. 5, Mr. McKenzie adjusted his DCF ROE results by excluding certain company ROE results that, in his view, were either too low or too high. On the low end, these results ranged from 0.1% to 6.9%. On the high end, Mr. McKenzie excluded one value of 15.3%, but saw fit to include ROE results of 12.4% and 13.2%. After making these exclusions, his resulting DCF range was 8.4% to 9.5% using an average of the remaining results. The midpoints ranged from 8.9% to 10.4%.

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

A. Mr. McKenzie conducted a biased approach in formulating his DCF recommendations. He applied a test for excluding ROE results that, in his view, were too low but failed to exclude other results that were too high. For example, the average Commission-allowed ROE for 2015 that was reported by Mr. McKenzie in his Exhibit No. 9 was 9.85%. Furthermore, the *EEI Q4 Financial Update* showed that the average Commission-allowed ROE in the fourth quarter of 2016 was 9.57%. With recent Commission allowed ROEs of around 9.6%, Mr. McKenzie included ROEs in his Exhibit No. 5 ranging from 12.4% to 13.2%. My review of Commission allowed returns contained in Mr. McKenzie's Exhibit No. 9 reveals that 2002 was the last year that allowed returns on equity were as high as 11% and that the last Commission allowed return near 13% was in 1989.

1 It is abundantly clear that Mr. McKenzie's one-sided approach to excluding ROE
 2 results from his DCF analysis had the effect of inflating his DCF ROE
 3 recommendation.

4 **Q. Have you conducted an alternative analysis that includes all the DCF results**
 5 **from Mr. McKenzie's Exhibit No. 5?**

6 A. Yes. Table 3 below presents the average and median ROEs utilizing all the DCF
 7 results from Mr. McKenzie's Exhibit No. 5, page 3 of 3.

<u>Company</u>	<u>V Line</u>	<u>IBES</u>	<u>Zacks</u>	<u>br+sv Growth</u>
Alliant Energy	9.1%	9.7%	9.2%	8.1%
Ameren Corp.	9.6%	8.8%	9.7%	7.2%
Avangrid, Inc.	NA	13.2%	13.2%	NA
Avista Corp.	8.4%	8.4%	8.7%	7.1%
Black Hills Corp.	10.5%	9.7%	8.9%	10.7%
CenterPoint Energy	6.6%	9.9%	10.1%	7.4%
CMS Energy Corp.	9.1%	10.4%	9.7%	8.7%
Consolidated Edison	6.2%	5.8%	6.5%	6.9%
DTE Energy Co.	9.3%	8.9%	9.1%	7.8%
Entergy Corp.	6.8%	2.0%	0.1%	8.2%
Eversource Energy	9.5%	8.9%	9.5%	7.5%
Exelon Corp.	10.9%	6.5%	7.5%	9.7%
NorthWestern Corp.	10.1%	8.6%	8.8%	8.2%
PG&E Corp.	15.3%	9.0%	7.6%	8.4%
PPL Corp.	NA	7.1%	8.2%	9.2%
Pub Sv Enterprise Grp.	7.0%	5.5%	8.5%	8.8%
SCANA Corp.	7.9%	9.4%	8.8%	8.0%
Sempra Energy	11.0%	10.7%	10.0%	8.8%
Southern Company	8.5%	7.6%	8.4%	8.6%
Vectren Corp.	12.4%	8.4%	8.7%	9.7%
WEC Energy Group	9.5%	10.2%	9.7%	6.9%
Xcel Energy Inc.	9.0%	8.8%	8.9%	7.7%
Average	9.3%	8.5%	8.6%	8.3%
Median	9.2%	8.8%	8.8%	8.2%

8

9

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

7
8 Table 3 shows that when all results are considered, the average and median results
9 from Mr. McKenzie's Exhibit No. 5 are quite close. In my opinion, this suggests
10 that low-end results are offset by high-end results. If all DCF results are considered,
11 Mr. McKenzie's average and median ROEs are close to my recommended ROE of
12 9.0%.

13 CAPM and ECAPM

14 **Q. Beginning on page 46 of his KU Direct Testimony, Mr. McKenzie described the**
15 **Empirical CAPM ("ECAPM") analysis. Is this a reasonable method to use to**
16 **estimate the investor required ROE for LGE and KU?**

17 **A.** No. The ECAPM is supposed to account for the possibility that the CAPM
18 understates the return on equity for companies with betas less than 1.0. I believe it is
19 highly unlikely that investors use the ECAPM formulation shown in Mr. McKenzie's
20 Exhibit No. 8 to "correct" CAPM returns for electric utilities. To the extent investors
21 use the CAPM to estimate their required returns, I believe it is much more likely that
22 they use the traditional CAPM equation that I used in Section III of my testimony.
23 Mr. McKenzie presented no evidence that investors use the adjustment factors
24 contained in his CAPM and ECAPM analyses. Moreover, the use of an adjustment

1 factor to “correct” the CAPM results for companies with betas less than 1.0 suggests
2 that published betas by such sources as Value Line are incorrect and that investors
3 should not rely on them. In fact, Mr. McKenzie testified on page 44, lines 14
4 through 16 of his KU Direct Testimony that Value Line is “the most widely
5 referenced source for beta is regulatory proceedings.”

6 **Q. Please continue your evaluation of the results of Mr. McKenzie’s CAPM and**
7 **ECAPM analysis.**

8 A. I disagree with Mr. McKenzie’s general formulation of the CAPM and ECAPM and
9 in particular with his estimate of the expected market return. He estimated the
10 market return portion of the CAPM and ECAPM by estimating the current market
11 return for dividend paying stocks in the S&P 500. The market return portion of the
12 CAPM should represent the most comprehensive estimate of the total return for all
13 investment alternatives, not just a small subset of publicly traded stocks that pay
14 dividends. In practice, of course, finding such an estimate is difficult and is one of
15 the thornier problems in estimating an accurate ROE when using the CAPM. If one
16 limits the market return to stocks, then there are more comprehensive measures of
17 the stock market available, such as the Value Line Investment Survey that I used in
18 my CAPM analysis. Value Line's projected earnings growth used a sample of 2,067
19 stocks and its book value growth estimate used 1,518 stocks. Value Line's projected
20 annual percentage return included 1,673 stocks. These are much broader samples
21 than Mr. McKenzie’s limited sample of dividend paying stocks from the S&P 500.

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

1 A. Yes, most definitely. My forward-looking market returns show an expected return
2 on the market of 9.85%, far less than the 11.3% expected return result for the limited
3 sample of companies Mr. McKenzie used for his ECAPM and CAPM market return.

4 **Q. On pages 44 through 45 of his KU Direct Testimony, Mr. McKenzie explained**
5 **that he incorporated a size adjustment to his CAPM and ECAPM results. This**
6 **increased his average CAPM results by about 60 basis points, or 0.60%. Is this**
7 **size adjustment appropriate?**

8 A. No. The data that Mr. McKenzie relied upon to make this adjustment came from the
9 *2016 Valuation Handbook – Guide to Cost of Capital*. The groups of companies
10 from which he took this significant upward adjustment to his CAPM and ECAPM
11 results contain many unregulated companies. Further, the decile groups from which
12 these adjustments were taken had average betas ranging from 0.92 to 1.17¹². These
13 betas are greatly in excess of my utility proxy group average beta of 0.69, suggesting
14 that the unregulated companies that Mr. McKenzie used to make his size adjustment
15 are riskier than regulated utilities. There is no evidence to suggest that the size
16 premium used by Mr. McKenzie applies to regulated utility companies, which on
17 average are quite different from the group of companies included in the *2016*
18 *Valuation Handbook* research on size premiums. I recommend that the Commission
19 reject Mr. McKenzie's size premium in the CAPM ROE.

20 **Q. On page 46 of his Direct Testimony, Mr. McKenzie recommended using**
21 **projected bond yields in the CAPM ROE models. Should the Commission**
22 **consider using forecasted bond yields in its ROE analysis in this proceeding?**

¹² WP-33 submitted by LGE in response to AG DR1, Q-282.

1 A. Definitely not. Current interest rates and bond yields embody all the relevant market
2 data and expectations of investors, including expectations of changing future interest
3 rates. Current interest rates present tangible market evidence of investor return
4 requirements today, and these are the interest rates and bond yields that should be
5 used in the CAPM, ECAPM, and in the bond yield plus risk premium analyses. To
6 the extent that investors give forecasted interest rates any weight at all, they are
7 already incorporated in current securities prices.

8 **Utility Risk Premium**

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

10 A. Mr. McKenzie developed an historical risk premium using Commission-allowed
11 returns for regulated utility companies from 1974 through 2015. He also used
12 regression analysis to estimate the value of the inverse relationship between interest
13 rates and risk premiums during that period. On page 52 of his KU Direct Testimony,
14 Mr. McKenzie calculated the risk premium ROE to be 9.99%.

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

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

1

2 Finally, for the reasons I discussed earlier, the use of forecasted bond yields is
3 inappropriate and should be rejected.

4 Expected Earnings Approach

5 **Q. Beginning on page 52 of his KU Direct Testimony, Mr. McKenzie presented an**
6 **expected earnings approach based on expected returns on equity using Value**
7 **Line's rates of return on common equity for electric utilities over its 2019 - 2021**
8 **forecast horizon. Is this a reasonable method for estimating the current**
9 **required return on equity in this proceeding?**

10 A. No. The Commission should not rely on forecasted utility ROEs for 2019 - 2021 for
11 the same reasons that it should not rely on interest rate forecasts. These forecasted
12 ROEs have little value in today's market, especially considering that current DCF
13 returns are significantly lower than these forecasts, which range from 11.3% to
14 12.2%. Moreover, recent allowed ROEs for electric utilities averaged about 9.6% in
15 the fourth quarter of 2016. The expected ROEs presented by Mr. McKenzie are so
16 far removed from recent allowed returns that the Commission should reject them out
17 of hand.

18 Flotation Costs

19 **Q. Beginning on page 55 of his Direct Testimony, Mr. McKenzie discussed flotation**
20 **costs. Are flotation costs a legitimate consideration for the Commission's**
21 **determination of ROE in this proceeding?**

22 A. No. Mr. McKenzie recommended that the Commission consider adding an adjustment
23 of 13 basis points to recognize flotation costs. A flotation cost adjustment attempts to
24 recognize and collect the costs of issuing common stock. Such costs typically include
25 legal, accounting, and printing costs as well as well as broker fees and discounts.

1

2

In my opinion, it is likely that flotation costs are already accounted for in current stock

3

prices and that adding an adjustment for flotation costs amounts to double counting. A

4

DCF model using current stock prices should already account for investor expectations

5

regarding the collection of flotation costs. Multiplying the dividend yield by a 4%

6

flotation cost adjustment, for example, essentially assumes that the current stock price is

7

wrong and that it must be adjusted downward to increase the dividend yield and the

8

resulting cost of equity. I do not believe that this is an appropriate assumption. Current

9

stock prices most likely already account for flotation costs, to the extent that such costs

10

are even accounted for by investors.

11

Non-Utility Benchmark

12

Q. Beginning of page 57 of his KU Direct Testimony, Mr. McKenzie presented the results of a low-risk non-utility DCF model. Is it appropriate to use a group of unregulated companies to estimate a fair return on equity for LGE and KU?

13

14

15

A. No. Mr. McKenzie's use of unregulated non-utility companies to estimate a fair rate

16

of return for LGE and KU is completely inappropriate and should be rejected by the

17

Commission.

18

19

Utilities have protected markets, e.g. service territories, and may increase the prices

20

they charge in the face of falling demand or loss of customers. This is contrary to

21

competitive, unregulated companies who often lower their prices when demand for

22

their products decline. Obviously, the non-utility companies have higher overall risk

23

structures than a lower risk electric company like LGE or KU and will have higher

24

required returns from their shareholders. The average DCF results for Mr.

1 McKenzie's non-utility group range from 10.0% - 11.2%. This is substantially
2 greater than the utility proxy group DCF results for both myself and Mr. McKenzie.

3

4 Although Mr. McKenzie stated that he did not directly consider the non-utility group
5 DCF results in arriving at this recommendation, he stated that it was a "relevant
6 consideration in evaluating a fair ROE for the Company," (KU Direct Testimony,
7 page 59). I disagree. The relevant consideration should be the DCF results for the
8 utility proxy group that I employed in my analysis.

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


10 A. Yes.

AFFIDAVIT

STATE OF GEORGIA)

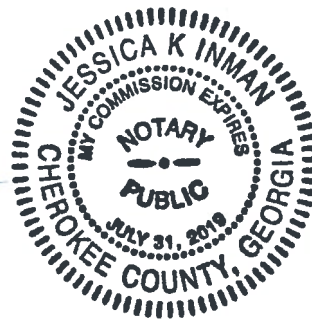
COUNTY OF FULTON)

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


Richard A. Baudino

Sworn to and subscribed before me on this
3rd day of March 2017.


Notary Public



**BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION**

In the Matter of:

**APPLICATION OF KENTUCKY UTILITIES)
COMPANY FOR AN ADJUSTMENT OF) CASE NO. 2014-00371
ITS ELECTRIC RATES)**

In the Matter of:

**APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY FOR AN) CASE NO. 2014-00372
ADJUSTMENT OF ITS ELECTRIC AND)
GAS RATES)**

<p>EXHIBITS OF RICHARD A. BAUDINO</p>
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**ON BEHALF OF
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.**

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

MARCH 6, 2015

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

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

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

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

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

**Expert Testimony Appearances
of
Richard A. Baudino
As of February 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. Intervenors	PGE Industrial	Cost allocation.
8/98	U-17735	LA	Louisiana Public Service Commission	Cajun Electric Power Cooperative	Revenue requirements.
10/98	97-596	ME	Maine Office of the Public Advocate	Bangor Hydro-Electric Co.	Return on equity, rate of return.
10/98	U-23327	LA	Louisiana Public Service Commission	SWEPCO, CSW and AEP	Analysis of proposed merger.
12/98	98-577	ME	Maine Office of the Public Advocate	Maine Public Service Co.	Return on equity, rate of return.
12/98	U-23358	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Return on equity, rate of return.
3/99	98-426	KY	Kentucky Industrial Utility Customers, Inc.	Louisville Gas and Electric Co	Return on equity.
3/99	99-082	KY	Kentucky Industrial Utility Customers, Inc.	Kentucky Utilities Co.	Return on equity.
4/99	R-984554	PA	T. W. Phillips Users Group	T. W. Phillips Gas and Oil Co.	Allocation of purchased gas costs.
6/99	R-0099462	PA	Columbia Industrial Intervenors	Columbia Gas of Pennsylvania	Balancing charges.
10/99	U-24182	LA	Louisiana Public Service Commission	Entergy Gulf States, Inc.	Cost of debt.

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

Date	Case	Jurisdct.	Party	Utility	Subject
10/99	R-00994782	PA	Peoples Industrial Intervenor	Peoples Natural Gas Co.	Restructuring issues.
10/99	R-00994781	PA	Columbia Industrial Intervenor	Columbia Gas of Pennsylvania	Restructuring, balancing charges, rate flexing, alternate fuel.
01/00	R-00994786	PA	UGI Industrial Intervenor	UGI Utilities, Inc.	Universal service costs, balancing, penalty charges, capacity Assignment.
01/00	8829	MD & 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 February 2017**

Date	Case	Jurisdct.	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.

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

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

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

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

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

Date	Case	Jurisdict.	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 Penn Gas Large Users Group	UGI Central Penn Gas, Inc.	Tariff issues, revenue allocation
07/11	R-2011- 2239263	PA	Philadelphia Area Energy Users Group	PECO Energy	Retainage rate

**Expert Testimony Appearances
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As of February 2017**

Date	Case	Jurisdct.	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

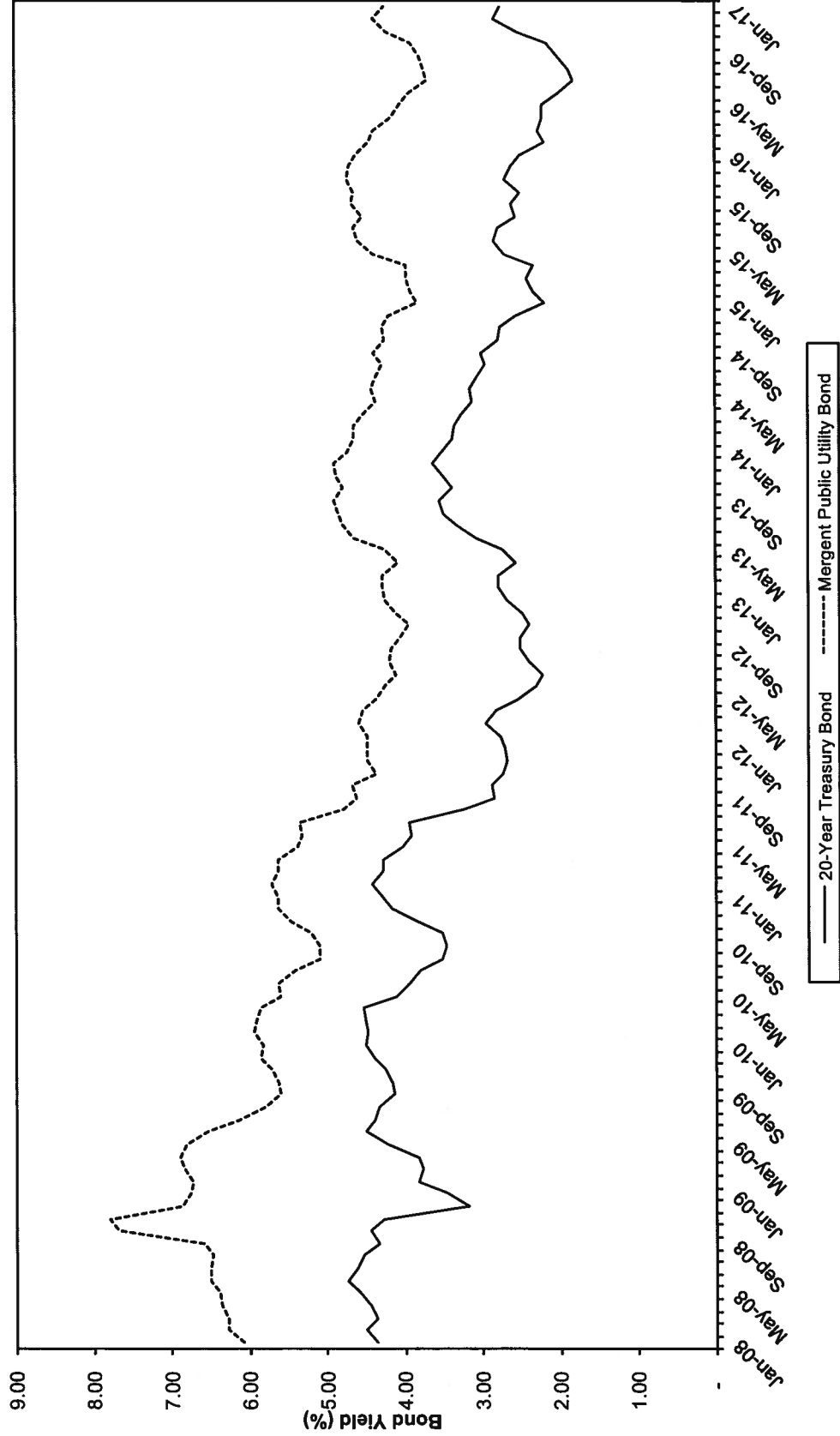
**Expert Testimony Appearances
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Richard A. Baudino
As of February 2017**

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

**Expert Testimony Appearances
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As of February 2017**

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

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



PPL CORPORATION

Poised for growth.
Investing in our future.



Evercore ISI Utility CEO Retreat, Palm Beach, FL • January 12 - 13, 2017

Summary

- Growing, pure-play regulated business operating in premium jurisdictions
- 5-6% projected earnings growth from 2017 - 2020, with above-average dividend yield
- Strong dividend growth potential
- Targeting 8 - 10% total annual returns⁽¹⁾
- Investing in the future and improving efficiency
- Confident in our ability to deliver on commitments to shareowners and customers

(1) Total annual return is the combination of annual EPS growth and dividend yield.



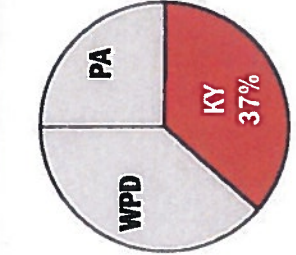


Kentucky Regulated

- Constructive jurisdiction provides a timely return on planned Cap Ex
 - Environmental Cost Recovery (ECR): \$1.5 billion estimated spend on projects approved, or subject to KPSC approval; \$0.8 billion with 10.0% ROE and \$0.7 billion with 9.8% ROE – virtually no regulatory lag
 - Other supportive recovery mechanisms
 - Return mechanisms include CWIP for ECR and Gas Line Tracker
 - Pass through clauses include Purchased Power, Fuel and Gas Supply Adjustment and Energy Efficiency/Demand Side Management recovery

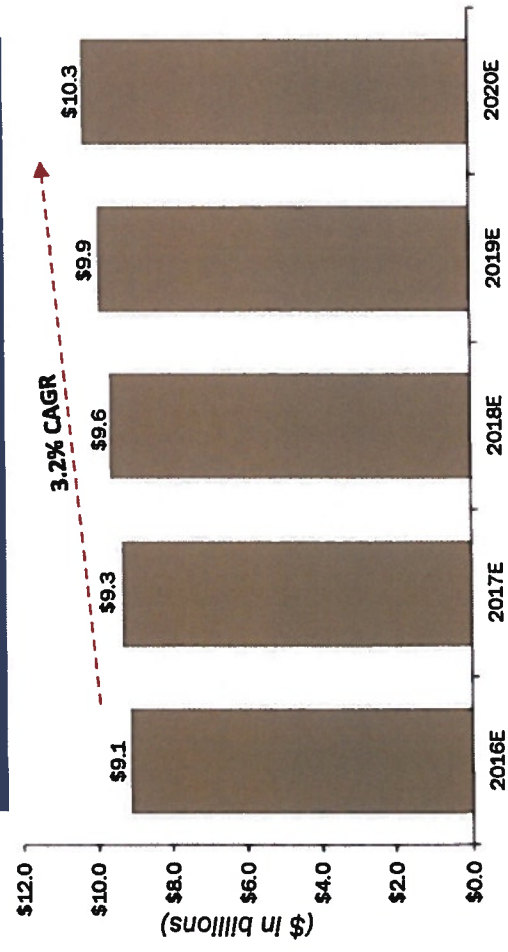
- Cap Ex plans exclude spending that may be required under the Clean Power Plan

2017E KY Regulated Rate Base



Total: \$255.0 billion

Projected Rate Base Growth



PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Jan-17	Dec-16	Nov-16	Oct-16	Sep-16	Aug-16
Alliant Energy	High Price (\$)	38.290	38.340	38.670	38.330	40.600	40.580
	Low Price (\$)	36.560	35.260	34.880	36.310	37.090	37.690
	Avg. Price (\$)	37.425	36.800	36.775	37.320	38.845	39.135
	Dividend (\$)	0.315	0.294	0.294	0.294	0.294	0.294
	Mo. Avg. Div.	3.37%	3.20%	3.20%	3.15%	3.03%	3.00%
	6 mos. Avg.	3.16%					
Ameren Corp.	High Price (\$)	53.400	52.880	51.460	50.250	51.910	52.590
	Low Price (\$)	51.350	48.320	46.970	46.840	47.790	49.150
	Avg. Price (\$)	52.375	50.600	49.215	48.545	49.850	50.870
	Dividend (\$)	0.440	0.440	0.425	0.425	0.425	0.425
	Mo. Avg. Div.	3.36%	3.48%	3.45%	3.50%	3.41%	3.34%
	6 mos. Avg.	3.42%					
Avista Corp.	High Price (\$)	40.170	43.000	42.260	41.740	43.740	43.710
	Low Price (\$)	37.880	38.690	39.210	38.990	40.380	40.300
	Avg. Price (\$)	39.025	40.845	40.735	40.365	42.060	42.005
	Dividend (\$)	0.343	0.343	0.343	0.343	0.343	0.343
	Mo. Avg. Div.	3.52%	3.36%	3.37%	3.40%	3.26%	3.27%
	6 mos. Avg.	3.36%					
Black Hills Corp.	High Price (\$)	62.700	62.830	61.900	62.070	63.790	63.870
	Low Price (\$)	60.020	57.580	54.760	56.530	57.510	56.860
	Avg. Price (\$)	61.360	60.205	58.330	59.300	60.650	60.365
	Dividend (\$)	0.420	0.420	0.420	0.420	0.420	0.420
	Mo. Avg. Div.	2.74%	2.79%	2.88%	2.83%	2.77%	2.78%
	6 mos. Avg.	2.80%					
CenterPoint Energy	High Price (\$)	26.230	24.980	24.420	23.180	24.430	24.010
	Low Price (\$)	24.450	23.570	21.910	21.830	22.270	21.970
	Avg. Price (\$)	25.340	24.275	23.165	22.505	23.350	22.990
	Dividend (\$)	0.258	0.258	0.258	0.258	0.258	0.258
	Mo. Avg. Div.	4.07%	4.25%	4.45%	4.59%	4.42%	4.49%
	6 mos. Avg.	4.38%					
CMS Energy Corp.	High Price (\$)	42.610	42.000	42.270	42.550	44.440	45.370
	Low Price (\$)	41.120	39.420	38.780	40.010	41.140	41.490
	Avg. Price (\$)	41.865	40.710	40.525	41.280	42.790	43.430
	Dividend (\$)	0.310	0.310	0.310	0.310	0.310	0.310
	Mo. Avg. Div.	2.96%	3.05%	3.06%	3.00%	2.90%	2.86%
	6 mos. Avg.	2.97%					

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Jan-17	Dec-16	Nov-16	Oct-16	Sep-16	Aug-16
Consolidated Edison	High Price (\$)	74.830	74.300	75.620	76.030	79.540	80.610
	Low Price (\$)	72.130	68.850	68.760	71.350	72.930	74.090
	Avg. Price (\$)	73.480	71.575	72.190	73.690	76.235	77.350
	Dividend (\$)	0.670	0.670	0.670	0.670	0.670	0.670
	Mo. Avg. Div.	3.65%	3.74%	3.71%	3.64%	3.52%	3.46%
	6 mos. Avg.	3.62%					
DTE Energy Co.	High Price (\$)	99.490	99.920	96.780	96.540	97.600	98.440
	Low Price (\$)	96.580	92.190	89.660	90.750	90.610	92.240
	Avg. Price (\$)	98.035	96.055	93.220	93.645	94.105	95.340
	Dividend (\$)	0.825	0.825	0.770	0.770	0.770	0.730
	Mo. Avg. Div.	3.37%	3.44%	3.30%	3.29%	3.27%	3.06%
	6 mos. Avg.	3.29%					
Eversource Energy	High Price (\$)	55.900	55.740	55.330	55.470	56.840	59.280
	Low Price (\$)	54.080	50.560	50.990	51.880	53.040	53.580
	Avg. Price (\$)	54.990	53.150	53.160	53.675	54.940	56.430
	Dividend (\$)	0.445	0.445	0.445	0.445	0.445	0.445
	Mo. Avg. Div.	3.24%	3.35%	3.35%	3.32%	3.24%	3.15%
	6 mos. Avg.	3.27%					
Exelon Corp.	High Price (\$)	36.210	36.360	34.060	34.130	35.270	37.700
	Low Price (\$)	34.800	31.770	29.820	31.680	32.860	33.610
	Avg. Price (\$)	35.505	34.065	31.940	32.905	34.065	35.655
	Dividend (\$)	0.318	0.318	0.318	0.318	0.318	0.318
	Mo. Avg. Div.	3.58%	3.73%	3.98%	3.87%	3.73%	3.57%
	6 mos. Avg.	3.74%					
Northwestern Corp.	High Price (\$)	57.880	58.080	59.130	57.760	60.710	61.320
	Low Price (\$)	55.990	54.070	54.780	53.850	56.180	57.090
	Avg. Price (\$)	56.935	56.075	56.955	55.805	58.445	59.205
	Dividend (\$)	0.500	0.500	0.500	0.500	0.500	0.500
	Mo. Avg. Div.	3.51%	3.57%	3.51%	3.58%	3.42%	3.38%
	6 mos. Avg.	3.50%					
PG&E Corp.	High Price (\$)	61.910	61.540	62.230	62.690	64.400	65.390
	Low Price (\$)	59.890	57.600	57.630	58.200	60.440	61.480
	Avg. Price (\$)	60.900	59.570	59.930	60.445	62.420	63.435
	Dividend (\$)	0.490	0.490	0.490	0.490	0.490	0.490
	Mo. Avg. Div.	3.22%	3.29%	3.27%	3.24%	3.14%	3.09%
	6 mos. Avg.	3.21%					

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Jan-17	Dec-16	Nov-16	Oct-16	Sep-16	Aug-16
Public Svc. Enterprise Gp.	High Price (\$)	44.700	44.290	43.110	42.250	44.010	46.100
	Low Price (\$)	42.860	40.720	39.280	40.380	41.070	42.250
	Avg. Price (\$)	43.780	42.505	41.195	41.315	42.540	44.175
	Dividend (\$)	0.410	0.410	0.410	0.410	0.410	0.410
	Mo. Avg. Div.	3.75%	3.86%	3.98%	3.97%	3.86%	3.71%
	6 mos. Avg.	3.85%					
SCANA Corp.	High Price (\$)	74.060	74.990	73.520	73.830	75.920	75.800
	Low Price (\$)	67.710	69.710	67.310	67.910	69.040	69.830
	Avg. Price (\$)	70.885	72.350	70.415	70.870	72.480	72.815
	Dividend (\$)	0.575	0.575	0.575	0.575	0.575	0.575
	Mo. Avg. Div.	3.24%	3.18%	3.27%	3.25%	3.17%	3.16%
	6 mos. Avg.	3.21%					
Sempra Energy	High Price (\$)	104.250	104.700	107.100	109.420	111.400	111.960
	Low Price (\$)	99.710	98.120	92.950	101.700	102.150	103.620
	Avg. Price (\$)	101.980	101.410	100.025	105.560	106.775	107.790
	Dividend (\$)	0.755	0.755	0.755	0.755	0.755	0.755
	Mo. Avg. Div.	2.96%	2.98%	3.02%	2.86%	2.83%	2.80%
	6 mos. Avg.	2.91%					
Southern Company	High Price (\$)	49.850	49.640	51.680	52.230	53.730	53.800
	Low Price (\$)	48.190	46.200	46.790	49.140	50.770	50.000
	Avg. Price (\$)	49.020	47.920	49.235	50.685	52.250	51.900
	Dividend (\$)	0.560	0.560	0.560	0.560	0.560	0.560
	Mo. Avg. Div.	4.57%	4.67%	4.55%	4.42%	4.29%	4.32%
	6 mos. Avg.	4.47%					
Vectren Corp.	High Price (\$)	55.200	53.050	51.880	50.340	52.040	52.470
	Low Price (\$)	51.500	48.410	46.520	47.000	47.870	48.560
	Avg. Price (\$)	53.350	50.730	49.200	48.670	49.955	50.515
	Dividend (\$)	0.420	0.420	0.420	0.400	0.400	0.400
	Mo. Avg. Div.	3.15%	3.31%	3.41%	3.29%	3.20%	3.17%
	6 mos. Avg.	3.26%					
WEC Energy	High Price (\$)	59.630	59.120	59.740	60.130	63.350	65.240
	Low Price (\$)	57.630	54.960	53.660	56.460	59.030	59.320
	Avg. Price (\$)	58.630	57.040	56.700	58.295	61.190	62.280
	Dividend (\$)	0.495	0.495	0.495	0.495	0.495	0.495
	Mo. Avg. Div.	3.38%	3.47%	3.49%	3.40%	3.24%	3.18%
	6 mos. Avg.	3.36%					

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

		Jan-17	Dec-16	Nov-16	Oct-16	Sep-16	Aug-16
Xcel Energy	High Price (\$)	41.430	41.200	41.750	41.800	43.490	44.130
	Low Price (\$)	40.040	38.220	38.000	39.080	40.340	41.070
	Avg. Price (\$)	40.735	39.710	39.875	40.440	41.915	42.600
	Dividend (\$)	0.340	0.340	0.340	0.340	0.340	0.340
	Mo. Avg. Div.	3.34%	3.42%	3.41%	3.36%	3.24%	3.19%
	6 mos. Avg.	3.33%					
Monthly Avg. Dividend Yield		3.42%	3.48%	3.51%	3.47%	3.37%	3.32%
6-month Avg. Dividend Yield		3.43%					

Source: Yahoo! Finance

PROXY GROUP
DCF Growth Rate Analysis

<u>Company</u>	(1) Value Line <u>DPS</u>	(2) Value Line <u>EPS</u>	(3) Value Line <u>B x R</u>	(4) <u>Zacks</u>	(5) First Call/ <u>IBES</u>
Alliant Energy Corporation	4.50%	6.00%	5.50%	5.50%	6.00%
Ameren Corp.	4.00%	6.00%	3.50%	6.50%	5.85%
Avista Corporation	3.00%	3.00%	2.50%	N/A	5.65%
Black Hills Corp.	6.00%	7.50%	5.00%	6.20%	7.56%
CenterPoint Energy, Inc.	4.50%	2.00%	2.50%	5.00%	6.63%
CMS Energy Corp.	6.50%	6.00%	5.50%	6.00%	7.60%
Consolidated Edison	3.00%	3.00%	3.00%	3.10%	2.02%
DTE Energy Co.	6.50%	6.00%	3.50%	6.00%	5.05%
Eversource Energy	5.50%	7.00%	4.50%	6.30%	5.77%
Exelon Corp.	4.00%	5.00%	4.50%	4.40%	1.47%
NorthWestern Corp.	5.50%	6.50%	4.00%	5.00%	4.34%
PG&E Corp.	7.00%	11.00%	4.00%	4.40%	5.40%
Public Service Enterprise Group	5.00%	2.50%	4.50%	2.40%	1.17%
SCANA Corp.	4.50%	4.50%	4.50%	5.70%	5.70%
Sempra Energy	7.00%	8.00%	6.00%	7.40%	6.17%
Southern Company	3.50%	4.50%	3.50%	4.10%	3.14%
Vectren Corp.	5.00%	9.00%	5.50%	5.30%	4.57%
WEC Energy	7.00%	6.00%	3.50%	6.00%	6.73%
Xcel Energy Inc.	<u>6.00%</u>	<u>5.50%</u>	<u>4.00%</u>	<u>5.40%</u>	<u>5.69%</u>
Averages	5.16%	5.74%	4.18%	5.26%	5.08%
Median Values	5.00%	6.00%	4.00%	5.45%	5.69%

Sources: Value Line Investment Survey, Dec. 16, 2016; Jan. 27 and Feb. 17, 2017
Yahoo! Finance for IBES growth rates retrieved February 14, 2017
Zacks growth rates retrieved February 14, 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>
<u>Method 1:</u>					
Dividend Yield	3.43%	3.43%	3.43%	3.43%	3.43%
Average Growth Rate	5.16%	5.74%	5.26%	5.08%	5.31%
Expected Div. Yield	<u>3.52%</u>	<u>3.53%</u>	<u>3.52%</u>	<u>3.51%</u>	<u>3.52%</u>
<i>DCF Return on Equity</i>	8.68%	9.27%	8.78%	8.59%	8.83%
<u>Method 2:</u>					
Dividend Yield	3.43%	3.43%	3.43%	3.43%	3.43%
Median Growth Rate	5.00%	6.00%	5.45%	5.69%	5.54%
Expected Div. Yield	<u>3.51%</u>	<u>3.53%</u>	<u>3.52%</u>	<u>3.52%</u>	<u>3.52%</u>
<i>DCF Return on Equity</i>	8.51%	9.53%	8.97%	9.21%	9.06%

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	9.67%
2	Risk-free Rate of Return, 20-Year Treasury Bond	
3	Average of Last Six Months	2.75%
4	Risk Premium	
5	(Line 1 minus Line 3)	6.92%
6	Comparison Group Beta	0.69
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	4.76%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.51%

5-Year Treasury Bond, Value Line Beta

1	Market Required Return Estimate	9.67%
2	Risk-free Rate of Return, 5-Year Treasury Bond	
3	Average of Last Six Months	1.92%
4	Risk Premium	
5	(Line 1 minus Line 3)	7.75%
6	Comparison Group Beta	0.69
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	5.33%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.25%

PROXY GROUP
Capital Asset Pricing Model Analysis

Supporting Data for CAPM Analyses

20 Year Treasury Bond Data

	<u>Avg. Yield</u>
August-16	1.89%
September-16	2.02%
October-16	2.17%
November-16	2.54%
December-16	2.84%
January-17	<u>2.75%</u>

6 month average 2.37%

Source: www.federalreserve.gov/datadownload/Choose.aspx?rel=H15

5 Year Treasury Bond Data

	<u>Avg. Yield</u>
August-16	1.13%
September-16	1.18%
October-16	1.27%
November-16	1.60%
December-16	1.96%
January-17	<u>1.92%</u>

6 month average 1.51%

Value Line Market Return Data:

Forecasted Data:

Value Line Median Growth Rates:	
Earnings	11.00%
Book Value	<u>7.00%</u>
Average	9.00%
Average Dividend Yield	<u>0.81%</u>
Estimated Market Return	9.85%

Value Line Projected 3-5 Yr.
 Median Annual Total Return 9.50%

Average of Projected Mkt.
 Returns 9.67%

Source: Value Line Investment Survey
 for Windows retrieved Feb. 14, 2017

Comparison Group Betas:

	<u>Value Line</u>
Alliant Energy Corporation	0.70
Ameren Corp.	0.65
Avista Corporation	0.70
Black Hills Corp.	0.90
CenterPoint Energy, Inc.	0.85
CMS Energy Corp.	0.65
Consolidated Edison	0.55
DTE Energy Co.	0.65
Eversource Energy	0.70
Exelon Corp.	0.70
NorthWestern Corp.	0.70
PG&E Corp.	0.65
Public Service Enterprise Group	0.70
SCANA Corp.	0.65
Sempra Energy	0.80
Southern Company	0.55
Vectren Corp.	0.75
WEC Energy	0.60
Xcel Energy Inc.	0.60

Average 0.69

Source: Value Line Investment Survey

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%	6.03%
Comparison Group Beta, Value Line	<u>0.69</u>	<u>0.69</u>	<u>0.69</u>
Beta * Market Premium	3.43%	4.81%	4.14%
Current 20-Year Treasury Bond Yield	<u>2.37%</u>	<u>2.37%</u>	<u>2.37%</u>
CAPM Cost of Equity, Value Line Beta	<u>5.80%</u>	<u>7.18%</u>	<u>6.51%</u>

Source: 2016 SBBI Yearbook, Stocks, Bonds, Bills, and Inflation, Duff and Phelps; pp. 2-6, 6-17, 10-30