COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES, A CERTIFICATE PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE YEAR SURCREDIT	)	**CASE NO. 2020-00349**

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES, A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE YEAR SURCREDIT	)	**CASE NO. 2020-00350**

DIRECT TESTIMONY AND EXHIBITS OF RICHARD A. BAUDINO

ON BEHALF OF

THE KENTUCKY OFFICE OF THE ATTORNEY GENERAL
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA
MARCH 2021

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

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APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES, A CERTIFICATE PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE YEAR SURCREDIT	)	**CASE NO. 2020-00349**

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DIRECT TESTIMONY OF RICHARD A. BAUDINO

I. QUALIFICATIONS AND SUMMARY

Q. Please state your name and business address.

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

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

A. I am a consultant with Kennedy and Associates.

Q. Please describe your education and professional experience.

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

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

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

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

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Kentucky Office of the Attorney General ("AG") and the Kentucky Industrial Utility Customers, Inc. ("KIUC").

Q. What is the purpose of your Direct Testimony?

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

Q. Please summarize your conclusions and recommendations.

A. Based on current financial market conditions, I recommend that the Kentucky Public Service Commission ("KPSC" or "Commission") adopt a 9.0% return on equity for LGE/KU in this proceeding, based on a ROE range of 8.60% - 9.30%. The analyses upon which I base my recommended ROE are presented in Section III of my Direct Testimony. My recommendation is primarily based on the results of a Discounted Cash Flow ("DCF") model analysis. My DCF analysis incorporates my standard approach to estimating the investor required return on equity and employs a group of 16 proxy companies and dividend and earnings growth forecasts from the Value Line Investment Survey, Yahoo! Finance, and Zacks. My recommended 9.0% ROE fully incorporates financial market data and current economic conditions, including the ongoing economic impact of the COVID-19 pandemic as well as the prevailing low interest rate environment. I will provide more detailed information and analyses on economic conditions generally in Section II of my Direct Testimony.

My experience before the KPSC indicates that the Commission considers multiple methods in determining the allowed ROE for the utilities it regulates. So in order to further support the reasonableness of my DCF analyses, I also included two Capital Asset Pricing Model ("CAPM") analyses that employed both forward-looking and

historical market risk premiums. I did not directly incorporate the results of the CAPM in my recommendation, although the range of results from the CAPM supports my ROE recommendation for the Companies. In fact, the CAPM results are lower than my DCF results in this proceeding. In the recommendation portion of Section III, I will also discuss the risk premium model submitted by Mr. McKenzie and demonstrate that its results tend to support my recommended 9.0% ROE for LGE/KU.

In Section III, I will also discuss the Companies' inclusion of new long-term debt in their forecasted test years. The new debt included by the Companies carries a requested coupon rate of 3.70%. The coupon rates for this forecasted new debt are unreasonably high and should be rejected by the Commission. Based on the Moody's average utility bond yield on February 25, 2021, I recommend that the coupon rates for LGE/KU's new debt for the forecasted test year be reduced to 3.40%.

In Section IV, I will respond to the testimony and ROE recommendation of Mr. McKenzie. I will demonstrate that his recommended ROE of 10.0% significantly overstates the investor required return for lower risk regulated electric utilities like LGE/KU and is inconsistent with today low interest rate environment. A 10.0% ROE would inflate the Companies' revenue requirement and contribute to an unnecessary additional rate increase for Kentucky ratepayers. Compared to the AG/KIUC recommended ROE of 9.0%, a 10.0% ROE would increase the revenue requirement for LGE's electric operations by $24.7 million per year and for KU by $37.3 million per year based on each Company's requested capital structure and rate base. This is especially important when one considers the difficult economic environment facing

Kentucky ratepayers today. Ratepayers should support a fair rate of return to the Companies and not be burdened with excessive costs from an inflated 10.0% ROE.

II. REVIEW OF ECONOMIC AND FINANCIAL CONDITIONS

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

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

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

The key determinant in deciding whether to invest, however, is based on comparative levels of risk. Our hypothetical investor would not invest in a particular electric company stock if it offered a return lower than other investments of similar risk. The opportunity cost simply would not justify such an investment. Thus, the task for the

rate of return analyst is to estimate a return that is equal to the return being offered by other risk-comparable firms.

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

A. Yes. The common stock of regulated utilities is considered to be interest rate sensitive. This means that the cost of equity for regulated utilities tends to rise and fall with changes in interest rates. For example, as interest rates rise, the cost of equity will also rise, and vice versa when interest rates fall. This relationship is due in large part to the capital intensive nature of the utility industry, which relies heavily on both debt and equity to finance its regulated investments.

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

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

> Monetary policy in the United States comprises the Federal Reserve's actions and communications to promote maximum employment, stable prices, and moderate long-term interest rates--the three economic goals the Congress has instructed the Federal Reserve to pursue.[1]

One of the Fed's primary tools for conducting monetary policy is setting the federal funds rate. The federal funds rate is the interest rate set by the Fed that banks and credit unions charge each other for overnight loans of reserve balances. Traditionally the federal funds rate directly influences short-term interest rates, such as the Treasury bill rate and interest rates on savings and checking accounts. The federal funds rate

[1] https://www.federalreserve.gov/monetarypolicy.htm

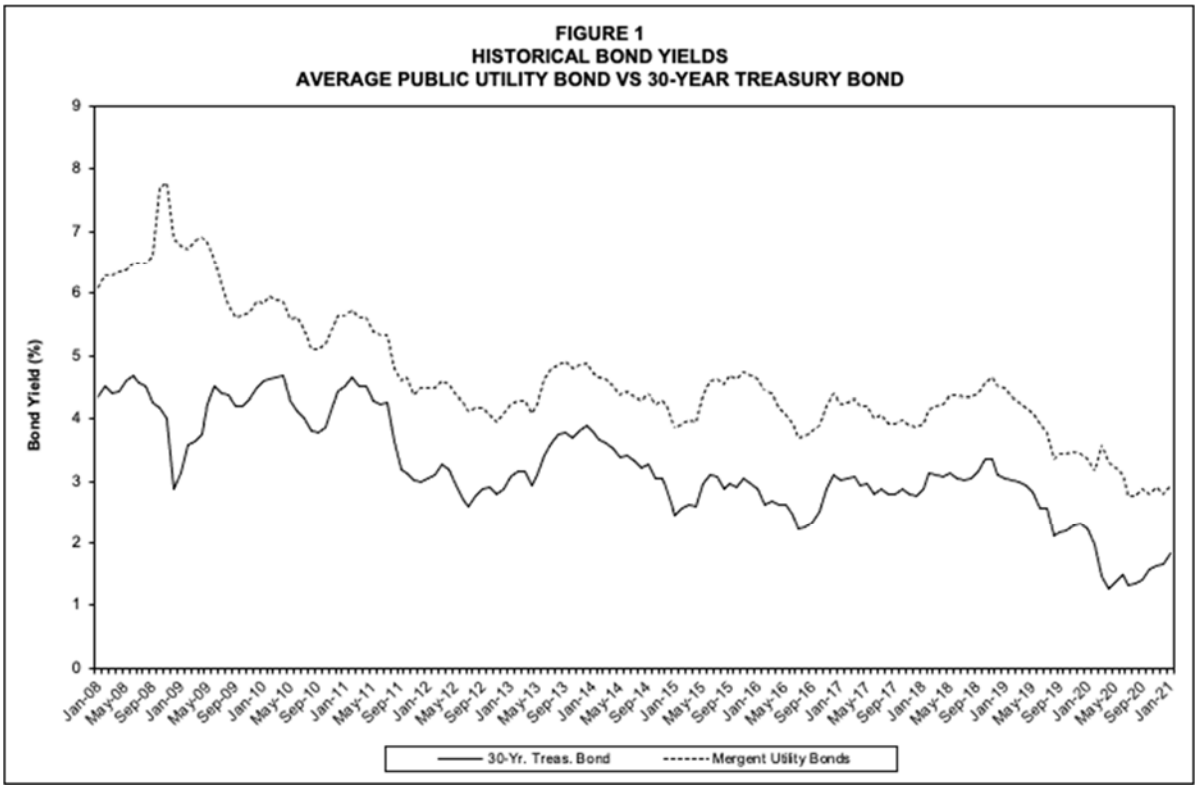
has a more indirect effect on long-term interest rates, such as the 30-Year Treasury bond and private and corporate long-term debt. Long-term interest rates are set more by market forces that influence the supply and demand of loanable funds.

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

A. Since 2007 and 2008, the overall trend in interest rates in the U.S. and the world economy has been lower and this trend continued in 2020 - 2021 as governments and central banks instituted programs in response to the economic shocks brought about by the Covid-19 pandemic. The trend of lower interest rates was precipitated by the 2007 financial crisis and severe recession that followed in December 2007. In response to this economic crisis, the Federal Reserve ("Fed") undertook an unprecedented series of steps to stabilize the economy, ease credit conditions, and lower unemployment and interest rates. These steps are commonly known as Quantitative Easing ("QE") and were implemented in three distinct stages: QE1, QE2, and QE3. The Fed's stated purpose of QE was "to support the liquidity of financial institutions and foster improved conditions in financial markets."[2]

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

[2] https://www.federalreserve.gov/monetarypolicy/bst_crisisresponse.htm



We can see from the graph in Figure 1 that since 2008, the trend in long-term bond yields has been lower. In January 2008, the yield on the 30-Year Treasury bond was 4.33% and the yield on the average public utility bond was 6.08%. As of January 2021, the 30-Year Treasury yield was 1.82% and the average utility bond yield was 2.94%. Bond yields have trended up in February and will discuss this later in my testimony.

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

A. In 2019, the Fed lowered the federal funds rate three times. On March 3, 2020, and March 15, 2020, the Fed again lowered the federal funds rate in response to mounting concerns associated with the spread of the coronavirus worldwide and the associated lockdowns of the economy. The Fed lowered the federal funds rate to 0% in March

2020. Beginning in March 2020, the Fed also announced a broad array of expansive new actions to support credit and financial markets and assistance to businesses and households. The Board of Governors of the Fed system established a new resource on its web site that contains the Fed's ongoing response to the COVID-19 pandemic.[3]

On January 27, 2021, the Fed issued its most recent statement regarding its continued support of the U.S. economy and on maintaining the federal funds rate near 0%:

"The Federal Reserve is committed to using its full range of tools to support the U.S. economy in this challenging time, thereby promoting its maximum employment and price stability goals.

The COVID-19 pandemic is causing tremendous human and economic hardship across the United States and around the world. The pace of the recovery in economic activity and employment has moderated in recent months, with weakness concentrated in the sectors most adversely affected by the pandemic. Weaker demand and earlier declines in oil prices have been holding down consumer price inflation. Overall financial conditions remain accommodative, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.

The path of the economy will depend significantly on the course of the virus, including progress on vaccinations. The ongoing public health crisis continues to weigh on economic activity, employment, and inflation, and poses considerable risks to the economic outlook.

The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved. The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time."

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

Fed Chair Jerome Powell expressed similar concerns about the U.S. economic recovery in his testimony before the Senate Banking Committee on February 23, 2021. In his remarks, he continued to emphasize that the Fed will maintain an accommodative stance and that it is "committed to using our full range of tools to support the economy and to help ensure that the recovery from this difficult period will be as robust as possible."[4]

Q. Could you show in more detail the course of Treasury and utility bond yields since the beginning of 2019?

A. Table 1 presents the yields on 30-Year Treasury and the average utility bond from January 2019 through January 2021. I included 2019 to provide the Commission with some additional perspective on the course of bond yields before and after the Fed's actions in response to the COVID-19 pandemic in March 2020.

[4] *Statement by Jerome H. Powell Chair, Board of Governors of the Federal Reserve System before the Committee on Banking, Housing, and Urban Affairs U.S. Senate February 23, 2021.*

TABLE 1
30-Year Treasury and
Avg. Utility Bond Yields
January 2019 - January 2021

	30-Year Treasury	Avg. Public Utility
Jan-19	3.04	4.48
Feb-19	3.02	4.35
Mar-19	2.98	4.26
Apr-19	2.94	4.18
May-19	2.82	4.10
Jun-19	2.57	3.93
Jul-19	2.57	3.79
Aug-19	2.12	3.36
Sep-19	2.16	3.44
Oct-19	2.19	3.45
Nov-19	2.28	3.48
Dec-19	2.30	3.45
Jan-20	2.22	3.34
Feb-20	1.97	3.16
Mar-20	1.46	3.59
Apr-20	1.27	3.31
May-20	1.38	3.22
Jun-20	1.49	3.10
Jul-20	1.31	2.77
Aug-20	1.36	2.76
Sep-20	1.42	2.88
Oct-20	1.57	2.80
Nov-20	1.62	2.89
Dec-20	1.67	2.80
Jan-21	1.82	2.94

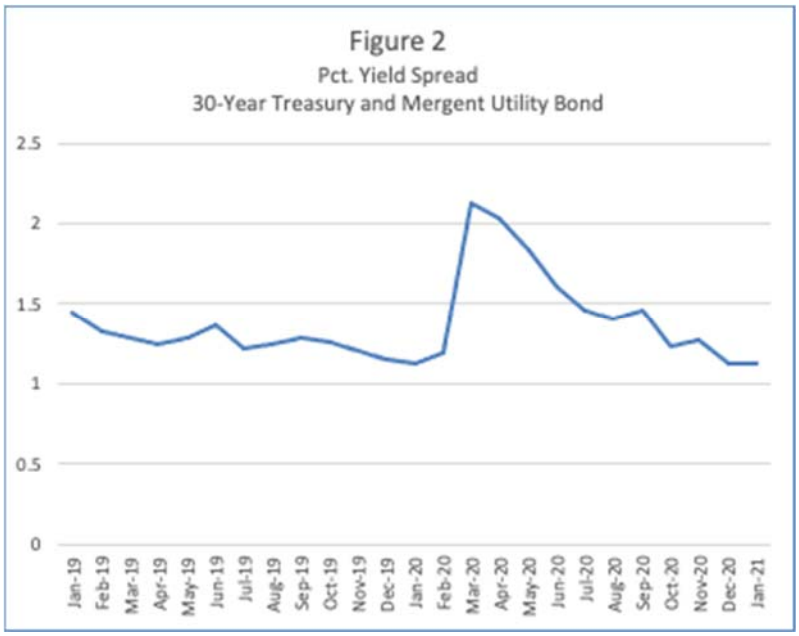
Table 1 shows the declining trend in yields through 2019. Then, in March 2020 there was a sharp divergence in the yields of Treasury and utility bond yields. The 30-Year Treasury declined substantially from 1.97% in February to 1.27% in April. Alternatively, utility bond yields went in the opposite direction, increasing from 3.16% in February to 3.59% in March, then declined through August. Both Treasury and utility bond yields increased from August 2020 through January 2021, although the January 2021 yields are lower than January 2020.

As of the preparation of my Direct Testimony in this case, interest rates continued to rise from the end of January 2021. As of February 25, 2021 the yield on the 30-Year Treasury was 2.33% and the yield on the average utility bond was 3.39%, according

to Moody's Credit Trends. These yields are fairly close to those at the end of 2019 and in January 2020.

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

A. Figure 2 below presents the percentage yield spread between 30-Year Treasury Bonds and the Mergent average utility bond from January 2019 through January 2021. Figure 2 shows that the yield spread in January 2019 was 1.44%, meaning that the average utility bond yield was 1.44% higher than the 30-Year Treasury Bond yield. The yield spread declined through 2019 and into February 2020, then spiked up to 2.13% in March and 2.03% in April. The yield spread then declined from May 2020 through January 2021, finishing January at 1.12%. The behavior of the monthly yield spreads depicted in Figure 2 suggests that the market's perception of the relative risk of regulated utility bonds increased substantially in March and April of 2020, but has subsided significantly since then.



Q. What are the expectations for inflation and interest rates?

A. The Federal Reserve Bank of Philadelphia publishes the *Survey of Professional Forecasters*, in which a panel of 39 forecasters provides projections for a number of economic variables, including growth in Gross Domestic Product, inflation, and short-term and long-term interest rates. With respect to inflation and interest rates, the Survey found the following:

- Consumer Price Index ("CPI") inflation: 2.2% per year for 2021 - 2025.
- 10-Year Treasury Bond yield increasing from 0.89% in 2020 to 1.24% in 2021 and 1.65% in 2022.

The latest consensus inflation forecasts show that inflation is expected to increase slightly above the Fed's 2.0% target level through 2020. Likewise, Treasury yields are also expected to increase from their low levels in 2020.

Q. Please summarize the impact on the stock market during the period of March 2020 through this year.

A. In March the stock market underwent a steep, sharp decline of approximately 19% as investors reacted to the economic impact of COVID-19. Utilities also declined in March, with the Dow Jones utility average declining from 886.52 on March 2 to a March low of 610.89, a decline of about 31% with substantial volatility, or changes to the index's value, within the month. In April 2020, however, the Dow Jones Industrial Average ("DJIA"), the Standard and Poor's 500 ("S&P 500") and the Dow Jones Utility Average ("DJUA") began to recover. As of February 24, 2021, the Dow Jones Utility Index stood at 825.65, representing a recovery of 35% from the March 2020 low, but is still lower than it was on March 2, 2020.

Q. Please provide the Commission with some additional background information regarding the substantial market volatility you just described.

A. A widely used measure of market volatility is the Chicago Board Options Exchange ("CBOE") Volatility Index ("VIX"), also called the "fear index" or "fear gauge." Basically, the VIX measures the market's expectations for volatility over the next 30-day period. The higher the VIX, the greater the expectation of volatility and market risk. Figure 3 below presents the VIX from February 1, 2020 through February 24, 2021.

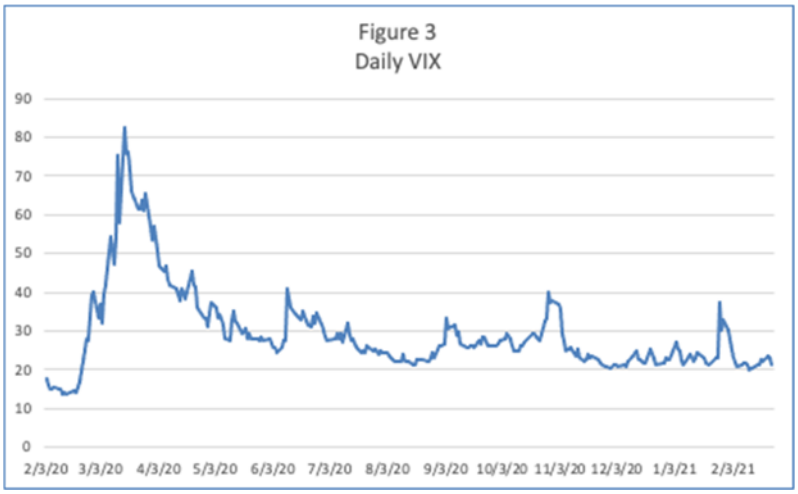


Figure 3 shows that the VIX was much lower at the beginning of February 2020 (17.97), shot up to a high of 82.69 on March 16, then generally declined through the year, with the VIX at 21.34 on February 24, 2021. Figure 3 shows us that stock market volatility has declined substantially since the March - April 2020 period, but is slightly elevated compared to February 2020. It is also elevated compared to the daily average for 2019, which was 15.39.

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

A. The February 12, 2021 Value Line Investment Survey report on the Electric Utility (East) Industry stated the following:

> As a group, electric utility stocks underperformed the broader market averages considerably in 2020. This was inevitable to some extent, following a stellar showing for most of these issues in 2019. The S&P 500 posted an 18.4% total return last year. By contrast, an index of 39 investor-owned utilities (IOUs) compiled by the Edison Electric Institute, a group representing IOUs, had a total return of -1.2%. Even the generous dividends paid by most utilities weren't enough to push the industry's total return into positive territory.
>
> During the first month of 2021, most power equities continued to decline in price. The group's average dividend yield, at 3.8%, is about twice the median of dividend-paying stocks reviewed in The Value Line Investment Survey. The board of directors of most utilities increase the payout annually, with an average growth rate of 5% for this industry. What's more, most of these issues offer 18-month total return potential that is well above the market median, and 3- to 5-year projected total returns for many stocks compare favorably with the market median, especially on a risk-adjusted basis.

Q. Please summarize the electric industry's 2020 credit rating situation as reported by the Edison Electric Institute ("EEI").

A. EEI's most recent assessment of the electric industry's credit fundamentals is contained in its publication entitled *Credit Ratings Q4 2020*, which contains data and analysis through December 31, 2020. The EEI publication noted the following with respect to the industry's credit rating through the fourth quarter of 2020:

- The electric utility industry credit remained generally strong and stable, with an average parent company credit rating of BBB+, a level that has held since 2014.
- All three ratings agencies noted that regulated utilities managed the COVID-19 pandemic well. Its impact was referenced in individual company downgrades only as an additional factor that could exacerbate an existing trend.

- On December 31, 59.1% of parent company ratings outlooks were "stable", 6.8% were "positive" or "watch positive", and 2.3% were “developing”. A relatively high 31.8% were “negative” or “watch-negative”, up from 18.2% at year-end 2019 and 23.4% at year-end 2018.
- Ratings activity slowed in 2020, with 59 rating changes compared to an annual average of 73 rating changes over the last 10 years. The industry's 12 ratings upgrades were outnumbered by 47 downgrades, making 2020 the second year since 2013 in which downgrades outnumbered upgrades.

EEI's Report noted that in April 2020, Standard and Poor's revised its ratings outlook for the North America regulated utility industry from stable to negative, with the possibility of a one-notch decline in the industry's credit rating, while also stating that it expects the industry to remain a high credit quality, investment-grade industry. In addition, EEI went on to state that Moody's and Fitch each maintained their stable outlook for electric utilities. The Report stated:

> In March, Moody’s reported that the U.S. regulated utility sector (electric, gas and water) is better positioned than many industries to withstand the economic fallout from COVID-19. In addition to benefiting from relatively stable residential customer demand, utilities can rely on a variety of cost recovery tools provided by state regulators. Moody’s stated that market volatility is the biggest risk for utilities because the sector requires external capital to meet sizeable liquidity needs.
>
> ***
>
> Fitch’s 2021 Outlook for North American Utilities, Power & Gas report (released December 2020) noted its stable outlook is based on the pandemic’s benign direct impact on the industry and a generally favorable regulatory environment. Utilities have aggressively managed O&M costs in 2020; in combination with higher residential sales, this more than offset the impact of commercial and industrial sales declines. Fitch’s stable outlook is further supported by low interest rates (given the industry’s capital-intensive nature), low commodity costs, and a likely return to modest secular sales growth as the economic recovery gains strength.[5]

[5] *Credit Ratings Q4 2020 Financial Update, Quarterly Report of the U.S. Investor-Owned Electric Utility Industry,* page 6.

Q. What has the trend been for authorized returns on equity for the electric utility industry in 2019 and 2020?

A. Table 2 below shows the quarterly average of authorized returns on equity for 2019 and 2020 as reported by EEI in its 2020 Q4 Rate Review. This data was obtained from EEI's web site.

TABLE 2
Authorized ROEs
2019 - 2020

Q1 2019	9.73
Q2 2019	9.58
Q3 2019	9.55
Q4 2019	9.70
Q1 2020	9.58
Q2 2020	9.52
Q3 2020	9.30
Q4 2020	9.32

Source: EEI Q4 Rate Review

The trend in allowed ROEs is consistent with the current low interest rate environment I described earlier in this section.

S&P Global Market Intelligence reported that the average allowed ROE for vertically integrated electric utility rate cases in 2020 was 9.55%, a decline from 9.77% in 2019.[6] The average ROE for general electric rate cases declined from 9.65% in 2019 to 9.39% in 2020. In addition, the 2020 average allowed ROE for gas distribution utilities in fully litigated cases was 9.44% and for combination electric and gas utilities was 9.45%. S&P Global Market Intelligence noted the following in its report:

[6] *RRA Regulatory Focus, Rate Case Decisions - January - December 2020,* provided in KU's February 9, 2021 Supplemental Response to Commission Staff's Second Request for Information.

"The averages in 2020 are at the lowest levels ever witnessed in the industry, and with the recent interest rate cuts by the U.S. Federal Reserve and current pandemic-induced recession, even lower authorized returns may be on the horizon."

My presentation of these recently allowed ROE does not suggest that the KPSC apply them to LGE/KU in this proceeding. Rather, the Commission should base its decision on the evidence presented in this case and not on what other Commissions have done in other states. Instead, these recently authorized ROEs indicate that the economic volatility of 2020 did not cause an increase in Commission-allowed ROEs and are consistent with the prevailing low interest rate environment I described earlier.

Q. What are the current credit ratings for LGE/KU?

A. LGE and KU are rated A3 by Moody's and A- by S&P. I note that the S&P credit rating is a notch above the BBB+ credit rating for EEI's group of 44 electric utilities. The credit ratings for the Companies have not changed since their last base rate proceeding.

Moody's update to credit analysis dated October 23, 2020[7] acknowledged its credit strengths consisting of supportive regulatory frameworks in Kentucky and Virginia as well as well as its overall stable profile and transparent and predictable cash flows. Moody's noted that the supportive regulatory environments have various tracker mechanisms that provide "timely cost recovery". Credit challenges included slightly pressured credit metrics due to a large capital investment program, high coal concentration in its generation mix, and elevated carbon transition risk relative to its

[7] Moody's credit report for KU was provided in response to AG-KIUC-1, Question No. 104, Attachment 3, Case No. 2020-00349.

peer companies. Moody's acknowledged similar credit strengths and challenges in its October 23, 2020 credit report on LGE.[8]

Q. Based on your review of the financial markets and the electric utility industry's credit fundamentals to date, what are your observations with respect to estimating the cost of equity for LGE/KU in this case?

A. Overall, the credit fundamentals of the regulated electric industry are consistent and strong, averaging a BBB+ S&P rating since 2014. LGE/KU's credit rating is higher (A-), indicating slightly less risk than the industry average. Interest rates have stayed low through 2020 and it does not appear that the economic instability from the pandemic increased investors' required returns on equity for regulated utilities. LGE/KU's ROE should reflect their low risk regulated profile as well as the current low interest rate environment.

[8] Moody's credit report for LGE was provided in response to AG-KIUC-1, Question No. 104, Attachment 3, Case No. 2020-00350

III. DETERMINATION OF FAIR RATE OF RETURN

Q. Please describe the methods you employed in estimating a fair rate of return for LGE/KU .

A. I employed a Discounted Cash Flow ("DCF") analysis using a proxy group of regulated electric utilities. My DCF analysis is my standard constant growth form of the model that employs growth rate forecasts from the following three sources: dividend and earnings growth from the Value Line Investment Survey, and earnings growth from Yahoo! Finance, and Zacks. I also employed Capital Asset Pricing Model ("CAPM") analyses using both historical and forward-looking data. Although I did not rely on the CAPM for my recommended ROE range of 8.60% - 9.30% for LGE/KU, the CAPM provides an alternative approach to estimating the ROE for the Companies, albeit a less reliable one.

In Section II of my Direct Testimony, I described the unusual circumstances surrounding the financial markets caused by the COVID-19 pandemic. In the Recommendation portion of this Section (Section III), I will offer my observations on how these highly unusual circumstances may be affecting the DCF and CAPM and will also offer my conclusions and recommendations to the Commission as to how to take these circumstances into account in setting the allowed ROE for LGE/KU in this proceeding. I will supplement my recommendation with some observations on the risk premium model presented by Mr. McKenzie.

Discounted Cash Flow ("DCF") Model

Q. Please describe the basic DCF approach.

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

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

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

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

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

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

Under the formula, it is apparent that "k" must reflect the investors' expected return. Use of the DCF method to determine an investor-required return is complicated by the

need to express investors' expectations relative to dividends, earnings, and book value over an infinite time horizon. Financial theory suggests that stockholders purchase common stock on the assumption that there will be some change in the rate of dividend payments over time. We assume that the rate of growth in dividends is constant over the assumed time horizon, but the model could easily handle varying growth rates if we knew what they were. Finally, the relevant time frame is prospective rather than retrospective.

Q. What was your first step in conducting your DCF analysis for LGE/KU?

A. My first step was to construct a proxy group of companies with a risk profile that is reasonably similar to the Companies. Since LGE/KU are subsidiaries of PPL Corp., they do not have publicly traded stock. Thus, one cannot estimate a DCF cost of equity on the Companies directly. Instead, one must estimate the ROE for a reliable proxy group of companies.

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

A. For purposes of this case, I chose to rely on the proxy group that Companies' witness McKenzie used for his analysis. Mr. McKenzie described the criteria he used to select companies for his proxy group beginning on page 24 of his Direct Testimony. These criteria are:

- Companies in Value Line's electric utility industry groups with both electric and gas utility operations.
- No cut in common dividends over the last six months and no announcement of a dividend cut since that time.
- No ongoing involvement in a major merger or acquisition.

- Credit rating screens of BBB to A+ from S&P and Baa2 to A1 from Moody's.
- Excluded utilities with a Value Line Safety Rank below "2".
- Also included Algonquin Power and Utilities, Inc. under the assumption that investors would regard this company comparable to the other companies in the proxy group. Algonquin is currently included in the Value Line "Power Industry" group of companies.

The constituent members of Mr. McKenzie's proxy group comprise a reasonable basis for purposes of estimating the ROE for the Companies. I updated the credit ratings of Mr. McKenzie's proxy group and found that all the companies still fell within the credit rating screens he recommended for S&P and Moody's. In updating the proxy group, I also eliminated the following companies:

- Avangrid, Inc.: Since Mr. McKenzie filed his Direct Testimony, Avangrid announced a planned acquisition/merger of PNM Resources. This significant acquisition now excludes Avangrid from the proxy group.
- DTE Energy: Since Mr. McKenzie filed his Direct Testimony, DTE Energy announced a spinoff of its midstream gas business into a separate company. This spinoff will result in DTE Energy deriving a significantly larger portion of its income from regulated electric and gas operations and will affect its dividend payout as well as post-spinoff earnings. Given this significant corporate restructuring, it is appropriate to exclude DTE Energy from the proxy group at this time.
- Algonquin Power and Utilities, Inc.: Algonquin does not have dividend and earnings growth projections from Value Line. When I prepared my ROE

analyses in this case in mid-February, Algonquin also did not have an earnings growth forecast from Yahoo! Finance. Further, Algonquin does not have a Safety Rank from Value Line. Given the missing data for Algonquin, I excluded this company from the proxy group at this time.

The resulting proxy group of 16 companies that I used in my analysis is shown in Table 3 below.

TABLE 3
Credit Ratings
Proxy Group and LGE/KU

	S&P	Moody's
ALLETE	BBB	Baa1
Alliant Energy Corp.	A-	Baa2
Ameren Corp.	BBB+	Baa1
Avista Corp.	BBB	Baa2
Black Hills Corp.	BBB+	Baa2
CMS Energy Corp.	BBB+	Baa1
Consolidated Edison	A-	Baa2
Duke Energy Corp.	BBB+	Baa1
Entergy Corp.	BBB+	Baa2
Eversource Energy	A-	Baa1
NorthWestern Corp.	BBB	Baa2
Public Service Enterprise Gp.	BBB+	Baa1
Sempra Energy	BBB+	Baa2
Southern Company	A-	Baa2
WEC Energy Group, Inc.	A-	Baa1
Xcel Energy	A-	Baa1
LG&E	A-	A3
KU	A-	A3

Ratings retrieved Feb. 19, 2021

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

A. I first determined the current dividend yield, D_1/P_0, from the basic equation. My general practice is to use six months as the most reasonable period over which to

estimate the dividend yield. The six-month period I used covered the months from September 2020 through February 2021. I obtained historical prices and dividends from Yahoo! Finance. The annualized dividend divided by the average monthly price represents the average dividend yield for each month in the period.

The resulting average dividend yield for the proxy group is 3.53%. These calculations are shown in Exhibit No. ___(RAB-2).

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

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

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

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

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

Zacks gathers opinions from a variety of analysts on earnings growth forecasts for numerous firms including regulated electric utilities. The estimates of the analysts responding are combined to produce consensus average estimates of earnings growth. I obtained Zacks' earnings growth forecasts from its web site. Like Zacks, Yahoo! Finance also compiles and reports consensus analysts' forecasts of earnings growth. I also obtained these estimates from Yahoo! Finance's web site.

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

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

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

Q. Columns (1) through (4) of Exhibit No. ___(RAB-3), page 1, shows the forecasted dividend and earnings growth rates from Value Line and the earnings growth forecasts from Zacks and Yahoo! Finance for the companies in the proxy group. It is important to include dividend growth forecasts in the DCF model since the model calls for forecasted cash flows and Value Line is the only source of which I am aware that forecasts dividend growth. Please note that I substituted the Yahoo! Finance earnings growth rate for the Zacks earnings growth rate for ALLETE, which was not available at the time I prepared my analyses.

Q. How did you proceed to determine the DCF return of equity for the proxy group?

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

Exhibit No. ___(RAB-3), page 2, presents my standard method of calculating dividend yields, growth rates, and return on equity for the proxy group of companies. The proxy group DCF Return on Equity section shows the application of each of four growth rates to the current group dividend yield of 3.53% to calculate the expected dividend yield. I then added the expected growth rates to the expected dividend yield. My DCF return on equity was calculated using two different methods. Method 1 uses the average growth rates for the group shown page 1 of Exhibit No. ___(RAB-3) and Method 2 utilizes the median growth rates shown on that page.

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

A. For Method 1 (average growth rates), the results range from 8.55% to 9.06%, with the average of these results being 8.80%. For Method 2 (median growth rates), the results range from 8.10% to 9.27%, with the average of these results being 8.81%.

Capital Asset Pricing Model

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

A. The theory underlying the CAPM approach is that investors, through diversified portfolios, may combine assets to minimize the total risk of the portfolio. Diversification allows investors to diversify away all risks specific to a particular company and be left only with market risk that affects all companies. Thus, the CAPM theory identifies two types of risks for a security: company-specific risk and market risk. Company-specific risk includes such events as strikes, management errors, marketing failures, lawsuits, and other events that are unique to a particular firm. Market risk includes inflation, business cycles, war, variations in interest rates, and changes in consumer confidence. Market risk tends to affect all stocks and cannot be diversified away. The idea behind the CAPM is that diversified investors are rewarded with returns based on market risk.

Within the CAPM framework, the expected return on a security is equal to the risk-free rate of return plus a risk premium that is proportional to the security's market, or non-diversifiable, risk. Beta is the factor that reflects the inherent market risk of a security and measures the volatility of a particular security relative to the overall market for securities. For example, a stock with a beta of 1.0 indicates that if the market rises by 15%, that stock will also rise by 15%. This stock moves in tandem with

movements in the overall market. Stocks with a beta of 0.5 will only rise or fall 50% as much as the overall market. So with an increase in the market of 15%, this stock will only rise 7.5%. Stocks with betas greater than 1.0 will rise and fall more than the overall market. Thus, beta is the measure of the relative risk of individual securities vis-à-vis the market.

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

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

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

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

returns lower than the market as a whole.

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

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

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

Pratt and Grabowski also stated the following with respect to the CAPM:[10]

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

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[9] *A Random Walk Down Wall Street*, Burton G. Malkiel, page 218, 2019 edition.

[10] *Cost of Capital*, Shannon Pratt and Roger Grabowski, 5th Edition, page 288, published by Wiley.

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

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

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

A. I used two approaches to estimate the market risk premium portion of the CAPM equation. One approach uses the expected return on the market and is forward-looking. The other approach employs an historical risk premium based on actual stock and bond returns from 1926 through 2019.

Q. Please describe your forward-looking approach to estimating the market risk premium.

A. The first source I used was the Value Line Investment Analyzer Plus Edition, for February 12, 2021. The Value Line Investment Analyzer provides a summary statistical report detailing, among other things, forecasted total annual return over the next 3 to 5 years. I present Value Line's projected annual returns on page 2 of Exhibit No. ___(RAB-4). I included median and average projected annual return, resulting in a range of 8.00% to 8.54%. The average of these market returns is 8.27%.

Q. Please continue with your market return analysis.

A. I also considered a supplemental check to the Value Line projected market return estimates. Duff and Phelps compiled a study of historical returns on the stock market in its *2020 Valuation Handbook - U.S. Guide to Cost of Capital*, which is now part of its Cost of Capital Navigator subscription service. Some analysts employ this historical data to estimate the market risk premium of stocks over the risk-free rate. The assumption is that a risk premium calculated over a long period of time is reflective of investor expectations going forward. Exhibit No. ___(RAB-5) presents the calculation of the market returns and market risk premiums using the historical data from Duff and Phelps.

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

A. Exhibit No. ___(RAB-5) shows the arithmetic average of yearly historical stock market returns over the historical period from 1926 – 2019. The average annual income return for the 20-year Treasury bond is subtracted from these historical stock returns to obtain the historical market risk premium of stock returns over long-term

Treasury bond income returns. The resulting historical market risk premium is 7.2%.

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

A. Yes. Duff and Phelps reported the results of a study by Dr. Roger Ibbotson and Dr. Peng Chen indicating that the historical risk premium of stock returns over long-term government bond returns has been significantly influenced upward by substantial growth in the price/earnings ("P/E") ratio.[11] Duff and Phelps noted that this growth in the P/E ratio for stocks was subtracted out of the historical risk premium to arrive at an adjusted "supply side" historical arithmetic market risk premium is 6.17%, which I have also included in Exhibit No. ___(RAB-5).

Q. How did you determine the risk free rate?

A. I used two different measures for the risk-free rate. The first measure is the average 30-year Treasury Bond yield for the six-month period from September 2020 through February 25, 2021. This represents a current measure of the risk-free rate based on actual current Treasury yields, which is 1.74%.

The second measure comes from Duff and Phelps' most recent "normalized" risk-free rate of December 9, 2020.[12] Duff and Phelps developed this normalized risk-free rate using its measure of the "real risk free rate" and expected inflation. The Duff and Phelps normalized risk-free rate is 2.5%. I note that this updated normalized risk-free rate was lowered from 3.0%, which was in effect prior to June 30, 2020.

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[11] *2019 Cost of Capital: Annual U.S. Guidance and Examples,* Duff and Phelps, Cost of Capital Navigator, Chapter 3, pp. 45 - 47.

[12] https://www.duffandphelps.com/-/media/cost-of-capital/duff-and-phelps-recommended-us-equity-risk-premium-decreased-december-2020.pdf

Q. Please summarize your calculated market risk premium estimates with the forward-looking data from Value Line and the historical Duff and Phelps equity risk premiums.

A. My market risk premiums from Exhibit Nos. ___(RAB-4) and (RAB-5) are as follows:

- Forward-looking risk premiums 5.77% - 6.53%
- Historical risk premium 6.17% - 7.20%

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

Q. How did you determine the value for beta?

A. I obtained the betas for the companies in the proxy group from most recent Value Line reports. The average of the Value Line betas for the proxy group is 0.88.

Q. Mr. Baudino, have the Value Line betas for regulated utility companies increased since the start of the pandemic?

A. Yes, the betas for the companies in the proxy group have all increased substantially. As Mr. McKenzie noted on page 22 of his Direct Testimony, prior to the pandemic the average beta for his proxy group was 0.56, compared to the most recent average beta of 0.87.

Q. Please provide the Commission with your view on the sharp increases in the betas for regulated utilities since the beginning of the pandemic.

A. In my view, the sharp increase in betas for the companies in the proxy group was influenced by the extreme market volatility due to the COVID-19 pandemic. It is likely these increases were due to greater volatility in the stock prices for regulated

electric utilities relative to the movement of the market in general compared to the betas prior to the pandemic. The question before us now is whether investors believe that regulated electric utilities are substantially more risky than they were before the volatile period since March 2020. I believe the sharp increase in betas could be a short-term phenomenon and, as such, I would not advise placing significant reliance on current betas at this time. Prior history of lower utility betas suggests caution with respect to their current betas. I believe it is highly unlikely that substantial increases in betas for electric utilities since the pandemic is accurate and reliable or is necessarily reflective of investor expectations over the longer term. Moreover, the increase in the average beta factor for the proxy group underscores the shortcomings of the CAPM that I described in detail earlier in my Direct Testimony. Nevertheless, I will employ the Value Line betas at this time, keeping in mind that they should be used with caution.

Q. Please summarize the CAPM results.

A. For my forward-looking CAPM return on equity estimates, the CAPM results range from 7.51% to 7.60%. Using historical risk premiums, the CAPM results range from 7.19% to 8.87%.

Conclusions and Recommendations

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

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

TABLE 4
SUMMARY OF ROE ESTIMATES

DCF Methodology	
Average Growth Rates	
- High	9.06%
- Low	8.55%
- Average	8.80%
Median Growth Rates:	
- High	9.27%
- Low	8.10%
- Average	8.81%
CAPM Methodology	
Forward-lookng Market Return:	
- Current 30-Year Treasury	7.51%
- D&P Normalized Risk-free Rate	7.60%
Historical Risk Premium:	
- Current 30-Year Treasury	7.19% - 8.11%
- D&P Normalized Risk-free Rate	7.96% - 8.87%

Q. What is your recommended return on equity range for LGE/KU?

A. I recommend that the KPSC adopt a ROE range of 8.60% - 9.30% for LGE/KU, with my recommended ROE for the Companies of 9.0%. My recommendation is consistent with the DCF results and exceeds the range of my CAPM results as well.

With respect to the DCF model, the ROE result using Value Line's forecasted median dividend growth (8.10%) is significantly lower than the results using forecasted earnings growth rates, especially the consensus analysts' forecasts from Zacks and Yahoo! Finance. My recommended ROE range of 8.60% - 9.30% thus reflects the range of earnings growth forecasts as shown in Exhibit No. ___(RAB-3), page 2.

Looking further into the DCF, the six-month average dividend yield of 3.53% is reasonably representative of investor expectations in the current market environment. As I demonstrated in my Figure 3, stock market volatility has substantially decreased

from March and April of 2020, although it is still slightly elevated from the beginning of 2020. In addition, current interest rates are still low despite recent increases in bond yields in February 2021. These considerations do not support an increase in the ROE from pre-pandemic levels.

Q. Earlier in your Direct Testimony, you stated that you also considered Mr. McKenzie's risk premium analysis. Please explain your consideration of the risk premium model in this case.

A. It is my understanding that the KPSC considers multiple models in determining its allowed ROE for the utilities it regulates. The risk premium model has shortcomings that I will describe a bit later and, as such, I do not rely on it for my recommendations to the Commission. However, I am presenting the model developed by Mr. McKenzie with some appropriate adjustments in order to provide the Commission with some additional information regarding ROE. In this particular case, Mr. McKenzie's modified risk premium ROE result tends to support my recommended ROE for the Companies.

Q. Please describe Mr. McKenzie's risk premium model.

A. Mr. McKenzie developed an historical risk premium using Commission-allowed returns for regulated utility companies from 1974 through 2019. He also used regression analysis to estimate the value of the inverse relationship between interest rates and risk premiums during that period. On page 60 of his Direct Testimony, Mr. McKenzie calculated the risk premium ROE to be 9.27% using the current yield on Baa utility bonds of 3.37%. Using a forecasted utility bond yield of 4.79%, the resulting risk premium ROE was 10.22%.

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

A. Generally, the bond yield plus risk premium approach is imprecise and can only provide very general guidance on the current authorized ROE for a regulated electric utility. Risk premiums can change substantially over time and with varying risk perceptions of investors. In my view, a properly formulated DCF model using current stock prices and growth forecasts is far more reliable and accurate than the bond yield plus risk premium approach, which relies on an historical risk premium analysis over a certain period of time.

Furthermore, Mr. McKenzie's 10.22% risk premium ROE was inflated by using a forecasted utility bond yield of 4.79%. This bond yield is grossly overstated and exceeds the February 25, 2021 Moody's average utility bond yield of 3.39% by 140 basis points, or 1.40%. Looking at this another way, Mr. McKenzie's forecasted 4.79% Baa utility bond yield is 41% higher than the current average utility bond yield.

Q. What would Mr. McKenzie's risk premium ROE result be using the current 3.39% average utility bond yield?

A. I calculate that the risk premium ROE using Mr. McKenzie's methodology would be 9.13%. Please refer to Exhibit No. ___(RAB-6) for the supporting calculations. The result here is reasonably consistent with my recommended ROE for the Companies of 9.0%. It does not support Mr. McKenzie's recommended ROE of 10.0%.

Q. On page 8 of his Direct Testimony, Mr. McKenzie cited the Commission's recent orders in LGE/KU's environmental surcharge cases, which concluded that the prior authorized ROE of 9.725% was "an unnecessarily high rate." Does the evidence you provide in this case support a lower ROE for LGE/KU in this case?

A. Yes, most definitely. None of the ROE analyses I provided in this case support a ROE close to 9.75%, much less the 10.0% ROE being sought by the Companies. Due to currently low interest rates and the financial markets in general, LGE/KU's ROE is clearly directionally lower than its allowed ROE in the Companies' last rate cases.

Moreover, I would cite to the Commission's January 13, 2021 Order in Kentucky Power Company's ("KPCo") rate case, Case No. 2020-00174. The Commission found that a 9.30% ROE was just and reasonable for KPCo in that Order. The Commission also approved KPCo's requested common equity ratio of 43.25%. This compares to LGE/KU's requested 53% common equity ratios in this case. Given recent KPSC Orders with respect to ROE, I believe my recommended return on equity for the Companies of 9.0% is consistent with those Orders. Mr. McKenzie's 10.0% recommendation is not.

Q. Do you agree with LGE/KU's requested capital structure?

A. I agree with the Company's requested common equity ratio of 53.23% for KU and 53.19% for LGE. Mr. Kollen, witness on behalf of AG and KIUC, will address the application of the Companies' requested capital structure to rate base and revenue requirements in his Direct Testimony.

Q. Did LGE/KU request inclusion of new long-term debt in their forecasted test years?

A. Yes. Both companies included new long-term debt with forecasted coupon rates of 3.70% in their capital structures for the forecasted test years. LGE included a projected issuance of $300 million and KU included a projected issuance of $200 million.

Q. Is the forecasted coupon rate of 3.70% for these new long-term debt issues reasonable?

A. No. I described earlier in my testimony that 2020 and early 2021 continued a trend of low interest rates, although in February 2021 bond yields have increased from January levels. In 2021, the average utility bond yield ranged from 2.76% to 3.59%, the upper bound being influenced in March 2020 by volatility and uncertainty regarding the pandemic. The Moody's average utility bond yield on February 25, 2021 was 3.39%, an increase from 2.94% in January of this year. Furthermore, KU's Schedule J-3 showed that the Company issued new long-term debt on June 3, 2020 at a coupon rate of 3.30%. Given the coupon rate of this newest debt as well as current long-term debt yields for regulated utilities, the Companies' requested coupon rates of 3.70% for new debt in the forecasted test years is unreasonable and should be rejected by the Commission.

Q. What is your recommended coupon rate for LGE/KU's forecasted long-term debt?

A. I recommend the Commission adopt a coupon rate of 3.40% for LGE/KU's new debt in the forecasted test years. This recommendation is based on the most recent actual Moody's yield for average utility bonds. The Companies' requested coupon rates of 3.70% are excessive, not based on actual current yields for utility bonds, and would result in higher costs for Kentucky ratepayers.

IV. RESPONSE TO LGE/KU TESTIMONY

Q. Have you reviewed the Direct Testimony of Mr. McKenzie?

A. Yes.

Q. Please summarize your conclusions with respect to his testimony and return on equity recommendation.

A. Mr. McKenzie's recommended 10.0% return on equity is overstated and inconsistent with the current financial market evidence and the low interest rate environment I have described earlier in my Direct Testimony. As I shall demonstrate later in this section of my testimony, Mr. McKenzie made judgments that served to inflate his ROE results, particularly for the DCF and CAPM.

DCF Model

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

A. Mr. McKenzie began his presentation of his DCF model approach on page 36 of his Direct Testimony. In Section III of my Direct Testimony I described Mr. McKenzie's selection criteria for his proxy group. I generally agreed with his selection of companies, except for Algonquin, and eliminated Avangrid and DTE Energy because the circumstances for those companies changed since Mr. McKenzie filed his Direct Testimony. Mr. McKenzie used several sources of growth rate forecasts, which included IBES, Zacks, and Value Line as well as an estimate of sustainable growth. I agree with Mr. McKenzie's use of analysts' forecasts for earnings growth, although I did not use the sustainable growth calculation. I also used Value Line's dividend growth projection.

In his Exhibit No. 4, page 3 of 4, Mr. McKenzie adjusted his DCF ROE results by excluding certain company ROE results that, in his view, were too low. These ROE results ranged from 4.9% to 6.4%. Mr. McKenzie did not exclude any ROE results that were too high and saw fit to include ROE results ranging from 11.8% to 13.6%. After making these low-end exclusions, his resulting DCF range was 8.3% to 9.2% using an average of the remaining results. The midpoints ranged from 8.9% to 10.2%.

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

A. Mr. McKenzie conducted a highly 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 are excessively high. For example, the average Commission-allowed ROE for 2019 that was reported by Mr. McKenzie in his Exhibit No. 8, page 3 of 4, was 9.64%. However, Mr. McKenzie included ROEs in his Exhibit No. 4 that are 216 - 396 basis points higher than 9.64%. My review of the Commission allowed returns contained in Mr. McKenzie's Exhibit No. 8 reveals that 2003 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. In 1989, the average public utility bond yield reported by Mr. McKenzie was 9.66%, almost three times as high as the current average public utility bond yield.

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

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

A. Yes. Table 5 below presents the average and median ROEs utilizing all the DCF results from Mr. McKenzie's Exhibit No. 4, page 3 of 4.

TABLE 5
McKenzie ROE Results

Company	V Line	IBES	Zacks	br+sv Growth
Algonquin Pwr & Util	n/a	10.0%	12.2%	n/a
ALLETE	9.3%	11.8%	n/a	8.0%
Alliant Energy	8.4%	8.2%	8.4%	7.6%
Ameren Corp.	8.6%	8.6%	9.5%	8.6%
Avangrid, Inc.	7.5%	8.1%	8.8%	4.9%
Avista Corp.	5.7%	10.5%	9.8%	7.7%
Black Hills Corp.	7.6%	8.8%	9.8%	7.9%
CMS Energy Corp.	10.3%	9.9%	9.8%	10.0%
Consolidated Edison	7.1%	6.7%	6.1%	7.5%
DTE Energy Co.	9.7%	9.7%	9.4%	9.0%
Duke Energy Corp.	9.6%	6.2%	7.7%	7.7%
Entergy Corp.	6.8%	9.2%	9.3%	8.7%
Eversource Energy	8.3%	9.2%	9.4%	7.5%
NorthWestern Corp.	6.4%	8.7%	8.3%	7.6%
Pub Sv Enterprise Grp.	8.7%	5.2%	7.2%	8.9%
Sempra Energy	13.6%	9.9%	11.0%	10.9%
Southern Company	7.8%	9.4%	8.8%	8.5%
WEC Energy Group	8.8%	8.7%	8.7%	6.9%
Xcel Energy Inc.	8.5%	8.4%	8.4%	7.6%
Average	8.5%	8.8%	9.0%	8.1%
Median	8.5%	8.8%	9.0%	7.8%

Rather than excluding certain low-end results and keeping implausibly high results as Mr. McKenzie recommended, I recommend that the median be used as an alternative measure of central tendency. The median value is not affected by extremely high or low ROE results, but instead represents the middle value of the data set. If there are concerns about results that are either too high or too low, the median may be used as an additional reference for the investor required ROE.

Table 5 shows that when all results are considered, the average and median results from Mr. McKenzie's Exhibit No. 4 are closer to my DCF results for the proxy group.

Q. Mr. McKenzie applied a low-end threshold adjustment based on Orders from the Federal Energy Regulatory Commission ("FERC") as well as a risk premium

adjustment that purports to incorporate lower current bond yields. Should the Commission adopt this adjustment?

A. No. Selectively eliminating so-called low-end DCF results without any consideration of also eliminating implausibly high results will lead to an outcome that is upwardly biased and overstated. I strongly recommend that the Commission reject Mr. McKenzie's flawed approach.

CAPM and ECAPM

Q. Beginning on page 52 of his Direct Testimony, Mr. McKenzie described the Empirical CAPM ("ECAPM") analysis he employed as an alternative to the traditional CAPM. Is this a reasonable method to use to estimate the investor required ROE for LGE/KU?

A. No. The ECAPM is designed to account for the possibility that the CAPM understates the return on equity for companies with betas less than 1.0. Mr. McKenzie explained on page 53 of his Direct Testimony how he applied the adjustment to his CAPM data, which was based on the formula included in *New Regulatory Finance* by Dr. Roger Morin.

The argument that an adjustment factor is needed to "correct" the CAPM results for companies with betas less than 1.0 is further evidence of the lack of accuracy inherent in the CAPM itself and with beta in particular, as I pointed out in Section III of my Direct Testimony. The ECAPM adjustment also suggests that published betas by such sources as Value Line are incorrect and that investors should not rely on them in formulating their estimates using the CAPM. In fact, Mr. McKenzie testified on page 50, lines 21 through 23 of his Direct Testimony that Value Line is "the most widely referenced source for beta in regulatory proceedings." Finally, although Mr.

McKenzie cited the source of the ECAPM formula he used, he provided no evidence that investors favor this version of the ECAPM over the standard CAPM.

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

A. I disagree with Mr. McKenzie's general formulation of the CAPM and ECAPM and in particular with his estimate of the expected market return. He estimated the market return portion of the CAPM and ECAPM by estimating the current market return for dividend paying stocks in the S&P 500. This reduced the number of companies in his market return calculation to only 379. The market return portion of the CAPM should represent the most comprehensive estimate of the total return for all investment alternatives, not just a small subset of publicly traded stocks that pay dividends. In practice, of course, finding such an estimate is difficult and is one of the thornier problems in estimating an accurate ROE when using the CAPM. If one limits the market return to stocks, then there are more comprehensive measures of the stock market available, such as the Value Line Investment Survey that I used in my CAPM analysis. Value Line's projected annual percentage return included 1,644 stocks. This is a substantially broader sample than Mr. McKenzie's limited sample of dividend paying stocks from the S&P 500.

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

A. Yes. My forward-looking market returns show an expected return on the market of 8.0% - 8.54%, far less than the 11.6% expected return result for the limited sample of companies Mr. McKenzie used for his ECAPM and CAPM market return.

Q. Beginning on page 51 of his Direct Testimony, Mr. McKenzie explained that he incorporated a size adjustment to his CAPM and ECAPM results. This increased his average CAPM results by about 50 basis points, or 0.50%. Is this size adjustment appropriate?

A. No. The data that Mr. McKenzie relied upon to make this adjustment came from the 2020 Decile Size Study - Supplementary Data Exhibits, Cost of Capital Navigator published by Duff and Phelps. The groups of companies from which he took this significant upward adjustment to his CAPM and ECAPM results contain many unregulated companies. Further, the decile groups from which these adjustments were taken had average betas ranging from 0.92 to 1.17[13]. These betas are greater than my utility proxy group average beta of 0.88, indicating that the unregulated companies that Mr. McKenzie used to make his size adjustment are riskier than regulated utilities. There is no evidence to suggest that the size premium used by Mr. McKenzie applies to regulated utility companies, which on average are quite different from the group of companies included in the Duff and Phelps research on size premiums. I recommend that the Commission reject Mr. McKenzie's size premium in the CAPM and ECAPM ROE.

Expected Earnings Approach

Q. Beginning on page 65 of his Direct Testimony, Mr. McKenzie presented an expected earnings approach based on expected returns on equity using Value Line's rates of return on common equity for electric utilities over its forecast horizon. Is this a reasonable method for estimating the current required return on equity in this proceeding?

[13] Duff and Phelps, 2020 *CRSP Deciles Size Study - Supplementary Data Exhibits*, Cost of Capital Navigator.

A. No. The Commission should not rely on forecasted utility ROEs for the same reasons that it should not rely on interest rate forecasts. These forecasted ROEs have little value in today's market, especially considering that current DCF returns are significantly lower than these forecasts. Recent allowed ROEs for electric utilities averaged 9.60% in 2018 and 9.64% in 2019. EEI also reported in its 2020 4th Quarter Rate Review that the average allowed ROEs for the four quarters of 2020 were 9.58%, 9.52%, 9.30%, and 9.32%. Compare these actual allowed ROEs to the adjusted return on common equity in Mr. McKenzie's expected earnings model in his Exhibit No. 9, which range from 10.4% to 10.9%. The adjusted expected ROEs presented by Mr. McKenzie are so far removed from recent allowed returns that the Commission should reject them out of hand.

Flotation Costs

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

A. No. Mr. McKenzie recommended that the Commission consider adding an adjustment of 10 basis points to recognize flotation costs. A flotation cost adjustment attempts to recognize and collect the costs of issuing common stock. Such costs typically include legal, accounting, and printing costs as well as well as broker fees and discounts.

In my opinion, it is likely that flotation costs are already accounted for in current stock prices and that adding an adjustment for flotation costs amounts to double counting. A DCF model using current stock prices should already account for investor expectations regarding the collection of flotation costs. Multiplying the dividend yield by a 4%

flotation cost adjustment, for example, essentially assumes that the current stock price is wrong and that it must be adjusted downward to increase the dividend yield and the resulting cost of equity. This is an appropriate assumption regarding investor expectations. Current stock prices most likely already account for flotation costs, to the extent that such costs are even accounted for by investors.

Non-Utility Benchmark

Q. Beginning at page 72 of his 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/KU?

A. No. Mr. McKenzie's inclusion of unregulated non-utility companies as a consideration in evaluating the fair rate of return for LGE/KU is inappropriate and should be rejected by the Commission.

Utilities have protected markets, e.g. service territories, and may increase the prices they charge in the face of falling demand or loss of customers. They also have the ability to raise prices in the face of the current COVID-19 pandemic, a luxury that many industries certainly do not have. This is contrary to competitive, unregulated companies who often lower their prices when demand for their products decline. Obviously, the non-utility companies face risks that lower risk electric companies like LGE/KU do not face. As a consequence, non-utility companies will have higher required returns from their shareholders. The average DCF results for Mr. McKenzie's non-utility group range from 9.6% - 10.3%. The midpoint results range from 9.8% - 10.2%. These results are higher than the utility proxy group DCF results for both myself and Mr. McKenzie and shows that investors expect higher returns for this group

of unregulated companies.

Although Mr. McKenzie stated that he did not directly consider the non-utility group DCF results in arriving at this recommendation, he stated that it was "an important benchmark in evaluating a fair ROE for LGE/KU." (McKenzie Direct Testimony, page 76, Lines 20). I disagree. The relevant consideration should be the DCF results for the proxy group that I employed in my analysis.

Q. Does this complete your Direct Testimony?

A. Yes.

AFFIDAVIT

STATE OF GEORGIA)

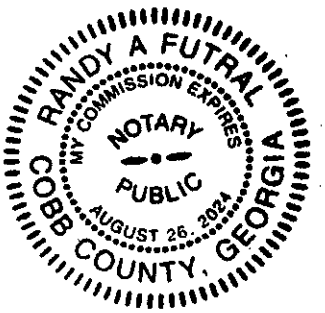
COUNTY OF FULTON)

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
4th day of March 2021.

Notary Public



COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES, A CERTIFICATE PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE YEAR SURCREDIT	)	**CASE NO. 2020-00349**

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES, A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE YEAR SURCREDIT	)	**CASE NO. 2020-00350**

EXHIBITS OF RICHARD A. BAUDINO

ON BEHALF OF

THE KENTUCKY OFFICE OF THE ATTORNEY GENERAL
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

J. KENNEDY AND ASSOCIATES, INC.
ROSWELL, GEORGIA

MARCH 2021

RESUME OF RICHARD A. BAUDINO

EDUCATION

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

New Mexico State University, B.A.
Economics
English

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

REGULATORY TESTIMONY

Preparation and presentation of expert testimony in the areas of:

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

RESUME OF RICHARD A. BAUDINO

EXPERIENCE

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

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

CLIENTS SERVED

Regulatory Commissions

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

Other Clients and Client Groups

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

Expert Testimony Appearances
of
Richard A. Baudino
As of March 2021

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

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

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

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

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

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

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

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

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Date	Case	Jurisdict.	Party	Utility	Subject
05/2019	19-0513-TF	VT	Vt. Dept. of Public Service	Vermont Gas Systems	Return on equity, capital structure
06/2019	5-TG-100	WI	Wisconsin Industrial Energy Group	WEPCO, Wisconsin Gas, Wisconsin PS	Transportation and balancing issues
07/2019	49494	TX	Cities Served by AEP Texas	AEP Texas, Inc.	Return on equity, capital structure
08/2019	19-G-0309 19-G-0310	NY	City of New York	Brooklyn Union Gas Co.., KeySpan Gas East Corp.	Cost and revenue allocation, rate design, tariff issues and modifications
08/2019	19-0316-G-42T	WV	West Virginia Energy Users Gp.	Mountaineer Gas Company	Cost and revenue allocation
8/2019	5-UR-109	WI	Wisconsin Industrial Energy Gp.	Wisconsin Electric Power Co., Wisconsin Gas, LLC	Cost Allocation, Class cost of service study
8/2019	6690-UR-126	WI	Wisconsin Industrial Energy Gp.	Wisconsin Public Service Corp.	Cost Allocation, Class cost of service study
9/2019	9610	MD	Maryland Energy Group	Baltimore Gas and Electric Co.	Cost and revenue allocation, rate design
12/2019	2019-00271	KY	Office of the Attorney General	Duke Energy Kentucky, Inc.	Return on equity
2/2020	49831	TX	Texas Industrial Energy Consumers	Southwestern Public Service Co.	Return on equity, capital structure, rate of return
2/2020	E-7. Sub 1214	NC	NC Attorney General's Office	Duke Energy Carolinas	Return on equity, capital structure, rate of return, economic conditions
2/2020	E-2. Sub 1219	NC	NC Attorney General's Office	Duke Energy Progress	Return on equity, capital structure, rate of return, economic conditions
5/2020	R-2019- 3015162	PA	Industrial Energy Consumers of Pennsylvania	UGI Utilities, Inc.	Return on equity, cost of debt, revenue allocation, rate design
6/2020	20-G-0101	NY	Multiple Intervenors	Corning Natural Gas Corp.	Cost and revenue allocation
9/2020	R-2020- 2019369	PA	AK Steel	Pennsylvania-American Water Company	Cost and revenue allocation, rate design
9/2020	20-035-04	UT	The Kroger Co.	Rocky Mountain Power	Cost and revenue allocation, rate design
10/2020	2020-000174	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Power Co.	Return on equity
3/2021	2020-00349	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Kentucky Utilities Co.	Return on equity
3/2021	2020-00350	KY	Ky. Office of the Attorney General, Ky. Industrial Utility Customers	Louisville Gas and Electric Co.	Return on equity

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21
ALLETE	High Price ($)	55.460	56.070	61.130	62.280	70.190	67.320
	Low Price ($)	49.910	50.750	51.860	56.410	58.900	62.080
	Avg. Price ($)	52.685	53.410	56.495	59.345	64.545	64.700
	Dividend ($)	0.618	0.618	0.618	0.618	0.618	0.630
	Mo. Avg. Div.	4.69%	4.62%	4.37%	4.16%	3.83%	3.89%
	6 mos. Avg.	4.26%					
Alliant Energy Corp.	High Price ($)	55.150	57.520	58.100	53.850	51.540	50.000
	Low Price ($)	48.890	51.570	52.110	47.610	47.210	45.990
	Avg. Price ($)	52.020	54.545	55.105	50.730	49.375	47.995
	Dividend ($)	0.380	0.380	0.380	0.380	0.380	0.403
	Mo. Avg. Div.	2.92%	2.79%	2.76%	3.00%	3.08%	3.36%
	6 mos. Avg.	2.98%					
Ameren Corp.	High Price ($)	81.180	85.430	86.900	79.660	77.980	74.860
	Low Price ($)	75.270	78.820	77.570	75.540	71.010	69.790
	Avg. Price ($)	78.225	82.125	82.235	77.600	74.495	72.325
	Dividend ($)	0.495	0.495	0.495	0.515	0.515	0.515
	Mo. Avg. Div.	2.53%	2.41%	2.41%	2.65%	2.77%	2.85%
	6 mos. Avg.	2.60%					
Avista Corp.	High Price ($)	37.480	36.020	39.640	40.730	41.470	40.800
	Low Price ($)	32.950	32.260	33.250	36.200	37.420	36.680
	Avg. Price ($)	35.215	34.140	36.445	38.465	39.445	38.740
	Dividend ($)	0.405	0.405	0.405	0.405	0.405	0.405
	Mo. Avg. Div.	4.60%	4.75%	4.45%	4.21%	4.11%	4.18%
	6 mos. Avg.	4.38%					
Black Hills Corp.	High Price ($)	57.330	59.720	65.360	61.900	62.500	63.910
	Low Price ($)	51.970	52.840	56.560	57.020	58.220	58.430
	Avg. Price ($)	54.650	56.280	60.960	59.460	60.360	61.170
	Dividend ($)	0.535	0.535	0.565	0.565	0.565	0.565
	Mo. Avg. Div.	3.92%	3.80%	3.71%	3.80%	3.74%	3.69%
	6 mos. Avg.	3.78%					
CMS Energy Corp.	High Price ($)	62.810	66.560	67.980	62.250	60.800	58.480
	Low Price ($)	58.630	60.840	60.010	57.350	55.790	53.700
	Avg. Price ($)	60.720	63.700	63.995	59.800	58.295	56.090
	Dividend ($)	0.408	0.408	0.408	0.408	0.408	0.435
	Mo. Avg. Div.	2.68%	2.56%	2.55%	2.73%	2.80%	3.10%
	6 mos. Avg.	2.74%					

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21
Consolidated Edison	High Price ($)	78.060	83.920	82.750	77.500	73.090	72.420
	Low Price ($)	69.300	77.640	75.920	69.280	66.920	65.560
	Avg. Price ($)	73.680	80.780	79.335	73.390	70.005	68.990
	Dividend ($)	0.765	0.765	0.765	0.765	0.765	0.775
	Mo. Avg. Div.	4.15%	3.79%	3.86%	4.17%	4.37%	4.49%
	6 mos. Avg.	4.14%					
Duke Energy Corp.	High Price ($)	89.490	94.370	98.880	94.640	94.580	95.450
	Low Price ($)	78.970	87.600	90.010	88.180	87.620	85.560
	Avg. Price ($)	84.230	90.985	94.445	91.410	91.100	90.505
	Dividend ($)	0.965	0.965	0.965	0.965	0.965	0.965
	Mo. Avg. Div.	4.58%	4.24%	4.09%	4.22%	4.24%	4.26%
	6 mos. Avg.	4.27%					
Entergy Corp.	High Price ($)	101.500	109.460	113.360	111.080	100.080	97.800
	Low Price ($)	93.290	98.670	101.310	94.700	91.780	86.800
	Avg. Price ($)	97.395	104.065	107.335	102.890	95.930	92.300
	Dividend ($)	0.930	0.930	0.950	0.950	0.950	0.950
	Mo. Avg. Div.	3.82%	3.57%	3.54%	3.69%	3.96%	4.12%
	6 mos. Avg.	3.78%					
Eversource Energy	High Price ($)	87.960	93.800	96.660	89.160	92.210	89.180
	Low Price ($)	77.000	83.600	86.400	82.170	83.950	77.740
	Avg. Price ($)	82.480	88.700	91.530	85.665	88.080	83.460
	Dividend ($)	0.568	0.568	0.568	0.568	0.568	0.568
	Mo. Avg. Div.	2.75%	2.56%	2.48%	2.65%	2.58%	2.72%
	6 mos. Avg.	2.62%					
NorthWestern Corp.	High Price ($)	53.530	56.650	62.820	59.410	59.610	61.100
	Low Price ($)	47.430	48.220	52.160	53.390	53.160	53.710
	Avg. Price ($)	50.480	52.435	57.490	56.400	56.385	57.405
	Dividend ($)	0.600	0.600	0.600	0.600	0.600	0.600
	Mo. Avg. Div.	4.75%	4.58%	4.17%	4.26%	4.26%	4.18%
	6 mos. Avg.	4.37%					
Public Service Enterprise Gp.	High Price ($)	55.400	61.890	62.150	59.260	59.630	59.990
	Low Price ($)	50.320	54.180	56.840	55.820	54.960	53.790
	Avg. Price ($)	52.860	58.035	59.495	57.540	57.295	56.890
	Dividend ($)	0.490	0.490	0.490	0.490	0.490	0.490
	Mo. Avg. Div.	3.71%	3.38%	3.29%	3.41%	3.42%	3.45%
	6 mos. Avg.	3.44%					

PROXY GROUP
AVERAGE PRICE, DIVIDEND AND DIVIDEND YIELD

		Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21
Sempra Energy	High Price ($)	125.900	134.010	137.470	132.780	127.470	127.610
	Low Price ($)	112.330	117.700	124.640	124.720	114.840	115.970
	Avg. Price ($)	119.115	125.855	131.055	128.750	121.155	121.790
	Dividend ($)	1.045	1.045	1.045	1.045	1.045	1.045
	Mo. Avg. Div.	3.51%	3.32%	3.19%	3.25%	3.45%	3.43%
	6 mos. Avg.	3.36%					
Southern Company	High Price ($)	54.700	61.260	64.930	62.210	61.720	61.520
	Low Price ($)	51.220	53.980	57.780	59.050	58.130	56.690
	Avg. Price ($)	52.960	57.620	61.355	60.630	59.925	59.105
	Dividend ($)	0.640	0.640	0.640	0.640	0.640	0.640
	Mo. Avg. Div.	4.83%	4.44%	4.17%	4.22%	4.27%	4.33%
	6 mos. Avg.	4.38%					
WEC Energy Group, Inc.	High Price ($)	100.430	103.510	106.850	96.550	93.050	89.610
	Low Price ($)	92.700	96.760	94.130	88.270	84.440	80.550
	Avg. Price ($)	96.565	100.135	100.490	92.410	88.745	85.080
	Dividend ($)	0.633	0.633	0.633	0.633	0.633	0.678
	Mo. Avg. Div.	2.62%	2.53%	2.52%	2.74%	2.85%	3.19%
	6 mos. Avg.	2.74%					
Xcel Energy	High Price ($)	72.430	74.410	76.440	69.180	67.010	65.160
	Low Price ($)	65.690	68.900	67.010	64.040	61.990	58.500
	Avg. Price ($)	69.060	71.655	71.725	66.610	64.500	61.830
	Dividend ($)	0.430	0.430	0.430	0.430	0.430	0.430
	Mo. Avg. Div.	2.49%	2.40%	2.40%	2.58%	2.67%	2.78%
	6 mos. Avg.	2.55%					
Monthly Avg. Dividend Yield		3.66%	3.48%	3.37%	3.48%	3.52%	3.63%
6-month Avg. Dividend Yield		3.53%					

Source: Yahoo! Finance

PROXY GROUP
DCF Growth Rate Analysis

	Company	(1) Value Line DPS	(2) Value Line EPS	(3) Zacks	(4) Yahoo! Finance
1	ALLETE	4.00%	4.50%	7.00%	7.00%
2	Alliant Energy Corp.	7.00%	5.50%	5.90%	5.80%
3	Ameren Corp.	5.00%	6.00%	6.80%	6.60%
4	Avista Corp.	4.00%	1.00%	5.40%	5.40%
5	Black Hills Corp.	6.00%	3.50%	5.20%	4.68%
6	CMS Energy Corp.	7.00%	7.50%	6.90%	7.26%
7	Consolidated Edison	3.00%	2.50%	2.00%	1.77%
8	Duke Energy Corp.	2.50%	5.00%	4.90%	4.49%
9	Entergy Corp.	4.00%	3.00%	5.20%	5.20%
10	Eversource Energy	6.00%	6.50%	6.50%	6.51%
11	NorthWestern Corp.	4.00%	2.50%	3.70%	3.20%
12	Public Service Enterprise Gp.	4.00%	5.00%	3.00%	3.00%
13	Sempra Energy	7.50%	11.00%	7.30%	8.50%
14	Southern Company	3.00%	3.50%	5.00%	4.36%
15	WEC Energy Group, Inc.	6.50%	6.00%	6.10%	6.14%
16	Xcel Energy	6.00%	6.00%	6.10%	6.20%
	Averages	4.97%	4.94%	5.44%	5.38%
	Median	4.50%	5.00%	5.65%	5.60%

Sources: Value Line Investment Survey, Dec. 11, 2020; Jan. 22 and Feb. 12, 2021
Yahoo! Finance and Zacks growth rates retrieved Feb. 15, 2021
Note: Yahoo! Finance growth rate was substituted for the Zacks growth rate for ALLETE, which was not available

PROXY GROUP
DCF RETURN ON EQUITY

	(1) Value Line Dividend Gr.	(2) Value Line Earnings Gr.	(3) Zack's Earning Gr.	(4) Yahoo! Earning Gr.	(5) Average of All Gr. Rates
Method 1:					
Dividend Yield	3.53%	3.53%	3.53%	3.53%	3.53%
Average Growth Rate	4.97%	4.94%	5.44%	5.38%	5.18%
Expected Div. Yield	3.61%	3.61%	3.62%	3.62%	3.62%
DCF Return on Equity	***8.58%***	***8.55%***	***9.06%***	***9.00%***	***8.80%***
Method 2:					
Dividend Yield	3.53%	3.53%	3.53%	3.53%	3.53%
Median Growth Rate	4.50%	5.00%	5.65%	5.60%	5.19%
Expected Div. Yield	3.60%	3.61%	3.62%	3.62%	3.62%
DCF Return on Equity	***8.10%***	***8.61%***	***9.27%***	***9.22%***	***8.81%***

PROXY GROUP
Capital Asset Pricing Model Analysis

30-Year Treasury Bond, Value Line Beta

Line No.		Value Line
1	Market Required Return Estimate	8.27%
2	Risk-free Rate of Return, 30-Year Treasury Bond	
3	Average of Last Six Months	1.74%
4	Risk Premium	
5	(Line 1 minus Line 3)	6.53%
6	Comparison Group Beta	0.88
7	Comparison Group Beta * Risk Premium	
8	(Line 5 * Line 6)	5.78%
9	CAPM Return on Equity	
10	(Line 3 plus Line 8)	7.51%

Duff and Phelps Normalized Risk-free Rate

1	Market Required Return Estimate	8.27%
2	Duff and Phelps Normalized Risk-free Rate	2.50%
3	Risk Premium	
4	(Line 1 minus Line 2)	5.77%
5	Proxy Group Beta	0.88
6	Proxy Group Beta * Risk Premium	
7	(Line 4 * Line 5)	5.10%
8	CAPM Return on Equity	
9	(Line 2 plus Line 7)	7.60%

PROXY GROUP
Capital Asset Pricing Model Analysis

Supporting Data for CAPM Analyses

30 Year Treasury Bond Data

	Avg. Yield
September-20	1.42%
October-20	1.57%
November-20	1.62%
December-20	1.67%
January-21	1.82%
February-21	2.33%
6 month average	1.74%

Source: www.federalreserve.gov

Value Line Market Return Data:

Value Line Projected 3-5 Yr.	
Median Annual Total Return	8.00%
Average Annual Total Return	8.54%
Average	8.27%

Source: Value Line Investment Analyzer, February 12, 2021

Comparison Group Betas:

	Value Line
ALLETE	0.85
Alliant Energy Corp.	0.85
Ameren Corp.	0.85
Avista Corp.	0.95
Black Hills Corp.	1.00
CMS Energy Corp.	0.80
Consolidated Edison	0.75
Duke Energy Corp.	0.85
Entergy Corp.	0.95
Eversource Energy	0.90
NorthWestern Corp.	0.95
Public Service Enterprise Gp.	0.90
Sempra Energy	1.00
Southern Company	0.95
WEC Energy Group, Inc.	0.80
Xcel Energy	0.80
Average	0.88

Source: Value Line Investment Survey

PROXY GROUP
Capital Asset Pricing Model Analysis
Historic Market Premium

	Arithmetic Mean	Adjusted Arithmetic Mean
CAPM with Current 30-Year Treasury Yield		
Long-Term Annual Return on Stocks	12.10%	
Long-Term Annual Income Return on Long-Term Treas. Bonds	4.90%	
Historical Market Risk Premium	7.20%	6.17%
Proxy Group Beta, Value Line	0.88	0.88
Beta * Market Premium	6.37%	5.46%
Current 30-Year Treasury Bond Yield	1.74%	1.74%
CAPM Cost of Equity, Value Line Beta	**8.11%**	**7.19%**
CAPM with D&P Normalized Risk-Free Rate		
Historical Market Risk Premium	7.20%	6.17%
Proxy Group Beta, Value Line	0.88	0.88
Beta * Market Premium	6.37%	5.46%
D&P Normalized Risk-Free Rate	2.50%	2.50%
CAPM Cost of Equity, Normalized Risk-Free Rate	**8.87%**	**7.96%**

Source: Duff and Phelps Cost of Capital Navigator
2020 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 2, Exhibit 2.3,
2020 Cost of Capital: Annual U.S. Guidance and Examples, Chapter 3, Exhibit 3.6

McKENZIE RISK PREMIUM MODEL

February 25, 2021 Average Utility Bond Yields

Current Equity Risk Premium		
(a)	Avg. Yield over Study Period	8.10%
(b)	Feb. 25, 2021 Average Utility Bond Yield	3.39%
	Change in Bond Yield	-4.71%
(c)	Risk Premium/Interest Rate Relationship	-0.4210
	Adjustment to Average Risk Premium	1.98%
(a)	Average Risk Premium over Study Period	3.76%
	Adjusted Risk Premium	5.74%
Implied Cost of Equity		
(b)	Feb. 25, 2021 Average Utility Bond Yield	3.39%
	Adjusted Equity Risk Premium	5.74%
	Risk Premium Cost of Equity	9.13%

Notes:
(a) Mr. McKenzie Exhibit No. 8, page 1 of 4.
(b) Feb. 25, 2021 average utility bond yield from Moody's Credit Trends
(c) Mr. McKenzie Exhibit No. 8, page 1 of 4.